The rapidly emerging crisis on our doorstep

Dr Robert Glasser

Australia urgently needs to build the capability in Defence and other key agencies to recognise the strategic impacts of climate change and to position those organisations to respond. This is a rapidly changing field. Approaches that might have sufficed a decade ago will no longer meet the scale of problems likely to unfold in our region. Building on the policy suggestions contained in the report of the Royal Commission into National Natural Disaster Arrangements, now is the time to make sure Australia has the capacity to lead regional responses to the many natural disasters emerging from a warming climate.¹

One of the main outcomes from the recent historic first summit meeting of the leaders of the countries in the Quadrilateral Security Dialogue was the decision to establish a climate working group to strengthen climate actions in the region and elsewhere.² The Quad countries clearly have different approaches and priorities relating to climate, but their commitment to work together in this area is a welcome development. There’s a growing realisation both in Australia and in our Quad partner countries that climate change will have an increasingly serious impact on regional security.

Maritime Southeast Asia (MSEA) 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, terrorism and separatist movements, 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.

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. 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. MSEA has the world’s highest average sea-level rise per kilometre of coastline and the largest coastal population affected by it (Figure 1). 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 rapidly emerging crisis on our doorstep

Figure 1: Average relative sea-level rise rate for 23 coastal regions; (a) length weighted and (b) population weighted


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.5 MSEA is also a hotspot for cyclones,6 which strike the Philippines more often than any other country.7 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).8 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.⁹

Figure 2: El Niño climate impacts

The frequency of El Niño events is expected to double under 1.5°C of warming—a level that could be reached within a decade— 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. 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.
Scientists have determined that by 2040, at 2°C of warming, Southeast Asia’s per capita crop production may decline by one-third. 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.

Amplifying the food insecurity risks is the region’s reliance on fisheries (Figure 4). Indonesia obtains more than half of its animal-source protein from fish, while in the Philippines the figure is about 40%. 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.

Figure 4: Projected changes, impacts and risks for ocean ecosystems as a result of climate change (maximum fisheries catch potential)

RCP2.6

RCP8.5

Source: H-O Pörtner, DC Roberts, V Masson-Delmotte et al. (eds), *IPCC special report on the ocean and cryosphere in a changing climate*, Intergovernmental Panel of Climate Change (IPCC), Geneva, 2019, online.

The impact of climate-related hazards will be compounded by simultaneously occurring geological hazards. MSEA is within the ‘Ring of Fire’, which is the world’s most seismically and volcanically active zone (Figure 5). Indonesia and the Philippines together account for 77% of the total global threat from volcanoes. Indonesia has the largest number of active volcanoes and at least one significant eruption every year. Some of the deadliest geological disasters in recorded history have struck the region, including the 2004 Boxing Day earthquake and tsunami, which killed more than 160,000 Indonesians.
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. The reefs reduce the wave energy from extreme events by an average of 97%. 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.

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. 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.24 Those two countries account for 90% of the people living below the poverty line in Southeast Asia.25 Much employment is in informal sectors, with no official social safety nets to support large populations displaced by disasters.26 Inequality is increasing,27 and ethnic and religious tensions28 have previously led to major outbreaks of violence.29

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.30

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, such as disruptions of critical supply chains, food insecurity, separatist movements, humanitarian disasters, population displacement, opportunistic intervention by outside powers, political instability and conflict.31 US President Biden’s recently announced whole-of-government approach to climate change demonstrates what can be done when the issue is put at the centre of national security planning.32

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.33 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.

Early last year, in the wake of the devastating Black Summer bushfires, Scott Morrison for the first time characterised climate change as a national security risk:

This summer reminded us that our national security is also about our preparedness, responsiveness and resilience to natural disasters and the environment we will live in today, over the next decade and well beyond.34
He said that meeting this challenge will:

have implications for our force structure, for its capability, development, its command, its deployment and the training of our defence forces. So I don’t put this forward lightly.

His comments, which concerned climate-related natural disasters *within* Australia, apply equally well to the unfolding situation in our immediate region. Australia’s defence strategy has consistently identified maintaining the stability and security of MSEA and the South Pacific as a top strategic objective, second only to denying, deterring and defeating attacks directly on Australia. Realising that objective is about to become much harder.
Notes
1 Royal Commission into National Natural Disaster Arrangements, Report, 28 October 2020, online.
5 H-O Partner, 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.
6 National Centers for Environmental Information, ‘Tropical cyclone tracks map’, National Oceanic and Atmospheric Administration (NOAA), Maryland, no date, online.
7 Vincent Eck, Building resilience to climate events, devastating storms, Swiss Re Group, 15 April 2019, online.
8 Rebecca Lindsey, Global impacts of El Niño and La Niña, NOAA, 9 February 2016, online; National Ocean Service, What are El Nino and La nina?, NOAA, no date, online.
10 Zeke Hausfather, ‘Analysis: When might the world exceed 1.5C and 2C of global warming?’, Carbon Brief, 4 December 2020, online.
11 Sara G Miller, ‘Climate change is transforming the world’s food supply’, Live Science, 16 February 2017, online.
12 IMCCS Expert Group, Climate security and the strategic energy pathway in Southeast Asia, International Military Council on Climate and Security, February 2021, online.
13 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 Partner 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.
15 Abigail Bennett, Pawan Patil, Kristin Kleiner, 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.
17 Hoegh-Guldberg et al., ‘Impacts of 1.5°C global warming on natural and human systems’.  
18 SC Loughlin, C Yee-Brown, RSJ Sparks et al., ‘An introduction to global volcanic hazard and risk’, in S Loughlin, S Sparks, S Brown et al. (eds), Global volcanic hazards and risk, Cambridge University Press, 2015, online.
19 ‘Natural disasters in Indonesia’, Indonesia Investments, no date, online.
22 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.
23 PriceWaterhouseCoopers (PWC), The Long View: How will the economic order change by 2050?, February 2017, online.
25 Johanna Chisholm, ‘Indonesia and the Philippines have 90% of Southeast Asia’s poorest’, Global, 21 November 2017, online.
26 ‘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.
27 ‘Southeast Asia’s widening inequalities’, The ASEAN Post, 17 July 2018, online.
28 ‘Philippines: Mindanao conflict’, ACAPS, 10 March 2021, online.
29 Tim Lindsey, ‘Jakarta riots reveal Indonesia’s deep divisions on religion and politics’, The Conversation, 27 May 2019, online.
30 Rebecca Gredley, ‘BOM pivots to security over climate risks’, The West Australian, 16 October 2020, online.
31 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.
32 ‘Fact sheet: President Biden takes executive actions to tackle the climate crisis at home and abroad, create jobs, and restore scientific integrity across federal government’, The White House, Washington DC, 27 January 2021, online.
Acronyms and abbreviations

ENSO El Niño – Southern Oscillation
ADF Australian Defence Force
MSEA maritime Southeast Asia

About the author

Dr Robert Glasser is head of ASPI’s new Climate and Security Policy Centre. He was previously the United Nations Secretary General’s Special Representative for Disaster Risk Reduction.

About ASPI

The Australian Strategic Policy Institute was formed in 2001 as an independent, non-partisan think tank. Its core aim is to provide the Australian Government with fresh ideas on Australia’s defence, security and strategic policy choices. ASPI is responsible for informing the public on a range of strategic issues, generating new thinking for government and harnessing strategic thinking internationally. ASPI’s sources of funding are identified in our annual report, online at www.aspi.org.au and in the acknowledgements section of individual publications. ASPI remains independent in the content of the research and in all editorial judgements. It is incorporated as a company, and is governed by a Council with broad membership. ASPI’s core values are collegiality, originality & innovation, quality & excellence and independence.

ASPI’s publications—including this paper—are not intended in any way to express or reflect the views of the Australian Government. The opinions and recommendations in this paper are published by ASPI to promote public debate and understanding of strategic and defence issues. They reflect the personal views of the author(s) and should not be seen as representing the formal position of ASPI on any particular issue.

Important disclaimer

This publication is designed to provide accurate and authoritative information in relation to the subject matter covered. It is provided with the understanding that the publisher is not engaged in rendering any form of professional or other advice or services. No person should rely on the contents of this publication without first obtaining advice from a qualified professional.

About Strategic Insights

Strategic Insights are short studies intended to provide expert perspectives on topical policy issues. They reflect the personal views of the author(s), and do not in any way express or reflect the views of the Australian Government or represent the formal position of ASPI on any particular issue.

ASPI

Tel +61 2 6270 5100
Fax +61 2 6273 9566
Email enquiries@aspi.org.au
www.aspi.org.au
www.aspistrategist.org.au

facebook.com/ASPI.org
@ASPI_org

ISSN 1449-3993
© The Australian Strategic Policy Institute Limited 2021

This publication is subject to copyright. Except as permitted under the Copyright Act 1968, no part of it may in any form or by any means (electronic, mechanical, microcopying, photocopying, recording or otherwise) be reproduced, stored in a retrieval system or transmitted without prior written permission. Enquiries should be addressed to the publisher.

Notwithstanding the above, educational institutions (including schools, independent colleges, universities and TAFEs) are granted permission to make copies of copyrighted works strictly for educational purposes without explicit permission from ASPI and free of charge.
The rapidly emerging crisis on our doorstep