National Reconstruction Fund consultation paper

University of Tasmania Submission

February 2023

Acknowledgment of Country

The University of Tasmania pays its respects to elders past and present and to the many Aboriginal people that did not make elder status and to the Tasmanian Aboriginal community that continues to care for Country. We acknowledge the profound effect of climate change on this Country and seek to work alongside Tasmanian Aboriginal communities, with their deep wisdom and knowledge, to address climate change and its impacts.

The Palawa people belong to one of the world's oldest living cultures, continually resident on this Country for over 40,000 years. They have survived and adapted to significant climate changes over this time, such as sea-level rise and extreme rainfall variability, and as such embody thousands of generations of intimate place-based knowledge.

We acknowledge with deep respect that this knowledge represents a range of cultural practices, wisdom, traditions, and ways of knowing the world that provide accurate and useful climate change information, observations, and solutions.

The University of Tasmania likewise recognises a history of truth that acknowledges the impacts of invasion and colonisation upon Aboriginal people, resulting in forcible removal from their lands.

Our island is deeply unique, with cities and towns surrounded by spectacular landscapes of bushland, waterways, mountain ranges, and beaches.

The University of Tasmania stands for a future that profoundly respects and acknowledges Aboriginal perspectives, culture, language, and history, and a continued effort to fight for Aboriginal justice and rights paving the way for a strong future.

Executive Summary

The National Skills Commission (2022)[1] projects that over the five years to November 2026, 91.7% of new jobs will require post-school education, and more than 60% of the total projected employment growth will be in high skill level jobs. The National Reconstruction Fund (NRF) is a key intiative to integrate current and future industries that add new/more value through new products, processes and services with the people in these industries and the communities they serve.

Education is the vehicle through which knowledge and skills are strengthened. It helps to overcome poverty, injustice, and inequality, promoting human rights while benefiting our environment, health and economic outlook. With higher rates of education, employment rates increase, along with productivity and average incomes. Crime and substance abuse drop. Data shows we become healthier. We live longer. More knowledge leads to more sustainable environmental management. Further, through education, we can create safe spaces for learning, personal development, and development for all.

Universities will play a key role in delivering the objectives of the NRF, at the very beginning of the knowledge-generating innovation pipeline, through the creation of industry-led knowledge, innovation and skills to drive economic growth and prosperity. In addition to generating new jobs, investment, exports and productivity gains, deep collaboration with industry will also enable co-design of curricula/training modules and expansions of work integrated learning to ensure a job-ready workforce.

We propose achieving this through:

- Directing the NRF to prioritise projects that recognise Australia as a knowledge-generating nation to meet its workforce needs, and ensure we have the infrastructure required to leverage our natural and competitive strengths across our regions so they are prosperous, equitable and sustainable

- Recognising the importance of universities at the beginning of the knowledge-generating innovation piplene and using the NRF to mandate investments that strengthen incentives for industry-based research that delivers outcomes in areas of high skill demand, innovation and enterprise creation

- Enhancing sustainable economic growth and innovation in regions by using the NRF to form partnerships with Small to Medium Enterprises that lift their productivity and growth

- Exploring the development of innovative schemes such as a version of social bonds to fund industry, government and university applied research partnerships that deliver significantly improved and valuable health, education, employment and other social and environmental outcomes

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[1] https://labourmarketinsights.gov.au/our-research/employment-projections/

We provide access and expertise for and from Tasmania

As the sole University based in Tasmania, we are responsible for educating much of the future workforce that Tasmanians will rely upon during their life, such as teachers, farmers, lawyers, paramedics, nurses, doctors, engineers, and social workers, just to name a few. It is therefore imperative that we work closely with industry to deliver what is required to meet the workforce needs of our community and create high quality, sustainable industries and jobs.

Despite the attractions of living in Tasmania and strong population growth in recent years, we face serious challenges in increasing employment and participation both now and into the future. Tasmania has a disproportionately high number of people facing disadvantage in all its forms, including those living in rural and remote areas. First Nations people have unique and complex health challenges and the lowest digital literacy in Australia. Tasmania has the highest proportion of people living in the most disadvantaged areas (37%)[2]. We have the highest rate of disability (26.8% compared with 17.7% nationally),[3] and we have some of the poorest health outcomes in the country. Tasmania also has the lowest proportion of people with a university degree at 16.2%, compared to 22% nationally[4], and 48% of adults are functionally illiterate[5].

Central to what makes these challenges hard to address are low levels of educational attainment in Tasmania. Currently, Tasmania has the highest proportion of adults with only year 11 education outcomes or below. This poor educational attainment magnifies our economic challenges, with unemployment in Tasmania consistently higher than nationally at 3.7%, compared to the national 3.4% for July 2022, and we have the lowest level of workforce participation at 60.6% compared with the national average of 66.4%. Our geographic remoteness adds further complexity, with Tasmania being the least digitally inclusive state, recording an average score of 66 compared to the national average of 71.1.[6]

The University of Tasmania (UTAS) also has the privilege and responsbility of meeting the research needs across all regions of Tasmania, and we are deeply committed to this as part of our mission. At the same time, we provide unique, distinctive and hard to replicate capability that contibutes to meeting the needs of Australia and the world. These Tasmanian, national and global research impact contributions solve pressing problems and drive innovations that will feed into NRF projects. Integrating a complex ecosystem with mulitple stakeholders, industry, government, and communities requires a coordinated approach to transformation. We have a long and successful history of utilising the power of coordinated transformation with new infrastructure to deliver our mission to increase access to education and increase skills and knowledge across all regions. Most recently, we have delivered our $52M campus in West Park, Burnie which has been designed to support distinctive offerings, efficient sustainable operations and impact in our teaching and research operations. Delivering our mission to address these challenges has allowed our university to develop expert teaching and support practices to regional, remote and low SES cohorts, attracting more of these students than the average university, with higher number of:

- regional and remote domestic students (61% vs national average of 24%),

- low SES students (27% vs national average of 18%), and

- mature age students (~80% of our total student cohort), compared to 60% of other universities that teach predominately school-leavers

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[2] ABS 2016 Census, Index of Relative Socio-Economic Disadvantage
[3] Survey of Disability, Ageing and Carers 2018
[4] https://www.abs.gov.au/census/find-census-data/quickstats/2021/6
[5] ABS (2018), 2016 Census QuickStats
[6] https://www.digitalinclusionindex.org.au/dashboard/National.aspx

Our innovative campus designs has also enabled us to tailor our offerings to meet areas of high need in Tasmania, such as key occupations with skill shortages, and this is delivering strong employment outcomes. For example, our Graduate Outcome Survey results from 2017-2021 show:

- 100% employment outcomes for UTAS graduates in Rehabilitation Studies

- Over 96% employment outcomes for UTAS Pharmacy, Agriculture and Medical graduates

- Over 90% employment for teachers, process and resource engineers, nursing and allied health, behavioral science and architecture graduates

These outcomes are compared to the national undergraduate bachelor domestic employment rate of 87.9% (2017-2021). This demonstrates that we have been able to increase post-school participation and produce highly employable graduates who will be the needed workforce to drive the intent of the NRF. And we seek to do more of this.

Prioritise projects that recognise Australia as a knowledge-generating nation to meet its workforce needs, and creates the infrastructure required to leverage the natural and competitive strengths in our regions

As we shift towards a knowledge economy, we will see the reconstruction and transformation of a larger, better trained, and more productive workforce. To successfully achieve this will require a greater focus on innovation, productivity, and inclusion, which can only be achieved by building investment in innovation ecosystems, embracing and accelerating productivity growth, and developing regional resilience.

For real advantage to be constructed, initiatives such as the NRF must focus on the distinctive assets and resources in place, including natural assets, local capabilities, and already existing competitive advantage. In many cases, this will require co-designed research through collaborative partnerships with industry and based on an understanding of both the opportunities and gaps that need to be addressed to create regional growth, productivity, and innovation.

By defining upfront the areas where the greatest economic impact can be achieved, bringing a commercialisation lens into consideration early in the process, and facilitating access to relevant expertise, facilities, networks and funders, projects within the NRF will be able to deliver both new knowledge and enhanced skills to workforces in the regions they are needed.

In December 2022, as a result of delivering industry-led infrastructure to areas of highest need, the North West Coast welcomed a new team of front-line healthcare professionals to the region, the first cohort to begin and finish their degree in the region in which they reside.

This offering was delivered following completion of the $52 million co-designed West Park campus in Burnie. The campus, designed with input from the community, students and staff, and funded through contributions from Local, State and Federal Governments as well as the University, has enabled training and skill building to be provided in the areas of highest need.

"The School of Nursing introduced the full degree program to the region in 2020 to help increase access and opportunity for people on the North West Coast to study and train locally." Professor Christine Stirling, Head of the School of Nursing, said.

"The move also helped to build health workforce capacity at a local level, where our graduates will contribute to supporting local healthcare in the community across a range of sectors."

Strengthen incentives for industry-based research that delivers outcomes in areas of high skill demand, innovation and enterprise creation

Beyond addressing the specific skills-needs of each region, opportunities for value-add, growth and diversification in each of the priority areas exists through supporting and incentivising innovation and enterprise creation which delivers in areas of high skill needs.

The types of opportunities and how these will be progressed will vary by industry structure and the distinctive areas of competitive advantage that exist. The NRF therefore needs to be agile and allow for the flexibility to drive positive return on investment, evolve commercial operations in new, high value markets in ways that best suit that industry. In Tasmania, some examples of key focus areas would include:

- Agriculture and agtech - Contributing to the State's agenda to increase the value of Tasmanian agriculture to $10b by 2050 through digital transformation via Industry 4.0 Testlab: Integrity of Food, enhancing farmer resilience through the TASAg Innvoation Hub, and other projects that create new value for agricultural enterprises and supporting farmer innovation

- Timber and wood - Building further capability to take advantage of opportunities that exist to cement the position of Tasmania as the national leader in this sector, and supporting industry to move towards 'Forest Industries 4.0,' a transformation of forest product industry technologies, systems and processes to optimise management decisions to drive growth, competitiveness, productivity and social acceptance

- Defence - we continue our strategic partnership with the Defence Science and Technology Group by providing defence capability for sovereign need and commercialisation opportuntites in Maritime Engineering, Oceanography, and Food and Nutrition via the Australian Maritime College, Institute for Marine and Antarctic Studies and Centre for Food Innovation (University of Tasmania, Defence Science and Technology Group and CSIRO) to connect research with industrial implementation opportunities, and through the Tasmanian State Government to advance industry identified opportunities

Industry-led investment into the Tasmanian Institute of Agriculture's Dairy Research Facility is helping improve the sustainability of the dairy industry. Funded by the University of Tasmania, the Tasmanian Government and the Tasmanian Institute of Agriculture (TIA), the upgrades at the Dairy Research Facility have been overseen by Dairy Australia, to facilitate research that will inform industry in how to maximise yield and production, and improve profitability, so farmers can make informed decisions along with the processability of their milk.

"With this new project, Dairy Australia's partnership with TIA will continue delivering dairy research and extension services that will investigate and promote dairy farming practices that allow dairy farms and their communities to thrive in the current changing environment," said Dairy Australia's Technical Lead in Feedbase and Nutrition, Rodrigo Albornoz.

"This information is exceptionally important for the industry," says Elders State Agronomist David Squibb, who is one of the members of the projects steering committee. *"If we are able to be a part of this information moving forward, being able to then deliver the results from the farmlet trials, it can only assist the Australian and importantly, the Tasmanian industry further."*

Enhance sustainable economic growth and innovation in regions through partnerships with Small to Medium Enterprises that lift productivity and growth

Small to Medium Enterprises (SMEs) are vitally important to Australia, contributing more than half our national GDP, employing 68% of Australia's population and making up 99.8% of all Austrialian businesses, including 97% of all businesses in Tasmania[7]. Many of these businesses are located in regional areas, for example 57% of SMEs in Tasmania are located outside of Hobart. It is essential therefore that the NRF be structured to serve not just large metropolitan contexts, but also enable our regional enterprises to capitalise on the opportunities to grow and innovate.

To ensure sustainable economic growth is enabled in our regions, the NRF investment mandate should encourage partnerships between large corporations and regional SMEs that focus on the design needs of the SMEs to lift productivity in the sector. This may, for example, include addressing shared opportunities in industry value chains (e.g., addressing bottlenecks in distribution networks), developing new types of products (e.g., repurposing waste streams into new products) or new processes to address inefficiency in common production practices (e.g., redesigning food processing facilities to make use of new technologies). These would be explored with the explicit intention of creating opportunities that could be utilised by SMEs across the state to increase productivity, demand, and exports.

For Tasmania, which has the largest proportion of regionally located SMEs in Australia, this would mean prioritising industries such as agriculture, forestry and construction in partnerships with large organisations such as the University of Tasmania to co-design and deliver the technological advances that will enable scalable and sustainable growth.

Under the Federal Government's Regional Research Collaboration Program, the University of Tasmania has partnered with local businesses to solve regional and global challenges in energy, agriculture and health. The three-year project focuses on building industry expertise in three key areas:

- Using microwave assisted thermal sterilisation (MATS) technology to make shelf-stable foods that can be stored without refrigeration while maintaining quality, providing opportunities to boost regional capabilities and food exports for local industries

- Value-adding of plantation wood as a sustainable, renewable building material and reduction in the carbon intensity of the construction sector; and

- Converting wood-product residues to bioproducts which can be used as biodegradable, new generation sustainable plastic alternatives and gain capacity in advanced extraction and separation methods to create bio-based chemicals and fuels.

"Food and wood products are areas of strategic growth for Tasmania and regional Australia, contributing significantly to the annual Tasmanian economy," project lead Associate Professor O'Reilly Wapstra said. *"A thriving and sustainable sector requires continued innovation to locally value-add and diversify products and markets. This innovation is underpinned by high-impact research and a workforce that is connected to advances in technology and trained graduates."*

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[7]https://www.business.tas.gov.au/__data/assets/pdf_file/0004/369382/Business_Statistics_Snapshot_June_2 021.pdf

Explore the development of innovative schemes to fund applied research partnerships that deliver significantly improved and valuable health, education, social and environmental outcomes

While enhancing the skills and knowledge of the current and future workforce is a driving force behind the implementation of the NRF, it is important that other factors as well as economic value are considered as the funds are distributed.

Improving labour market outcomes in communities of high disadvantage is not as simple as creating more jobs. Regional and remote communities often have reduced aspirations towards employment and higher education, and consequently lower professional skill levels, lower earning capacity over a lifetime, and are less likely to report an intent to study. Adding to this dilemma, industries are frequently faced with the challenge of recruiting expertise from cities into these areas, leading to regular and high staff attrition and no retained knowledge and skills in the regional and remote communities that so desperately need them.

Resolving these challenges demands a nuanced, place-based approach to enhancing aspirations, creating employment and educational pathways, and ensuring support to enable study is available, thereby empowering communities to be part of developing and sustaining their regions for the long run.

By considering the development of innovation schemes such as social bonds, NRF infrastructure projects will deliver not only employment outcomes but contribute to health, environmental, education and other social benefits. A scheme of this kind would encourage collaborations between education institutes such as universities and TAFE, industry and government to deliver applied research aimed at delivering societal outcomes. Return on Investment measures should focus on societal impact, and could leverage existing frameworks such as the United Nations Sustainability Development Goals and the Australian Research Council Engagement and Impact frameworks which focus on the end-user economic, social environmental and cultural benefits.
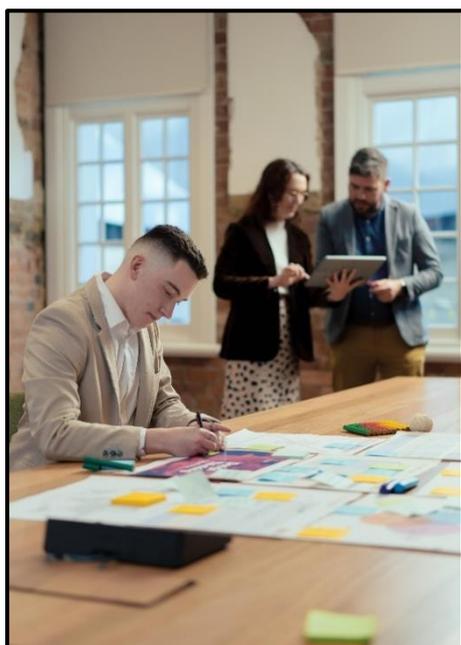
The Tasmanian Government, in partnership with industry and the University, has invested more than $15 million into the creation of the Regional Jobs Hub Network to coordinate efforts to increase employment, training and workforce participation in our regions.

This model has been proven to work, with the initial pilot delivering more than 2,000 job outcomes and a better joined up approach between service providers and funders.

The model has been shared as an exemplar approach to community led work through Stronger Places, Stronger People agenda.