Innovative Research Universities

IRU Submission - Enhancing Research Outcomes from Australia's Regional, Rural and Remote Universities

Research excellence in Australia's regional, rural and remote universities

1. What does research success look like for universities in RRR areas?

Research success in university campuses outside major city centres is defined no differently to success elsewhere. Regional campuses may look more towards their local community and industry to support their research, but this as such does not make the research worthy by virtue of having a stronger local relevance. Regionally-based researchers advance knowledge following the same international standards of scientific peer review for the benefit of the scholarly and broader community. Regional engagement is part of their excellent research, not an alternative to it.

Universities are required to be engaged in research across multiple fields, with teaching informed by scholarship. Regionally based students have equal rights to be taught by academics engaged in research. The relatively lower population density in regional areas and distance from major research infrastructure and centres means regional universities may not have the same density or breadth of world-class research across fields, but its success is not defined in regional terms. Key research agendas are set and evaluated within international disciplinary networks. Defining regional research success differently would disadvantage regional researchers and undermine the attractiveness and reputation of regional campuses.

Good regionally focussed research does pose back the challenge that the major research assessments and measures recognise its achievements.

Recommendation

1. Research success for universities in RRR areas is defined by international standards for excellence that should recognise the value of locally driven research questions for their broader implications.

2. What role does research excellence play in the overall success of universities in RRR areas?

Research excellence is crucial to the long-term success of all Australian universities. Research excellence determines how research income and block grants are distributed across the sector. Research excellence helps researchers attract private sources of funding and students. This is particularly important for international students whose revenue is critical for the university research workforce. Research excellence and performance also underpins the majority of university rankings and is therefore a major influencer on the decisions of prospective international students. In a period of capped public funding for teaching domestic students and minimal growth in competitive research grants, research excellence is the main mechanism by which Australian universities can expand their research capacity.

University research is financed in three main ways. Firstly, there are the direct and earmarked schemes for specific purposes. They include grants from the ARC and NHMRC (Category 1) and other

research income for specific research tasks, including government (Category 2), industry (Category 3) and Cooperative Research Centre (CRC, Category 4) funding. These are generally allocated on a competitive basis with research excellence and track record as key criterion (either directly in Category 1 grants, or indirectly for Categories 2-4). These grants often support research only staff.

Around 13% of all Category 1 funding goes to researchers in regional campuses. This is based on the 13 universities with main campuses in regional Australia (as identified by ACOLA), plus a proportion of Deakin and Griffith's research income attributed based on the share of domestic students taught in regional campuses (40.3% at Deakin and 39.9% at Griffith). La Trobe University and Flinders also have regionally based research activity, but not estimated here. Regional universities perform somewhat better on Category 2-4 funding at around 14% of the total.

Category 1 funding comprises half of the inputs into the Research Block Grants (RBG), the second main research funding source. RBG is important because it provides discretionary spending, allowing universities to decide who and where to invest their resources. Regional university share of RBG is 14%, comparable to research income. While Category 1 is the largest single input to RBG, it has a disproportionate impact because it comprises less than half of all direct research funding (40% of total). Each additional dollar has a greater impact on RBG funding compared to Categories 2-4. Table 1 presents the research income and Research Block Grant (RGB) results, providing a crude guide to the research income not based in the state capitals and Canberra.

Table 1. Research Income (2017) and Research Block Grants (RBG) by Region

Region	***Category 1***	***Category 2***	***Category 3***	***Category 4***	***Total***	***RBG***
Major Cities	*$1,385m*	*$839m*	*$1,076m*	*$106m*	*$3,406m*	*$1,652m*
Regional & Remote	*$182m*	*$141m*	*$134m*	*$24m*	*$480m*	*$239m*
Griffith + Deakin (40%)	*$20m*	*$18m*	*$17m*	*$2m*	*$56m*	*$30m*
National Total	***$1,586m***	***$997m***	***$1,227m***	***$132m***	***$3,942m***	***$1,921m***
R&R % of National (Inc. Deakin & Griffith)	***13%***	***16%***	***12%***	***20%***	***14%***	***14%***

Universities also draw on a portion of Commonwealth Grants Scheme (CGS) funding, student revenue and other "general university funds" to support research. These are the prime basis to support academic staff time for research for staff in teaching and research (T&R) roles. There is no Government funding scheme explicitly for this. The surplus from international student revenue is important for university driven investment to build research excellence and distinctiveness. International and postgraduate students enrol at universities in part because those universities are research bodies. Some contribution to that research from international students is reasonable.

The strongest source for supporting research excellence in regional areas is through additional discretionary revenue, either to support new teaching and research roles, or further develop the research capability of existing staff.

Increasing the RBG for all universities or shifting the balance between RBG and competitive grants may be beneficial to regional universities because the regional university research workforce tends

to be more engaged in ongoing contracts in combined teaching and research positions, rather than specialised short-term research roles funded through Category 1 grants.

A parallel regional loading payment that targets university research outcomes outside of the large cities may increase the spread of support for research across Australia. Continued support for international students to study in regional campuses (e.g. scholarships) also helps increase discretionary funds for regional research and pathways into higher degree by research programs.

Recommendations

2. Increase block grant funding to support further growth in regionally relevant research;
3. Introduce regional loading that targets university research outcomes outside of the large cities;
4. Continued support for international student recruitment.

3. What strategies have been implemented to boost research excellence in RRR universities? What has and has not worked?

It is understandable that governments will identify strategic research priorities and expect researchers to coalesce behind these priorities following their formal endorsement. This type of 'top-down' management risks ignoring the long-term impact of research, the contribution of researchers in parallel and enabling fields, the inter-disciplinary nature of many contemporary research challenges and the motivations of individual researchers. This is one reason why the IRU has advocated for maintaining a separate or indirect relationship between the strategically-oriented National Science and Research Priorities and excellence-based National Competitive Grants Scheme. Both serve important, but distinct purposes.

Regional universities face the addition risk of externally imposed regionally-oriented strategic priorities. Due to the more limited breadth of research in regional areas, this carries the risk of over-defining universities by the regions in which they happen to be located, constraining them to specialise in narrow areas of direct local relevance or historical importance. Overall, the region should inspire the university and its staff, but their research should not be limited to the needs of regions in which they thrive.

There needs to be support for bottom up 'smart specialisation strategy' processes that engage with universities, industry and the broader community. These are better enabled to achieve the dual goals of excellent research in the eyes of scientific peers, and engagement with problems of relevance to the local community. The European Union's European Structural and Investment Funds 2014-2020 now require national or regional innovation strategies to be built around this approach. In Australia, the Gippsland Smart Specialisation Strategy, a partnership between The University of Melbourne, RMIT and the Latrobe Valley Authority/Victorian Government, is attempting to adapt and implement the EU practice in the Victoria Gippsland region. This project may offer insights into the applicability of smart specialisation in regional Australia.

Recommendation

5. Consider bottom up smart specialisation strategies for excellent research on problems of local relevance.

4. How can universities in RRR areas best address the 'breadth versus depth' challenge described above, with particular consideration to attracting and retaining high-calibre staff?

The *National Regional, Rural and Remote Tertiary Education Strategy* argues that low population density in regional areas makes it unsustainable for providers to "provide a large suite of academic programs" due to "thin markets" or limited scale for student demand. Similar issues exist for breadth of research in regional areas.

Regional universities have two main avenues for supporting research excellence from their staff. Grants supporting research specialists, often in existing areas of strength, or broader-based support for staff in teaching and research roles.

The current system of competitive grants supports high quality research in some areas in regional universities, but an over-reliance on this mechanism hinders the ability for smaller institutions to develop a critical mass in other areas. This is particularly the case fields where research funding is more limited and student numbers may not be sufficient to fund ongoing teaching and research appointments. With less population density, demand for teaching purely within one's area of research specialisation is more limited. This limits the potential to develop a critical mass of research specialists within single areas without considerable university support or external funding. The thinner supply of PhD qualified people in regional areas also makes short-term contract teaching specialists positions less viable to fill gaps in teaching demand. Even when external funding is available, attracting research specialists to regional areas on short-term contracts may be more difficult, particularly for dual income families.

These factors contribute towards regional universities tending to have a higher proportion of staff on combined teaching and research (T&R) roles, compared to universities in major cities. At the 13 regional universities plus Deakin and Griffith, 73% of academic staff in research roles are in T&R functions compared to 61% in major cities. Combined T&R roles tend to be ongoing contracts funded through student and CGS revenue. Specialised research only (RO) roles, more common in major cities, are typically funded through limited-term contracts and direct research income. As shown in Table 2, regional university academic research staff comprise 19% of the sector, but 22% of all T&R university staff and 14% of RO staff in 2017 (FTE). This suggests a relatively stronger potential for developing excellence through support of existing staff in T&R roles.

Table 2. Academic staff (FTE) by Function in 2017

Region	RO	T&R	Total
Major Cities	13,764	21,546	35,375
Regional & Remote	2,026	5,353	7,375
Griffith + Deakin (40%)	273	775	1,048
National Total	16,063	27,674	43,798
R&R % of National (inc. Deakin & Griffith)	14%	22%	19%

Teaching and research staff in regional areas likely require a broader range of teaching capabilities. While this may provide some additional challenges for regional universities and their staff, including

a greater focus on staff professional development, it may also prove an attractive alternative to the dominant specialised model in larger metropolitan universities. In terms of recruitment and retention of academic staff, most data suggest regional universities are attractive employers.

The 2018 AHEIA HR Benchmarking results for a group of regional universities (RUN members plus CDU) indicates average staff turnover of 14% for academic staff in non-casual positions, identical to the sectoral average. For professional staff, these regional universities had slightly lower turnover rates compared to the sector (14% versus 18%). Reasons for staff turnover are also similar at regional universities, with around half of all academic turnover voluntary (8%). Once regional universities have recruited staff, it appears universities do not face difficulties retaining them.

The AHEIA HR Benchmarking results for recruitment also do not show problems for regional universities. Academic positions advertised at this group of regional universities in 2018 received, on average, 15 applicants per vacancy. This compares favourably with an average 8 applicants per vacancy across the sector. Regional universities also take slighter fewer days (on average) between first advertisement and appointment for academic positions (42 versus 46 days for the sector). Even the total time to commencement (including relocation time) is slightly less (124 versus 136 days), despite the greater likelihood for relocation. However, regional universities do have a greater tendency to recruit internally for academic positions (38% versus 32%), which may counterbalance this. The HR data does not necessarily mean regionally based universities are recruiting or retaining their preferred staff, but it does suggest regional universities are attractive employers.

In terms of the highly cited researchers (i.e. those who have a disproportionate impact on university rankings), regional universities tend to have fewer and these staff are often concentrated in a narrow range of institutions and fields of research. The Clarivate Analytics Highly Cited Researchers 2018 list contained 248 Australian primary affiliated researchers, of which 231 were affiliated to universities. The 13 regional universities identified by ACOLA hosted 28 highly cited researchers (12%), somewhat less than their share of total research staff in Table 2 (17%). The results were also skewed by Wollongong (11), JCU (7) and Tasmania (5). The more limited scope for specialisation in regional universities may be a disadvantage in these important metrics which feed into university rankings. Rhetoric surrounding the performance of regional universities in university rankings should be cognisant of the skewed effects of a small number of highly cited researchers.

Recommendation

6. Greater support for research development of existing T&R staff in regional areas.

Harnessing Australia's Indigenous research capability

5. What steps can be taken to increase the Aboriginal and Torres Strait Islander research workforce, and encourage research on Aboriginal and Torres Strait Islander communities and issues?

IRU members employ 17% of Australia's university Aboriginal and Torres Strait Islander staff and are committed to a whole-of-university approach towards increasing the workforce and research on Aboriginal and Torres Strait Islander issues. As articulated in our IRU Statement of Intent, this is underpinned by determined leadership from Vice-Chancellors and their Senior Executives, with strategies developed in consultation with Aboriginal and Torres Strait Islander peoples.

Taken directly from the IRU Statement, the most direct mechanisms to increase Aboriginal and Torres Strait Islander research and research workforces are commitments to:

- increase the number of Aboriginal and Torres Strait Islander peoples moving into and completing postgraduate study and research; and
- create a study environment that encourages Aboriginal and Torres Strait Islander post graduate students to engage in collaborative research with local communities that can provide evidence of impact, progression and change in their state of well-being and development.

One of the most obvious transformations has been the move beyond the Indigenous Support Centre being the sole focus of Indigenous activity. These centres still play an integral role, but the scope of activity is now focused on a whole of university approach and better use of community engagement.

It is also important that Aboriginal and Torres Strait Islander research receives recognition in research measurement and evaluations, and become embedded into other research fields. Recent national initiatives to increase recognition include:

- the ARC's Engagement and Impact 2018 exercise, which included dedicated classifications for the economic, environmental, social and cultural impacts of indigenous research; and
- the Australian Government's 2018 *Research Infrastructure Investment Plan* which includes a specific scoping dedicated to indigenous platforms for Humanities, Arts and Social Sciences.

The IRU also supports the recommendations of the National Aboriginal and Torres Strait Islander Higher Education Consortium (NATSIHEC) to include in the Australian and New Zealand Standard Research Classification:

- a dedicated 4-digit group for Indigenous Studies under Division 16 Studies in Human Society, and
- development of 7 six digit fields relevant to the Closing the Gap targets.

Each of the above initiatives seek to raise the recognition of Indigenous knowledges and its contribution to research across all fields. The challenge is to capitalise on the knowledge generated to directly support Aboriginal and Torres Strait Islander researchers and research.

Recommendation

7. Increase the number of Aboriginal and Torres Strait Islander peoples moving into and progressing in postgraduate research;
8. Support whole of university approaches towards Aboriginal and Torres Strait Islander leadership.

6. How can universities in RRR areas better engage with local Indigenous communities through research?

Engagement with local Indigenous communities through research must be part of the whole-of-university approach towards harnessing Indigenous research capability, supported by the national system for funding and evaluating research.

At a national level, this includes explicit funding for research translation into Australia's regions and stimulating greater involvement with community organisations. One practical example is in the Medical Research Future Fund where the IRU has advocated for clinical research fellowships that emphasise social translation of research through collaboration with community organisations, and

include broad definitions of professionals eligible for funding support (including public health, health service professionals and others who are not traditional MBBS practitioner-based researchers).

At an institutional level, research by Aboriginal and Torres Strait Islander researchers at UTS and WSU (Professor Michelle Trudgett, PVC Aboriginal and Torres Strait Islander Education, Strategy and Consultation) provides preliminary support that Indigenous agency is gaining authority "at the heart of institutional culture". However, the work supporting graduate research and advising on ethical research remains hidden in the margins of Indigenous student support centres, with too many lone voices on non-Indigenous committees. In the authors' view, greater Indigenous representation and visibility is required to meet the goals of University Australia's Indigenous Strategy 2017–2020.

Recommendation

9. Emphasise social translation of research in research funding, including broad definitions of professionals eligible for funding support.

Barriers faced by universities in regional, rural and remote areas

7. What barriers exist to universities in RRR areas improving their research outcomes?

It is well documented that the costs of higher education provision are greater in regional areas, including infrastructure, information technology, and support for first-in-family students and those from low socioeconomic backgrounds. This is partly addressed through the regional loading under the CGS, but there are also additional costs for research activities outside large cities, such as travel and support costs.

Regional universities also tend to face greater indirect costs associated with competitive grant applications and research evaluation programs, which disproportionately affect smaller universities. The IRU has previously outlined recommendations for streamlining these processes, including a two-stage expression of interest process for grants, and conducting ERA and EI every six years. These recommendations remain relevant for improving research outcomes at regional universities.

One structural barrier for regional universities is access to National Collaborative Research Infrastructure (NCRIS). The IRU has previously argued that a concentration of facilities in metropolitan areas potentially limits the economic impact of NCRIS for regional Australia and regional university staff accessing the training and conferences. While there are universities across most parts of Australia, Australia's research infrastructure remains predominantly inner city-centric with 75% of the currently-funded NCRIS nodes located in major cities. This means that researchers from many institutions (and in the majority of cases that means researchers from younger, outer-metropolitan and non-metropolitan universities) remain the 'outsiders'. It means that the spillover value of hosting major resources (i.e. incentive for strong research clusters such as the Parkville precinct) is concentrated rather than distributed.

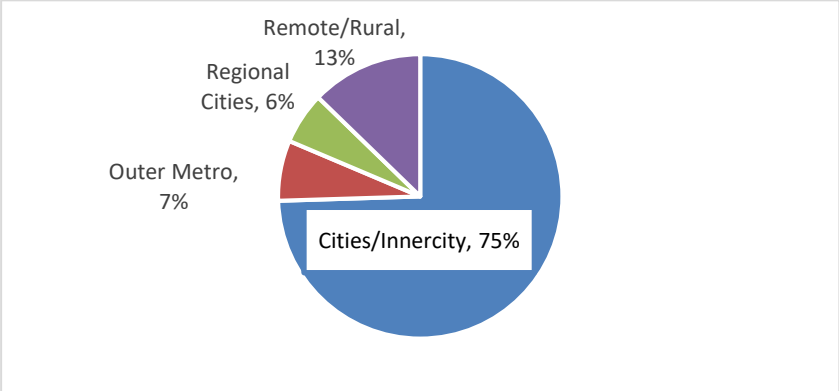

Figure 1. NCRIS Project Node Locations by Region

In January 2019, the Government released the National Research Infrastructure Census (2015-16, 2016-17). The report outlined the average usage rates across 24 NCRIS facilities and the positive contribution of NCRIS to highly cited research, collaborative research and commercialisation. Usage rates were inversely related to the regional presence of universities with highest rates among Go8 members (average of 21.8 out of possible 24 facilities) and lowest at RUN members (average 10) NCRIS facilities are also significant employers, funding around 2,000 jobs, including support for researcher development, technical skills training and research conferences.

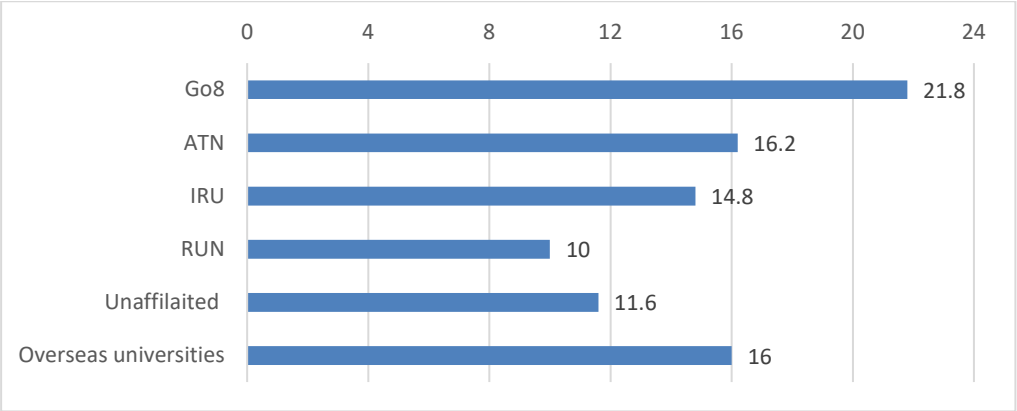

Figure 2. Average number of NCRIS Projects access by universities (Source: NCRIS Census)

Locating research infrastructure is one crucial part in underpinning the future research base across Australia. Some resources have a natural home (e.g. bio-security, Antarctic research) but those with no intrinsic locational logic can be used to stimulate the whole Australian research system through a distributive intent, with resulting benefits for regions and potential reduction of pressure on major population centres. As long as national access requirements can be met, and the resource suitable supported and operated, they can be broadly distributed.

The high cost of travel and accommodation disadvantages regional researchers' access to training for how to use the infrastructure. This limits potential for preliminary tests and preparation to be done externally to the NCRIS site (e.g. send samples to centrally located NCRIS infrastructure, not the researchers). Training scholarships and support for regional staff could help bring back knowledge to regional universities.

Recommendations

10. Use NCRIS to stimulate the whole Australian research system through a distributive intent;
11. Increase support for regional staff to access NCRIS facilities and training.

8. Are there perverse incentives that negatively impact research outcomes in RRR universities?

Researchers in regional campuses are incentivised towards producing excellent research, but the mechanisms by which excellence is evaluated may not align well with regional development policy goals. Benneworth and Neith argue that a persistent problem with regional development policy is that 'whilst regional policy actors see universities as being critical for the delivery of their regional innovation goals, universities do not necessarily see regions as vital for their own survival.' For example, if academics and departments evaluated based on international peer reviewed research or financial revenue from students, they are unlikely to prioritise regionally relevant activities that do not align with these in the short term. Getting the incentives right is critical because the spillover benefits are likely to be greater in regional areas where universities may be the sole or main provider of specialised training, knowledge and facilities.

The ACOLA Discussion Paper discusses research excellence and impact, but does not identify the potential tensions between them. In terms of research excellence, the Discussion Paper reports the number of regional university ERA ratings of five. It also notes that 'research excellence can also be measured by impact… [and] There is often expectation that universities in RRR areas are closely embedded in their communities, and these universities therefore tend to have a high community impact compared to universities in metropolitan areas.' The problem is that research excellence in ERA and universities rankings are often not aligned with the definitions of community impact. This mis-alignment was partly evidenced in the lack of correlation between performance of FORs in ERA 2018 relative to impact in the Engagement and Impact 2018 assessment.

Faced with fiscal constraint, universities may face perverse incentives to maximise revenue stemming from proxies for research excellence, rather than pursuing and supporting excellent research. For example, if regional universities concentrated efforts on recruiting researchers on the Clarivate Analytics Highly Cited Researchers list or those part of large international health research projects, this would almost certainly improve world rankings in the short term. The flow-on financial effect may be positive by increasing revenue from international students in metropolitan campuses of regional universities. However, this could come at the cost of broader support for their teaching and research staff working on projects with genuine community impact and teaching regional students.

The research system needs to support research excellence in regional universities, but overdependence on proxies for research excellence from university rankings risks perverse outcomes.

Opportunities for increased research excellence

9. What opportunities exist for universities in RRR areas to pursue research excellence and impact?

There is a need to make better use of the potential from the breadth of the country to reduce the pressure on the major cities and create positive outcomes for all current and future Australians. Canberra demonstrates that, with investment, a small city can be the base for world leading research. Australia needs only one national capital but it needs several vibrant regional centres. The challenge is how to stimulate other regions to achieve similar outcomes.

Australia's major cities are densely populated and concentrated in the south east, but as the members of the IRU demonstrate, there is considerable geographically spread across the continent. This provides opportunities for engagement with our neighbouring regions. CDU is on the edge of Southeast has driven research focused on health outcomes for people in Australia and the Asia-Pacific region. Murdoch University hosts a trans-disciplinary Africa Research Group, with strong ties to African-based researchers and African industry. JCU's Australian Institute of Tropical Health and Medicine (AITHM) in northern Queensland is Australia's only tropical health and medical research institute, and the Cairns Institute Research utilises its close proximity to the Pacific and Southeast Asia to provide unique opportunities for social science research with regional partners.

10. What are some examples of strong collaborations between industry and universities in RRR areas? What has and has not worked?

Successful examples from the IRU of regionally relevant and internationally excellent research can be found in both environmental sciences and ecology, as well as health and medical research. All IRU members are at or above world standard in environmental sciences (in ERA 2018) and ranked in the top-400 in the world (in Ecology in the Academic Ranking of World Universities). Each IRU members has achieved strong international reputation and impact by engaging with local communities and harnessing the opportunities their local environments, enabling them to become world leaders in this field. This includes universities with main campuses in regional areas, as well regional campuses of major city universities. Examples include:

- James Cook University's ARC Centre for Excellence in Coral Reef Studies;
- Charles Darwin University's Research Institute for the Environment and Livelihoods (RIEL), which has specialties in sustainability in tropical rivers (Tropical Rivers and Coastal Knowledge – TRaCK) and fire management (North Australian Fire Information - NAFI);
- La Trobe University's Centre for Freshwater Ecosystems in Albury-Wodonga, which conducts research on the southern Murray-Darling Basin, supporting decision-making on maintenance and river health locally and internationally;
- The Griffith Centre for Coastal Management based on the Gold Coast is leader in coastal engineering, urban catchment, floodplain and water resource management. Their research programs, community engagement initiatives and partnerships allow putting theory into practice for the greater good. Also at the Gold Coast is The Griffith Institute for Tourism which conducts research in environmental change and nature conservation within the broader geographic

context of the Asia-Pacific region, drawing upon complementary expertise of other Griffith institutes (e.g. Environmental Futures Research Institute and Australian Rivers Institute).

- Western Sydney University's Hawkesbury Institute for the Environment (based in Richmond), which has rapidly become a leading centre of excellence in ecosystem function and environmental responses, including world-first facilities for field-based climate research.

Similarly, IRU members have a strong focus on translational medical and health research. For example, all IRU members undertake medical and health sciences research that is 'well above world standard' (FOR 11, ERA 2018). Australia's national strength in translational health and medical research undertaken outside of major metropolitan areas was recognised by the NHMRC with changes made to its translation centre initiative in 2017 when introducing the *Centres for Innovation in Regional Health* scheme. New investments, such as the Medical Research Future Fund, should continue to support IRU universities to draw upon these research strengths to achieve impact and translation.

Research success in each of the above examples has involved cooperative partnerships with local communities, combined with strong local and international research collaborations. The challenge is to ensure Australia has a regional research system that is sufficiently robust to enable these types of world-class research to flourish across Australia, with benefits delivered to all communities and industries. This requires a truly national research system providing equitable access to key resources, networks and infrastructure.

11. How can government policy facilitate universities in RRR areas to boost their research excellence and impact?

Summary of Recommendations

1. Research success for universities in RRR areas is defined by international standards for excellence that should recognise the value of locally driven research questions for their broader implications.
2. Increase block grant funding to support further growth in regionally relevant research.
3. Introduce regional loading that targets university research outcomes outside of the large cities.
4. Continued support for international student recruitment.
5. Consider bottom up smart specialisation strategies for excellent research on problems of local relevance.
6. Greater support for research development of existing T&R staff in regional areas.
7. Increase the number of Aboriginal and Torres Strait Islander peoples moving into and progressing in postgraduate research.
8. Support whole of university approaches towards Aboriginal and Torres Strait Islander leadership.
9. Emphasise social translation of research in research funding, including broad definitions of professionals eligible for funding support.
10. Use NCRIS to stimulate the whole Australian research system through a distributive intent;
11. Increase support for regional staff to access NCRIS facilities and training.

30 September 2019