ASIA-PACIFIC LEADERSHIP NETWORK

DEFENCE RESILIENCE IN THE AGE OF CLIMATE CHANGE: A CASE FOR MIDDLE POWER PARTNERSHIP

Grace Corcoran, Research Fellow and the Senior Policy and Projects Manager in the Security and Geopolitics team at the Australia India Institute.

Robert Mizo, Assistant Professor in the Department of Political Science at the University of Delhi.

Daniel Carrick, Undergraduate Student of International Relations at the University of Melbourne.

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As the Asia-Pacific struggles to adapt to climate change and its extreme consequences, the region's defence forces must act quickly to prepare together.

A new report published by the Australia India Institute, in partnership with the Asia-Pacific Leadership Network (APLN), the University of Melbourne, and Jawaharlal Nehru University recommends that growing international cooperation between countries such as India, Australia and the Republic of Korea (ROK) could be a first of its kind, Asian-led response to this rapidly evolving issue.

All three countries possess geographic reach across multiple maritime domains. While they exhibit diverse geophysical conditions in these domains, they share a common challenge of maintaining credible, ready and resilient defence capabilities under increasingly volatile climatic conditions.

This is important because climate change is emerging as one of the most significant long-term challenges to defence preparedness, requiring states to invest in building resilient and adaptive defence sectors. The impacts of climate change, including rising sea levels and temperatures, frequent and extreme weather events, and dwindling resources, are increasingly understood to affect defence establishments, critical security infrastructures, military personnel and their deployment, weapons and defence manufacturing, force readiness, strategic operations, and the effectiveness of existing security doctrines.

The scale of these challenges is already becoming apparent in the Asia-Pacific region, especially for countries like Australia, India and the ROK. In Australia, the Department

of Defence manages more than 3 million hectares of land and 25,000 buildings, with a replacement value exceeding AUD 32 billion, much of which faces growing exposure to extreme heat, flooding and bushfires. The ROK's average annual temperature has risen by approximately 1.6 degrees Celsius since 1912, significantly exceeding the global average increase of 1.09 degrees Celsius, while its sea levels have risen almost twice as fast as the global average, putting resources and personnel at risk. If sea levels rise as expected by 0.26-0.55 metres by 2100, naval bases in Mumbai, Kolkata and Visakhapatnam in India will be threatened.

These figures illustrate that climate change is not simply an environmental or humanitarian concern; it presents a growing challenge to the infrastructure, resources and operational readiness on which national defence of these countries depends. Furthermore, because climate impacts and defence resilience are shared concerns, it makes collective strategic sense for the three partners to initiate concerted efforts.

At the same time, the three countries have complementary advantages and capabilities. Australia has advanced climate risk assessment capabilities, resilient military estates, and is pioneering operational energy transition. India's defence sector has extensive experience in large-scale disaster response, extreme-terrain and high-altitude operations, and expansive naval engagement in the Indian Ocean. The ROK has developed cutting-edge military technologies, smart energy innovations, and a state-of-the-art digital command-and-control system.

For the ROK, the risks associated with climate change must be considered alongside its enduring responsibility to deter and respond to threats on the Korean Peninsula and its expanding role in regional security. The challenge for the ROK is therefore to build a climate-resilient defence sector capable of anticipating, absorbing and adapting to these pressures, while maintaining its ability to perform its core defence missions. This requires not only domestic investment in resilient infrastructure, technologies and military preparedness, but also greater international cooperation to share knowledge, capabilities and innovative approaches to climate adaptation.

The report states that as a technologically advanced middle power, with a globally competitive defence industry, the ROK is well-positioned to shape regional cooperation on defence resilience. Working alongside Australia and India – trusted partners with shared interests that form a strategic triangle across the Asia-Pacific – Seoul can champion a regionally driven approach to climate-resilient defence.

In saying this, despite its widely anticipated impacts, minimal scholarly attention has been paid to how climate change will impact the military, particularly in Asia and the Pacific. As temperatures and sea levels rise and extreme weather events become more frequent, it is more than worth understanding exactly how defence capability will be affected. From the infrastructure on which it depends, or the personnel who operate it, to the supply chains that sustain it, we have little conception of how this could reshape

defence in the Asia-Pacific. This research gap is concerning, particularly given the significant impact reduced military capability and increased instability will have on the region's geopolitical order.

The report recommends that policymakers consider investing "in a major, joint research project identifying how the impacts of climate change on maritime trade, infrastructure, personnel and defence are being felt across the region. Utilising the triangular geography of the trilateral [partnership] in this research will help the region start seriously considering how to adapt. This research could also map the relevant skills and industries across the three countries which should be leveraged to prepare for these impacts".

Given the three countries' strengths and interests in the region, there are obvious opportunities to begin working together while the research is underway. This could include sharing climate-risk assessments, exploring opportunities for developing resilient military infrastructure including green ports, and collaborating on energy-efficient defence technologies or equipment that is not impacted by changing water temperatures or salinity levels. Additionally, the three countries could consider developing a climate-aware defence strategy or doctrine to strengthen regional norms around climate resilience in defence. The report also suggests incorporating climate related scenarios into joint or regional military exercises.

This type of work is not unprecedented. For the North Atlantic Treaty Organization (NATO), the conflict in Ukraine exposed a convergence of environmental degradation and resource scarcity. Climate-related pressures created a powerful impetus to mobilise sustainably with climate adaptation in mind. They have adopted multiple strategies of adaptation, such as experiments with "the use of hydrogen in long-range drones for maritime surveillance", "the use of more economic diesel and electric engines instead of the gas turbines in new frigates" or "the development of new underwater spoilers that reduce the fuel consumption of patrol vessels". That said, the Asia-Pacific will present challenges that will require uniquely region-specific solutions, likely adapting to the environment rather than resource demands. Regardless, this NATO innovation can serve as a climate action blueprint for the defence systems of Australia, India and the ROK.

The growth of great power competition has significantly diminished a middle power's ability to exercise authority in the region, and when dealing with global existential threats, bilateral agreements only go so far. For the ROK, Australia and India, the opportunity is to demonstrate that middle powers can shape the regional security architecture through cooperation on an issue that transcends traditional security boundaries.

The risks of inaction are stark. Building climate resilient defence sectors not only bolsters the future capacities of militaries but also helps states to fulfil their

responsibility to prepare. States that can adapt to or evade environmental pressures will be in a strongly advantageous position. That is to say, climate-resilient defence is not a distraction from core military responsibilities. It is essential to ensuring that Australia, India and the ROK can continue to fulfil them.

Grace Corcoran *is a Research Fellow and the Senior Policy and Projects Manager in the Security and Geopolitics team at the Australia India Institute. She is particularly interested in Australian foreign and defence policy in Asia, Indian Ocean security, and minilateral cooperation. In her role, she researches security issues across the Indian Ocean, and leads on a project looking at defence and security cooperation between Australia, India and the Republic of Korea.*

Dr. Robert Mizo *is an Assistant Professor in the Department of Political Science at the University of Delhi. His research interests lie at the intersection of climate change, environmental security, and international environmental politics. Dr. Mizo has published his work on these topics in various national and international academic journals as well as public-facing platforms. He is the co-author of the book, Climate Change, National Security, and Geopolitics (2026), published by Routledge. Dr. Mizo is also a recipient of the Japan Foundation Indo-Pacific Partnership Fellowship (JFIPP) for 2023–24 and serves as a research fellow at the Yokosuka Council for Asia Pacific Studies (YCAPS).*

Daniel Carrick *is an undergraduate student studying International Relations at the University of Melbourne. He recently completed an internship at the Australia-India Institute.*

This commentary is also published on the APLN website.

ABOUT APLN

The **Asia-Pacific Leadership Network (APLN)** is a Seoul-based organisation and network of political, military, diplomatic leaders, and experts from across the Asia-Pacific region, working to address global security challenges, with a particular focus on reducing and eliminating nuclear weapons risks. The mission of APLN is to inform and stimulate debate, influence action, and propose policy recommendations designed to address regional security threats, with an emphasis on nuclear and other weapons of mass destruction threats, and to do everything possible to achieve a world in which nuclear weapons and other WMDs are contained, diminished, and eventually eliminated.

