

Parliament of Australia:
Submission for the Joint Standing Committee on Foreign Affairs Defence and Trade
“Inquiry into supporting democracy in our region”

Dr Robert Glasser
Head, Climate and Security Policy Centre
Australian Strategic Policy Institute

Thanks for the opportunity to share with the Committee some observations on how Australia can better support Democracy in our region.

I’d like to focus my comments on the extreme risks to regional democracies posed by climate change, particularly in Maritime Southeast Asia (MSEA)ⁱ. This sub-region on Australia’s northern doorstep is exceptionally affected by the hazards that climate change is amplifying. Those hazards will not only exacerbate the traditional regional security threats that currently dominate military and foreign policy planning in Canberra, such as the rise of China and terrorism, but also lead to new threats and the prospect of multiple, simultaneous crises, including food insecurity, population displacement and humanitarian disasters that will greatly test our national capacities, commitments, and resilience. So these hazards have serious implications for regional economic development, political stability and security. They arguably represent the single gravest threat to Democracy in our region.

It isn’t surprising that this emerging threat on our northern doorstep has been largely overlooked. Most analyses of climate impacts treat climate hazards as independent variables rather than considering the wider context in which they interact with each other and with human systems.ⁱⁱ For example, a study of the impact that rising temperatures will have on agricultural productivity will overlook the compounding impacts of other hazards (flooding, drought, fires, increases of pests, saltwater inundation, cyclones, migrations of people, and so on), which will be occurring simultaneously. MSEA faces a dangerous constellation of simultaneous climate hazards. Sea-level there is rising four times faster than the global average, driven by climate change and other factors, such as groundwater extraction.ⁱⁱⁱ MSEA has the world’s highest average sea-level rise per kilometre of coastline and the largest coastal population affected by it. Indonesia is the world’s fourth most populous country, and 60% of its population (165 million people) is in coastal areas. The same is true for over half of the Philippines’ municipalities and 10 of its largest cities.

The impacts are already severe (the Indonesian Government recently announced that it’s planning to relocate its capital from Jakarta to escape rising floodwaters), but the acceleration of the risk is astounding. In only a matter of decades, what has historically been a 1-in-100-year extreme flood will become an annual event across much of the region.^{iv}

MSEA is also a hotspot for cyclones,^v which strike the Philippines more often than any other country.^{vi} The warming climate is making cyclones more powerful and, together with sea-level rise, is rapidly amplifying storm surges and flooding.

MSEA’s location, between the Pacific and Indian oceans, uniquely exposes it to the naturally occurring ENSO (El Niño – Southern Oscillation) weather pattern, which swings between La Niña and El Niño events (Figures 2 and 3).^{vii} ENSO is globally the most significant cause of extreme weather. It has major impacts on food security, the availability of water, and disease.

The region generally experiences extreme heat and dryness during El Niño and extreme rainfall during La Niña. In 2015, for example, an El Niño contributed to drought, food insecurity and record fires in Indonesia. The fires burned 2.6 million hectares (an area four and half times the size of Bali). Tens of millions of Indonesians suffered health effects, and the cost to the Indonesian economy from the fires alone was over US\$16 billion.^{viii}

The frequency of extreme El Niño events is expected to double under 1.5°C of warming—a level that could be reached within a decade^{ix}—and both El Niños and La Niñas are likely to intensify. Consequently, the region will not only experience more severe extremes, but also more frequent swings from extreme heat and drought to severe floods. The diminishing time for recovery in between such events will have major consequences for food security and resilience.

Crop yields will be reduced by rising temperatures, changes in rainfall, the expansion of the reach of crop pests and shifts in predators that keep crop pests in check.^x The number and duration of heatwaves are increasing, disproportionately affecting MSEA, where hundreds of millions of people are already exposed to extreme heat, including in the agriculture sector. Recent analysis suggests that globally Malaysia, Indonesia, and the Philippines are among the most at risk to the heat-related loss of labour capacity.^{xi}

Scientists have determined that by 2040, at 2°C of warming, Southeast Asia’s per capita crop production may decline by one-third.^{xii} Climate impacts occurring outside of the region will further diminish the options available to countries to offset the domestic effects, such as by importing additional food, as Indonesia did on an unprecedented scale during its severe drought in 1998.^{xiii}

Amplifying the food insecurity risks is the region’s reliance on fisheries (Figure 4).^{xiv} Indonesia obtains more than half of its animal-source protein from fish, while in the Philippines the figure is about 40%.^{xv} Fish species are already moving out of the region to escape warming waters, and the region’s coral reefs, the ‘nursery’ for roughly 10% of the world’s fish supply, are degrading rapidly; globally, over 90% of reefs will have collapsed at 1.5°C of warming.^{xvi}

Climate hazards will also directly magnify the impacts of some geological hazards. Coral reefs in the ‘Coral Triangle’ of Indonesia, Malaysia, Timor-Leste, the Philippines, Papua New Guinea and Solomon Islands are singular natural barriers not only to cyclones, but also to tsunamis triggered by earthquakes.^{xvii} The reefs reduce the wave energy from extreme events by an average of 97%.^{xviii} With the collapse of the reefs, the impact of those hazards on densely populated coastlines will grow significantly.

Any one of the increasing risks would be serious cause for concern for Australian policymakers, but the combination of them, emerging nearly simultaneously, suggests that we’re on the cusp of an unprecedented and rapidly advancing regional crisis.^{xix} Climate ‘tipping points’ are thresholds in the climate system that, once exceeded, trigger cascading climate impacts, such as the sudden release of massive amounts of methane gas from thawing arctic permafrost, which would greatly accelerate climate warming. But the resilience of countries also has tipping points, particularly in regions, such as MSEA, that are highly exposed and vulnerable to climate hazards. The hazards in these climate ‘hotspots’ trigger cascading societal impacts that can overwhelm existing coping mechanisms.

Australia urgently needs to begin thinking about political, economic and security tipping points generated by climate change. The countries of the region have made enormous economic progress in recent decades, with the Indonesian economy projected to become the 4th largest in the world by 2050.^{xx} But there remain significant vulnerabilities that will become sources of instability as the climate continues to warm, particularly in Indonesia and the Philippines, where about a quarter of the countries' populations live on less than US\$3.20 per day.^{xxi} Those two countries account for 90% of the people living below the poverty line in Southeast Asia.^{xxii} Much employment is in informal sectors, with no official social safety nets to support large populations displaced by disasters.^{xxiii} Inequality is increasing,^{xxiv} and ethnic and religious tensions^{xxv} have previously led to major outbreaks of violence.^{xxvi}

We can't wait for the severity of the situation on our northern doorstep to become obvious before we act, as the pace of climate change impacts is rapidly accelerating and many of our responses to those threats require long lead times to identify, plan and implement, particularly as they will require multilateral as well as national responses. Some government agencies are already moving in the right direction.

The Bureau of Meteorology, for example, has now begun supporting key national security agencies to identify the potential impacts of adverse weather and climate on food security, refugee migration and conflict.^{xxvii} This must become part of a much wider, whole-of-government process involving Defence, Home Affairs, Foreign Affairs and Trade, CSIRO, Health, Agriculture, and other departments and agencies. The objective should be to greatly expand Australia's capacity to understand and identify the most likely paths through which disruptive climate events (individually, concurrently or consecutively) can cause cascading, security-relevant, regional impacts, that can undermine democracy, such as disruptions of critical supply chains, food insecurity, separatist movements, humanitarian disasters, population displacement, opportunistic intervention by outside powers, political instability and conflict.^{xxviii}

Australia should develop an action plan that identifies priority investments to build the capability within Defence, Foreign Affairs, the intelligence agencies, Home Affairs and other departments to recognise emerging climate impacts and should establish an ongoing process to re-evaluate the evolving strategic equation in the light of regional developments and as our capacities and understanding improve. With that greater knowledge, we'll also be in a better position to identify opportunities, such as Australian aid interventions, to reduce the risk at critical points in the chain, but also investments that build our capacity for regional stabilisation and humanitarian response missions.

It's becoming increasingly clear that the Australian aid program will need to scale up its efforts to strengthen regional resilience to climate change, particularly in MSEA. Recent compelling analysis suggests that helping less developed countries to adapt to climate change can reduce the likelihood of conflict and forced migration.^{xxix} It will be critical, for both humanitarian and national security reasons, to strengthen climate resilience in pivotal states to our north as well as to increase support for our Pacific Island neighbours, for whom climate change is an existential threat.

The emerging regional impacts could also overstretch our operational capacities to act, such as by creating demands on the ADF to simultaneously support disaster relief in Australia and respond to a regional security challenge. The posture, training and capabilities of the ADF

will need to change so that it can be part of Australia's response to more frequent, higher impact regional natural disasters. Its capability set will also need to evolve to equip it to operate at greater scale and in places affected by large natural disasters. Alternatively, Australia may have to establish a civilian national disaster response capacity.

The science confirms that climate change impacts are now accelerating. The recent heatwaves in Western North America, the most extreme^{xxx} in world weather records, bears this out. We need to prepare for much worse in the years ahead. No one country alone will be able to cope with the scale of the challenges that lay ahead. It's time to begin scaling-up regional cooperation to address the rapidly emerging climate and disaster risk. Doing so is not only among the most urgent and effective ways Australian can contributing to strengthening regional democracy, but also to ensuring regional peace and stability.

Canberra, 6 December 2022

ⁱ Robert Glasser, "The rapidly emerging crisis on our doorstep", *ASPI Strategic Insights*, Australian Strategic Policy Institute, April 2021, [online](#).

ⁱⁱ Annie Sneed, 'The next climate frontier: predicting a complex domino effect', *Scientific American*, 27 December 2018, [online](#).

ⁱⁱⁱ Robert J Nicholls, Daniel Lincke, Jochen Hinkel, Sally Brown, Athanasios T Vafeidis, Benoit Meyssignac, Susan E Hanson, Jan-Ludolf Merkens, Jiayi Fang, 'A global analysis of subsidence, relative sea-level change and coastal flood exposure', *Nature Climate Change*, 8 March 2021, [online](#).

^{iv} H-O Pörtner, DC Roberts, V Masson-Delmotte et al. (eds), *IPCC special report on the ocean and cryosphere in a changing climate: summary for policymakers*, Intergovernmental Panel on Climate Change (IPCC), Geneva, 2019, [online](#).

^v National Centers for Environmental Information, 'Tropical cyclone tracks map', National Oceanic and Atmospheric Administration (NOAA), Maryland, no date, [online](#).

^{vi} Vincent Eck, *Building resilience to climate events, devastating storms*, Swiss Re Group, 15 April 2019, [online](#)

^{vii} Rebecca Lindsey, *Global impacts of El Niño and La Niña*, NOAA, 9 February 2016, [online](#); National Ocean Service, *What are El Niño and La Niña?*, NOAA, no date, [online](#).

^{viii} 'Indonesia's fire and haze crisis', World Bank, 25 November 2015, [online](#).

^{ix} Zeke Hausfather, 'Analysis: When might the world exceed 1.5C and 2C of global warming?', *Carbon Brief*, 4 December 2020, [online](#).

^x Sara G Miller, 'Climate change is transforming the world's food supply', *Live Science*, 16 February 2017, [online](#)

^{xi} IMCCS Expert Group, *Climate security and the strategic energy pathway in Southeast Asia*, International Military Council on Climate and Security, February 2021, [online](#)

^{xii} O Hoegh-Guldberg, D Jacob, M Taylor et al., 'Impacts of 1.5°C global warming on natural and human systems', in V Masson-Delmotte, P Zhai, H-O Pörtner et al. (eds), *Global warming of 1.5°C: an IPCC Special Report on the impacts of global warming of 1.5°C above pre-industrial levels and related global greenhouse gas emission pathways, in the context of strengthening the global response to the threat of climate change, sustainable development, and efforts to eradicate poverty*, IPCC, Geneva, 2018, [online](#)

^{xiii} Vijendra K Boken, Arthur P Cracknell, Ronald L Heathcote, *Monitoring and predicting agricultural drought: a global study*, Oxford Scholarship Online, 2005, [online](#).

-
- ^{xiv} Abigail Bennett, Pawan Patil, Kristin Kleisner, Doug Rader, John Virdin, Xavier Basurto, Contribution of fisheries to food and nutrition security: current knowledge, policy, and research, Duke University, North Carolina, 2018, [online](#).
- ^{xv} David Suh, Robert Pomeroy, 'Projected economic impact of climate change on marine capture fisheries in the Philippines', *Frontiers in Marine Science*, 16 April 2020, [online](#).
- ^{xvi} Hoegh-Guldberg et al., 'Impacts of 1.5°C global warming on natural and human systems'.
- ^{xvii} Catherine M Kunkel, Robert W Hallberg, Michael Oppenheimer, 'Coral reefs reduce tsunami impact in model simulations', *Geophysical Research Letters*, 14 December 2006, [online](#).
- ^{xviii} Filippo Ferrario, Michael W Beck, Curt D Storlazzi, Fiorenza Micheli, Christine C Shepard, Laura Airoidi, 'The effectiveness of coral reefs for coastal hazard risk reduction and adaptation', *Nature Communications*, 13 May 2014, [online](#)
- ^{xix} Camilo Mora, Daniele Spirandelli, Erik C Franklin et al., 'Broad threat to humanity from cumulative climate hazards intensified by greenhouse gas emissions', *Nature Climate Change*, 19 November 2018, [online](#)
- ^{xx} PriceWaterhouseCoopers (PWC), *The Long View: How will the economic order change by 2050?*, February 2017, [online](#).
- ^{xxi} Carlos Pavon, 'Poverty in Southeast Asia: lower-middle income countries', *World Data Lab Blog*, 30 July 2019, [online](#)
- ^{xxii} Johanna Chisholm, 'Indonesia and the Philippines have 90% of Southeast Asia's poorest', *Globe*, 21 November 2017, [online](#)
- ^{xxiii} 'The new poor post-pandemic: time for cushioning the most vulnerable in Southeast Asia', *UN Economic and Social Commission for Asia and the Pacific*, 4 August 2020, [online](#).
- ^{xxiv} 'Southeast Asia's widening inequalities', *The ASEAN Post*, 17 July 2018, [online](#)
- ^{xxv} 'Philippines: Mindanao conflict', *ACAPS*, 10 March 2021, [online](#)
- ^{xxvi} Tim Lindsey, 'Jakarta riots reveal Indonesia's deep divisions on religion and politics', *The Conversation*, 27 May 2019, [online](#).
- ^{xxvii} Rebecca Gredley, 'BOM pivots to security over climate risks', *The West Australian*, 16 October 2020, [online](#).
- ^{xxviii} John D Steinbruner, Paul C Stern, Jo L Husbands (eds), *Climate and social stress: implications for security analysis*, National Research Council, National Academies of Science, Engineering, and Medicine, [online](#); Robert Glasser, *Preparing for the Era of Disasters*, ASPI, Canberra, March 2019, [online](#)
- ^{xxix} Guy J Abel, Michael Brottrager, Jesus Crespo Cuaresma, Raya Muttara, 'Climate, conflict and forced migration', *Global Environmental Change*, January 2019, 54:239–249, [online](#).
- ^{xxx} Scientists call Northwest heatwave the 'most extreme in world weather records', *Jake Johnson, Common Dreams*, July 04, 2021, [online](#).