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## Senate Standing Committees on Foreign Affairs, Defence and Trade inquiry into the implications of climate change for Australia's national security

### Submission by the Griffith Climate Change Response Program & the Griffith Policy Innovation Hub

Griffith University's Climate Change Response Program and Policy Innovation Hub are pleased to provide this submission to the Senate Standing Committees on Foreign Affairs, Defence and Trade inquiry into the implications of climate change for Australia's national security.

Griffith University operates across 5 campuses in South East Queensland, teaching 50,000 students. Griffith is deeply connected to the Asian region, socially conscious and environmentally aware, an integral part of the community and heavily industry focused. It is a comprehensive, research-intensive university, ranking in the top 3 per cent of universities worldwide.

#### Our Research

Griffith University is at the forefront of research relating to climate change responses with a special emphasis on adaptation challenges in developing countries, along with related aspects of regional security. Griffith's expertise in these fields is organized in five key centres:

- The [Griffith Climate Change Response Program](#), which for a decade has undertaken research primarily focused on the challenges of adapting to a rapidly changing climate. In the Pacific region, this research addresses information knowledge management for adaptation and resilience planning, ecosystem-based adaptation for remote communities, along with risk assessment and soft engineering interventions in the coastal zone.
- The [Policy Innovation Hub](#) provides cross disciplinary project teams to provide analysis and options for key policy challenges, including in the areas of climate change and disaster resilience.
- The [Centre for Environment and Population Health](#), which conducts research on climate change and health, and is involved in leadership capacity building and international collaborations around health security.
- The [Cities Research Institute](#), which conducts research that includes how to improve the performance and resilience of physical infrastructure systems.

- The [Australian Rivers Institute](#), which conducts research into water resource management, including understanding the impacts of climate change and evaluating adaptation options with respect to economic, social and environmental goals. The International Water Centre, a partnership with other universities that conducts research to implement a whole-of-water cycle approach and develop capacity in integrated water resource management.

Research conducted across these programs and the wider university point to several conclusions relevant to the Committee's inquiry. These include:

- (Term of reference b) - Responding to climate risks needs to focus on building capacity and resilience.
- (Term of reference d) - Australia's overseas development assistance is critical to climate change mitigation and adaptation, particularly through building the capacity to gather and share information.
- (Term of reference d) – Better mechanisms are needed to coordinate expertise that supports adaptation and resilience plans and actions.
- (Term of reference e) - Domestic policies and practices in key areas such as risk management and disaster response will influence Australia's defense force capacity to respond internationally.

## Capacity-building and Resilience

Climate change impacts on national and international security by eroding the capacities of communities and countries. It is well summarised by the US Department of Defense:

Communities and states that are already fragile and have limited resources are significantly more vulnerable to disruption and far less likely to respond effectively and be resilient to new challenges. Case studies indicate that in addition to exacerbating existing risks from other factors (e.g., social, economic, and political fault lines), climate-induced stress can generate new vulnerabilities (e.g., water scarcity) and thus contribute to instability and conflict even in situations not previously considered at risk.<sup>1</sup>

Australia's *2016 Defence white paper* identifies state fragility in our region and globally as one of the key issues for our defence future. It points out:

The South Pacific region will face challenges from slow economic growth, social and governance challenges, population growth and climate change...It is crucial that Australia help support the development of national resilience in the region to reduce the likelihood of instability.<sup>2</sup>

Australia's aid program objectives include similar recognition of the significance of climate change:

External shocks, including natural disasters, conflict, and economic shocks (such as food and fuel price spikes) severely undermine growth, reverse hard-won

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<sup>1</sup> US Department of Defense, 2015, *National security implications of climate-related risks and a changing climate*, pp. 3-4.

<sup>2</sup> Australian Department of Defence, *2016 Defence white paper*, p. 48.

development gains and increase poverty and insecurity. Australia's region is highly vulnerable to these shocks, and their impact is becoming more extreme as climate-related disasters become more severe and frequent...Disaster preparedness, risk reduction and social protection help build the resilience of countries and communities.<sup>3</sup>

A substantial proportion of the funding from Australia's \$1 billion climate aid commitment will flow to Australia's neighbours in the Indo-Pacific, including \$300 million to Pacific countries over four years (2016-2020) to help them build climate resilience, reduce emissions, and support implementation of commitments under the Paris Agreement, including on adaptation and mitigation.<sup>4</sup>

Research in the Indo-Pacific region by Griffith University highlights the importance of building resilience, including at the local community level, and has identified out some of the ways in which that might be achieved. Like Australia's aid program, it is built on partnership and case studies in our region and Griffith is working with DFAT, [SPREP](#), [GIZ](#) and six national governments on projects spanning Melanesian, Polynesia and Micronesian countries.

Griffith's research has also shown the need for and benefits from addressing climate change adaptation and disaster risk management in an integrated way, recognizing both their commonalities and differences. Many natural disasters are related to extreme weather events, which are being exacerbated by climate change. Adaptation is generally focused on strategic planning and decision making, while disaster risk management is more focussed on real time emergency responses. These two objectives do typically involve different agencies and networks but in developing countries the limited institutional capacity and overlap has led to the development of regional policy that promotes their integration.

In different national circumstances, the path to best integrate the two systems varies. In Australia, it has been achieved by spreading responsibility across all agencies, which "was seen as effective in increasing whole-of government approaches". However.

in both Vanuatu and the Solomon Islands the concentration of information, responsibility and actions through a single focal point was more effective in reducing overlap and providing a clearer picture of what was being implemented, by whom and where.<sup>5</sup>

The research shows that both humanitarian and military responses to climate change need to be tailored to the institutional structures in different countries, not just to the situation 'on the ground'.

In all situations, however, capacity-building between agencies across countries is a key in reducing national vulnerability in Australia and in partner countries.

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<sup>3</sup> Australian Department of Foreign Affairs and Trade, Building resilience: humanitarian assistance, disaster risk reduction and social protection,

<sup>4</sup> Overview of Australia's assistance for climate change. Australian Department of Foreign Affairs and Trade; <http://dfat.gov.au/aid/topics/investment-priorities/building-resilience/climate-change/Pages/climate-change.aspx>

<sup>5</sup> Nalau, J, et al., 2015, 'The practice of integrating adaptation and disaster risk reduction in the south-west Pacific', *Climate and Development*, p. 1.

The [Pacific EcoAdapt Research Project](#) is identifying the circumstances in which ecosystem-based approaches to climate change adaptation in the Pacific region are most the most appropriate adaptation interventions, and where soft or hard engineered solutions are needed. Ecosystem-based adaptation is “the use of natural capital by people to adapt to climate change impacts”.<sup>6</sup> This approach is often the most appropriate form of adaptation in developing countries particularly for local communities who are still directly dependent on ecosystem services for food and freshwater, as well as disaster risk management. Ecosystem-based adaptation offers important guidance for how humanitarian and military responses to both development needs and disaster response can be framed. Particularly important in our region is identifying appropriate adaptation interventions in the coastal zone in the face of a rapidly changing climate and ongoing capital intensive developments. Initial analysis shows that ecosystem-based approaches are in many circumstances more appropriate, resilient and cost effective than capital works such as sea walls.

The Pacific Adaptation to Climate Change for Water Sanitation And Hygiene (PACCWASH) project examined climate change threats and adaptation options for the Pacific, in the context of water, sanitation and hygiene (referred to as WaSH). It notes the weakness and vulnerability of WaSH infrastructure in the Pacific, and that this makes states fragile.

Resilience can be built through, for example:

- Systems-based approaches to building the quality of decision-making in the region;
- Greater regional sharing of the successes and failures of projects; and
- Joint capacity building exercises with climate change adaptation and disaster risk management actors, to improve cross-sectoral partnership and coordination.<sup>7</sup>

Over the last decade, the Centre for Environment and Population Health has been conducting research and capacity-building in the Asia-Pacific region, around public health and climate change. These are particularly pressing problems in developing countries, where health systems are already severely challenged by new and re-emerging infectious diseases. Climate-related infectious diseases are beginning to cause bigger and more severe impacts. These challenges are examples of disruptions that contribute to instability and conflict, which have been identified as threats to stability and national security.

The Centre for Environment and Population Health has delivered programs that build resilience in health networks throughout Asia by training future international public health leaders and decision-makers. The ability to undertake this work depends on year-by-year funding prioritisation decisions of governments, which can disrupt the effectiveness of capacity-building efforts. Recently the Australian government appointed a senior official as Ambassador for Regional Health Security. It is hoped that this reflects recognition of the importance of health security in the broader international security agenda, and the need for regional cooperation and resilience in addressing emerging infectious diseases.

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<sup>6</sup> Munang, R, et al., 2013, ‘Climate change and Ecosystem-based Adaptation: a new pragmatic approach to buffering climate change impacts’, *Current Opinion in Environmental Sustainability*, vol. 5, p. 67.

<sup>7</sup> Hadwen, W. L., MacDonald, M. C., Kearton, A., Elliott, M., Chan, T. & Shields, K. 2016, *Developing climate resilient WaSH in the Pacific*. Adaptation Decision Making Framework from the DFAT-funded PACCWASH Project. Pp78. International WaterCentre, Brisbane, Australia.  
<http://www.watercentre.org/resources/attachments/adras-wash-presentations-papers-outputs>

## The Importance of Information

Building resilience, domestically and internationally, requires greater information and knowledge sharing about climate change and responding to the risks it presents. Griffith's experience is that the Department of Foreign Affairs and Trade's investment in climate change information and knowledge management support to the Pacific was established early, through its funding of the Pacific Climate Change Information Management Project ([Pacific iCLIM](#)). Pacific iCLIM seeks to enable better climate change resilience and adaptation planning in the Pacific Region, by improving the ability of regional bodies, governments and other stakeholders to discover, store, access and utilize climate change information and data.<sup>8</sup> It is a good example of how information sharing and information management will be critical to overseas development assistance in climate change mitigation and adaptation.

Pacific iCLIM is a partnership with Pacific island nation networks, through the Secretariat of the Pacific Regional Environment Programme. In its second phase it will deliver:

- A review and e-infrastructure upgrade of the Pacific Climate Change Portal
- regional information management protocols to provide consistent guidelines for describing climate change data and information throughout the Pacific.
- development of climate change decision support tools for priority adaptation and resilience planning areas.
- information management training to key staff in three pilot countries.

Australian government support of Pacific iCLIM has allowed partner Pacific nations (Fiji, Tonga and Vanuatu, with others now seeking to be involved) to develop their understanding of best practice information and knowledge management and its role in adaptation planning, ahead of other countries in the region and around the world.

The experience in implementing Pacific iCLIM has shown that there are several barriers to the effective use of climate change data and information management in adaptation and resilience planning. These have been identified as:

- Policy Barriers - related to a lack of supportive government or institutional policy or strategy;
- Institutional Barriers - related to a lack of institutional champions, key roles or partnerships;
- Operational and Human Resource Barriers - related to a lack of documented or formalised processes being implemented to support solutions, as well as staff roles and skill sets to carry out operational activities; and
- Information and Communication Technology Barriers - related to a lack of appropriate e-infrastructure and IT systems.<sup>9</sup>

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<sup>8</sup> Griffith University Climate Change Response Program, Projects in the Pacific, <https://www.griffith.edu.au/research/research-excellence/griffith-climate-change-response-program/research/projects-in-the-pacific>

<sup>9</sup> Brown, RA, Gonelevu, M, Mackay, S, McGregor, K, Kocovanua, T, Iaken, R, Iautu, F, Lepa, M, Tuiafitu-Malolo, L, Fulivai, S, Pelesikoti, N, & Mackey, BG 2015, *Barriers to effective adaptation and*

Griffith's PACCWASH project has also demonstrated the importance of the collection, analysis and sharing of information. One of the recommendations of that project is that new models and tools be used to collect and analyse data:

To enable the implementation of risk management for the protection of water resources and provision of sustainable WaSH services, a framework and clear guidance on methods and tools for data collection, risk assessments, analyses and management is required. The use of models and digital technologies to support data collection, analysis and decision making opens up great opportunities in regions like the Pacific. ... to ensure that decisions around particular climate change scenarios or intervention options can be made with reference to both the anticipated and unintended consequences on the system in question.<sup>10</sup>

The significance of information and knowledge management is reflected in the support provided by Australia's Department of Foreign Affairs and Trade. It is also evident in the fact that, since the Pacific iCLIM project first commenced, international institutions are giving greater prominence of information and knowledge management. For example:

- The UNFCCC 2015 Paris Agreement requires parties to manage, share, synthesize and deliver knowledge and information on manner that supports adaptation actions and decision-making;
- The Framework for Resilient Development in the Pacific, endorsed by Pacific Island Forum Leaders in 2016, calls for numerous actions around information and knowledge management for the Pacific to address climate change adaptation and disaster risk management.
- Under the UNFCCC, information and knowledge management is one of six outcome areas that countries should address in their National Adaptation Plans.

## Coordinating information and support

There is scope to consider whether models of overseas development assistance in climate change mitigation and adaptation can be improved, to achieve better coordination and support among partner nations.

In the Pacific, countries and regional bodies receive funding from different donors to support research, development and capacity-building activities, including in relation to climate change. However, because this work is funded on a project-by-project basis, information is often fragmented or conflicting. This means research and information is not readily shared or available, resulting in a poor return on the investment. We anticipate this will impair Australia's ability to respond to regional security issues associated with climate change, because research, analysis and advice is not shared and centrally accessible.

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*resilience planning in the Pacific: an information management perspective*, Griffith University, Queensland and SPREP, Samoa, p. i.

<sup>10</sup> Hadwen, W. L., MacDonald, M. C., Kearton, A., Elliott, M., Chan, T. & Shields, K. 2016, Developing climate resilient WaSH in the Pacific. Adaptation Decision Making Framework from the DFAT-funded PACCWASH Project. Pp78. International WaterCentre, Brisbane, Australia.  
<http://www.watercentre.org/resources/attachments/adras-wash-presentations-papers-outputs>

Better mechanisms are needed to coordinate expertise that supports adaptation and resilience plans and actions. Developing countries and organisations need to access genuine expertise to raise knowledge and awareness of issues and options, and they need support to implement expert advice. Rather than contracting this out on a project-by-project basis, it could benefit both Australia's national interest and information sharing among countries, if there was a higher-level platform from which Australia could more easily coordinate support to the region and through which partner nations could ensure new information was shared and developed in a consistent way.

## Domestic Response Impacts on Capacity to Act Internationally

The ability of Australia's national security agencies to respond to climate change risks in our region is constrained by domestic calls on their resources. For this reason, Australia's domestic climate change adaptation and national disaster response systems are crucial to our national security future.

We know military agencies are already significant responders to disaster events domestically, and this will increasingly be the case. Defence forces are well equipped to manage disaster response and recovery, and an increase in frequency or intensity of extreme weather events will mean they will be called upon more often. We know that already in Australia and the Pacific, "the increased frequency of extreme weather and climate events is stretching the response capacity of agencies".<sup>11</sup> This raises issues about both defence force capacity and about defence priorities. Greater demand on our agencies (including defence forces) domestically will potentially limit our security forces' ability to respond to disasters in our region. If our capability to provide assistance becomes increasingly constrained, the resilience of vulnerable states in our region will be further undermined and their infrastructure weakened as the result of a reduced Australian capacity to help protect and rebuilding. This will translate as greater potential for insecurity or state collapse, in turn further increasing demands on our military.

Recent research conducted by Griffith University with Australian disaster and emergency management institutes has noted that the agencies are already observing shorter breaks between disaster events and the occurrence of multiple events at the same time across the country. They are observing that agency fatigue is becoming evident as many staff members also serve as volunteers in disasters.

The increasing calls upon disaster response organisations, including our military, should be addressed in part through changing the way domestic disaster risk management and climate change adaptation is undertaken. Research conducted in the University has considered how resilience should be built into, and modify, the way we prepare for and respond to disasters, in light of climate change. It has recognised four areas for change:

- Providing collaborative funding that would encourage agencies at all levels to work in partnership with each other, businesses and communities;
- Local community resilience grants could raise public awareness about local vulnerabilities and lead to some practical improvements in resilience;

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<sup>11</sup> Nalau, J, et al., 2015, 'The practice of integrating adaptation and disaster risk reduction in the south-west Pacific', *Climate and Development*, p. 7.

- Embedding climate researchers in disaster risk management agencies would help these organisations to learn about the implications of climate change for their work and help them develop a shared goal of improving resilience; and
- Organisational changes that would improve networking across all sectors and levels were outlined.<sup>12</sup>

These organisational changes should begin with COAG supporting an “integrated approach to disaster risk management and climate change adaptation” through reform of existing arrangements and strategies to improve coordination.<sup>13</sup>

## Areas for Further Consideration

Griffith’s research points to the importance of exploring several key issues during the inquiry with the Australian government, and with disaster management authorities. We would encourage examination of the following questions:

- Does the government see food security, water security and health security in our region as important national security risks, and does the evidence indicate that security risks arising from these issues may increase as a result of climate change?
- Has the government considered developing long-term strategic plans that directly address climate change objectives for national security agencies, particularly Defence?
- Are capacity-building and resilience priorities in our development assistance, and what is the government’s perspective on how well support of this kind is being able to be delivered in partner countries?
- Does the Australian government think it is getting sufficient return on investment for applied research and development assistance in the region? Has it reviewed or considered different models for pooling, making accessible and sharing information among stakeholders, for projects in the climate change and adaptation area?
- What does the government see as the evolving role of defence agencies in disaster response, both domestically, and internationally? Does it anticipate that the future impact of this role on our defence agencies will be greater, similar to, or less than over the last decade?
- What do state emergency response, health and recovery agencies see as the future role of national security agencies in climate and weather-related risks and disasters into the future? Do the federal and state perceptions of future roles align?
- Is there sufficient research and evaluation being undertaken around the effectiveness of development assistance, both during emergencies and to support sustainable development, and defence deployments overseas, in building resilience and capacity (in addition to stabilising situations, or recovery efforts)?

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<sup>12</sup> Howes, M, Grant-Smith, D, Reis, K, Bosomworth, K, Tangney, P, Heazle, M, McEvoy, D & Burton, P 2013, *Rethinking disaster risk management and climate change adaptation*, National Climate Change Adaptation Research Facility, Gold Coast, p. 43.

<sup>13</sup> *Ibid.*, p. 41.



## Conclusion

There are significant threats and long-term risks posed by climate change to national security and international security in the Asia-Pacific region. As defence analysis in Australia and internationally has noted, one of the principal causes is the increasing pressure on states that already lack resilient infrastructure and institutions, and which will be further destabilised by events such as increasingly frequent or severe weather events, sea level rise, and changes to food and water security.

Our research has highlighted some of the ways in which Australia can and should respond, domestically and internationally. Intelligent and evidence-based responses, such as ecosystem-based approaches to adaptation interventions, and information knowledge management, have the potential to better prepare for the impacts of a rapidly changing climate and also to deliver a higher standard of quality development assistance.

We would welcome an opportunity to discuss the vital issues being canvassed by this inquiry and to answer questions about the research findings summarised here, the projects we are currently delivering, domestically and in the Asian and Pacific regions, and their relevance to national and regional security issues.