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14. ABSTRACT Climate change is a significant security threat for the United States, both home and abroad. In Southeast Asia, climate change has become an existential threat that if left unchecked without scientific and technological intervention will result in debilitating economic and human suffering for a region of nearly ¾ of a billion people. As the DoD engages with its Southeast Asian allies and partners to enhance defenses against traditional threats, it has an opportunity to strengthen partner capacity to better respond to climate crises, implement effective climate mitigation and adaptation initiatives, and develop resilient infrastructure while offering an alternative to regional reliance on China. The DoD should focus its efforts on developing a climate literate force better able to engage with regional allies and partners. Additionally, the DoD should proactively assess and expand partner agreements in Southeast Asia to better facilitate sharing of knowledge, technology, and best practices to build partner capacity and improve cooperation and interoperability while promoting an autonomous Southeast Asia.					
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Introduction

According to US President Biden's 2021 *Interim National Security Strategy*, climate change is a significant security concern:

*the United States and the world will experience increasing weather extremes and environmental stress in the years ahead. But, if we fail to act now, we will miss our last opportunity to avert the dire consequences of climate change for the health of our people, our economy, our security, and our planet.*¹

In no area of the world is climate-related degradation and risk more evident than in Southeast Asia, home to 5 of the 20 most vulnerable countries to climate change.² The region has experienced over a 100% increase in critical disaster events during the 2000 to 2020 period compared to the 1980 to 2000 period; that number increases to over 200% when compared to the 1960 to 1980 period.³ For example, in 2021, Super Typhoon Rai ravaged the Philippines damaging over 1.4 million homes and displacing over 9,000,000 people, resulting in approximately \$1 billion (USD) in damage to infrastructure and agricultural loss.⁴ Rai was the 21st storm to impact the Philippines in 2021 and the second most destructive typhoon to hit the Philippines after 2013's Typhoon Haiyan.⁵

Climate change impacts on Southeast Asia have the potential to destabilize the region as

¹ White House, *Interim National Security Strategic Guidance* (Washington, DC: White House, 2021), 11–12, <https://www.whitehouse.gov/wp-content/uploads/2021/03/NSC-1v2.pdf>, 2021

² Darren Cheong, *Examining Climate-Conflict Links in Southeast Asia*, Issue: 2022, No. 15, (Singapore: ISAES-Yusof Ishak Institute 2022), Pg 4, <https://www.iseas.edu.sg/articles-commentaries/iseas-perspective/2022-15-examining-climate-conflict-links-in-southeast-asia-by-darren-cheong/>

³ Cheong, *Examining Climate-Conflict*, 4

⁴ Yasmin Bin-Humam, interview with Astrid Zwick, Emilie Fernandes, Lorenzo Chan, and Annaliza Hermamo, CGAP Inclusive Finance Frontiers, podcast transcript, <https://www.cgap.org/research/podcast/what-can-super-typhoon-rai-teach-us-about-financial-inclusion#:~:text=Typhoon%20Rai%20made%20landfall%20in,US%241%20billion%20in%20damage.>

⁵ Katherine Reid, 2013, *Typhoon Haiyan: Facts, FAQs, and how to help*, (Federal Way, Washington: World Vision, 2018), <https://www.worldvision.org/disaster-relief-news-stories/2013-typhoon-haiyan-facts>. Typhoon Haiyan resulted in over 6,000 deaths, damaged 1.1 million homes, and caused nearly \$5.8 billion (USD) in damage.

China is expanding its territorial control and influence in the region.⁶ China has invested in fossil-fuel energy production in Southeast Asia through its Belt and Road Initiative (BRI); however, it is beginning to shift away from traditional energy sources towards greener, low-carbon emitting sources. This shift provides another avenue for China to expand control in the region as countries hardest hit by the impacts of climate change have a greater probability of reliance on Chinese investment to create more resilient infrastructure and support national services. A resulting regional reliance on Chinese support threatens independence and the goal of a free and open Indo-Pacific, a significant security and economic interest for the US.

As the DoD engages with Southeast Asian allies and partners to enhance defenses against traditional threats, it also has an opportunity to strengthen partner capacity to better respond to climate crises, implement effective climate mitigation and adaptation initiatives, and develop resilient infrastructure while reducing reliance on China. The DoD should focus efforts on developing a more climate literate force that is aware of the climate security challenges and able to engage with regional allies and partners more effectively. Additionally, the DoD should proactively assess and expand partner agreements in Southeast Asia and leverage these agreements to extend information and technological sharing that deepens cooperation. This paper provides an overview of the security concerns presented by climate change in Southeast Asia. Next, it provides current DoD strategies and initiatives for building partner capacity and resilience to address security concerns to promote and maintain a free and prosperous region. Lastly, it recommends actions for the DoD to meet its strategic objectives to reduce the security threats posed by climate change in Southeast Asia.

⁶ US Department of Defense, Office of the Undersecretary for Policy (Strategy, Plans, and Capabilities), 2021. *Department of Defense Climate Risk Analysis*, Report Submitted to National Security Council (Washington, DC: Department of Defense, October 2021), 6

Defining the Security Challenge

Climate change presents an existential threat to Southeast Asian countries, raising environmental security concerns for the region and is becoming a significant security interest for the United States. Southeast Asia is home to 676 million people spread over ten countries, with an economy exceeding \$3 trillion, with which the US serves as its principal trading partner.⁷ Over the last few decades, the Association of Southeast Asian Nations (ASEAN) has helped improve stability and economic growth by eliminating long-standing regional conflicts.⁸ Economic growth in this region is expected to continue its climb. The International Monetary Fund (IMF) anticipates that the five largest economies within Southeast Asia will expand at 4.3 percent in 2023 and 4.7 percent in 2024.⁹ However, decades of economic growth, cooperation, and continued economic and political stability in this region are at risk due to the security challenges posed by climate change.

Climate change has a destabilizing effect, impacting several areas of environmental security. Environmental security can be defined as, “the absence of risk or threat to the environment a person or community depends on and lives in.”¹⁰ According to the Department of State, environmental security is a critical element of Southeast Asia's regional security and of the

⁷ Murray Hiebert, Danielle Fallin, “Security Challenges of Climate Change in Southeast Asia,” *Center for Strategic and International Studies (CSIS)*, October 5, 2021, <https://www.csis.org/analysis/security-challenges-climate-change-southeast-asia>,

⁸ David Dennis, “Southeast Asia’s Coming Climate Crisis, New Perspectives on Asia,” *Center for Strategic and International Studies (CSIS)*, May 22, 2020, <https://www.csis.org/blogs/new-perspectives-asia/southeast-asias-coming-climate-crisis>, 2.

⁹ Jayant Menon, “Southeast Asian Economies: Out of the Storm, Clouds on the Horizon,” *Fulcrum*, February 20, 2023, [https://fulcrum.sg/southeast-asian-economies-out-of-the-storm-clouds-on-the-horizon/#:~:text=In%20its%20latest%20forecast%2C%20the,\(ADB\)%20is%20more%20optimistic.,](https://fulcrum.sg/southeast-asian-economies-out-of-the-storm-clouds-on-the-horizon/#:~:text=In%20its%20latest%20forecast%2C%20the,(ADB)%20is%20more%20optimistic.,) 1 (see also Table 1)

¹⁰ Rebecca Froese, Janpeter Schilling, “The Nexus of Climate Change, Land Use, and Conflicts,” *Current Climate Change Reports*, February 2, 2019, p. 25, citing Vivekananda J. Schilling J, Mitra S, Pandey N. On Shrimp, “Salt and Security: Livelihood Risks and Responses in South Bangladesh and East India,” *Environ Dev Sustain*, 2014;16(6):1141-61. <https://doi.org/10.1007/s10668-014-9517-x>

US national security.¹¹ Climate change has a direct impact on the availability of resources such as food, water, and energy. Climate change causes loss of livelihoods from damage to land and infrastructure, long-term impacts to agriculture from climate-related disasters, and forces migration and displacement.¹² Adverse impacts to these areas threaten stability as living conditions worsen for the impacted population.¹³

Current projections by the Asian Development Bank (ADB) estimates an 11 percent decline of the region's economy by this century's end if climate change is left unchecked.¹⁴ In the lower Mekong River Basin (LMB), which includes Cambodia, Laos, Thailand and Vietnam, disruptions to fragile ecosystems caused by climate change threaten the fishing and agriculture industries. Agriculture impacts from salinity intrusion, flooding, drought, and soil erosion threaten fertile areas along the Mekong River, with significant projected impacts on rice production and the shrimp industry.¹⁵ Southeast Asia could see up to half of its rice yields decrease by the end of this century without some kind of scientific advancements, resulting in devastating economic and human security impacts.¹⁶ According to the Center for Strategic and International Studies (CSIS), one degree of warming could threaten the livelihood of up to fifty

¹¹ US Department of State, *Environmental Security Threat Report*, Bureau of European and Eurasian Affairs Reports, (Washington, DC: Department of State, October 2001), 1, <https://2001-2009.state.gov/p/eur/rls/rpt/2001/5882.htm>.

¹² United Nations environment programme, "Climate Change and Security Risks," accessed 07May2023, <https://www.unep.org/explore-topics/disasters-conflicts/what-we-do/disaster-risk-reduction/climate-change-and-security#:~:text=Security%20concerns%20linked%20to%20climate,and%20forced%20migration%20and%20displacement>.

¹³ Sheri Goodman, interview by Ted O'Callahan, "What is Environmental Security," Yale Insights, April 15, 2012, <https://insights.som.yale.edu/insights/what-is-environmental-security>

¹⁴ Hiebert and Fallin, "Security Challenges of Climate Change in Southeast Asia,"; Amit Prakash, "Boiling Point," *Finance and Development*, September 2018, 22; Mekong River Commission, "Climate Change," accessed April 16, 2023, 1, <https://www.mrcmekong.org/our-work/topics/climate-change/#:~:text=rising temperatures and changes in food shortages and diminished livelihoods>.

¹⁵ Amit Prakash, "Boiling Point," *Finance and Development*, September 2018, 25; Mekong River Commission, Climate Change, accessed April 16, 2023, 3. <https://www.mrcmekong.org/our-work/topics/climate-change/#:~:text=rising temperatures and changes in food shortages and diminished livelihoods>.

¹⁶ Hiebert, Fallin, "Security Challenges of Climate Change in Southeast Asia,"; Prakash, "Boiling Point," 22

percent of Thailand's population and agricultural crops.¹⁷ In the Philippines, projected declines in agriculture, which accounts for about 12% of GDP, are 10% for every 1-degree increase in temperature.¹⁸ Issues like transboundary water management are increasingly causing regional tensions.¹⁹ The Mekong River, sourced in China, benefits 60 million people in Cambodia, Laos, Thailand, Myanmar, and Vietnam; drought conditions impacts are exacerbated by the operation of Chinese dams upstream.²⁰ The transboundary impacts of climate change on limited resources are compounded by external control of these resources, leaving downstream nations vulnerable. Additionally, territorial claims and access to valuable resources, including oil, gas, sub-sea minerals, fishing, sea lane control, and protection of trade routes, are also increasingly the source of regional tensions, further contributing to resource and food shortages.²¹

The 2021 DoD Climate Risk Assessment notes that reduced resources will likely contribute to increased tensions within impacted countries and externally between countries.²² Reduced abilities of governments to respond to increasingly severe weather events strain the abilities of governments to meet basic demands, leading to significant human security implications.²³ Civil unrest, threats from domestic insurgents or militant groups, and tensions between communities over limited resources can contribute to unrest and upend a delicate balance in national and regional security.²⁴ Climate change's environmental security impacts

¹⁷ Hiebert, Fallin, "Security Challenges of Climate Change in Southeast Asia."

¹⁸ "Climate Change Risk Profile Philippines," United States Agency for International Development, February 2017, p. 2.

¹⁹ Shiloh Feztek, Rachel Fleishman, Andrea Rezzonico, "Climate Security and the Strategic Energy Pathway in Southeast Asia: Part of the 'World Climate and Security Ret 2020' Briefer Series," International Military Council on Climate and Security, February 2021, 14

²⁰ Feztek, "Climate Security and the Strategic Energy Pathway in Southeast Asia," 10

²¹ Feztek, "Climate Security and the Strategic Energy Pathway in Southeast Asia," 11-13

²² US Department of Defense, *Department of Defense Climate Risk Analysis*, 9

²³ Feztek, "Climate Security and the Strategic Energy Pathway in Southeast Asia," 13

²⁴ Feztek, "Climate Security and the Strategic Energy Pathway in Southeast Asia," 13

increase the risks of non-violent and violent conflicts. Internal and cross-border migration from populations involuntarily displaced from natural disasters and those seeking refuge from loss of livelihoods in impacted areas threaten to strain resources in host communities or countries, raising tensions and increasing the likelihood of instability.²⁵ The World Bank estimates that by 2050, climate change could result in the internal migration of as many as 49 million people within their own countries in East Asia and the Pacific, leading to overcrowding and causing more demand on already limited resources and infrastructure across the region.²⁶ These examples demonstrate the delicacy of maintaining geopolitical balance amid reduced resources and increasingly unpredictable environmental conditions.

Environmental Security issues need not directly harm US territory to threaten US national security.²⁷ US interest in Southeast Asia goes beyond trade impacts – economic and political destabilization can set economic and geopolitical cooperation back decades. It also opens the door for increased Chinese influence and exploitation of these areas to achieve China’s own goal of increasing leadership in the developing world.²⁸ Through its Belt and Road Initiative (BRI), China has supported the development and financing of hundreds of power plants worldwide, including in Southeast Asia.²⁹ Much of the financing has gone to nonrenewable energy sources such as fossil fuels and coal projects, which will only extend these countries’ dependence on

²⁵ Dennis, “Southeast Asia’s Coming Climate Crisis, New Perspectives on Asia,” 2

²⁶ Kwan Soo-Chen, David McCoy, “Climate Displacement & Migration in South East Asia,” *Inter Press Service News Agency*, February 28, 2023, https://www.ipsnews.net/2023/02/climate-displacement-migration-south-east-asia/?utm_source=rss&utm_medium=rss&utm_campaign=climate-displacement-migration-south-east-asia

²⁷ Environmental Security Threat Report, US Department of State, October 2001, US Department of State Archives, <https://2001-2009.state.gov/p/eur/rls/rpt/2001/5882.htm>.

²⁸ Phillip Stalley, “China is Doing More than You Think to Fight Climate Change,” *Earth Island Journal*, December 9, 2021, https://www.earthisland.org/journal/index.php/articles/entry/fight-climate-change-china-doing-more-than-you-think/?utm_source=google&utm_medium=paid&utm_campaign=tfds_a&gclid=CjwKCAjwge2iBhBBEiwAfxDBR-JUvagM-wpAiBkcJx_vWyfnCzn4UD9wv_BF1Mb7U9zCVAZyigTiZR0cBTwQAvD_BwE

²⁹ Lindsay Maizland, “China’s Fight Against Climate Change and Environmental Degradation,” Council on Foreign Relations, May 19, 2021, 4

high carbon emitting energy sources.³⁰ However, China has signaled a shift to its approach, indicating that it will "no longer consider projects with high pollution and high energy consumption, such as coal mining [and] coal-fired power stations."³¹ China has increased its development of green energy and low-carbon technologies as it transitions to a goal of green development for the BRI.³² This will enable China to increase both low and high carbon emitting infrastructure project investments in Southeast Asia, further expanding its relevance and influence through its BRI initiatives by adapting them to meet the emerging critical needs of these countries.³³ This will likely increase Southeast Asia's reliance on Chinese investment, challenging the US to grow and strengthen relationships and maintain a free and open Indo-Pacific.

As the US seeks to compete with China in Southeast Asia to build and maintain influence and presence and preserve US interests in the region, engaging with and investing in partner nations on climate change is a critical component.³⁴ This goal is beginning to be incorporated into every level of strategic planning from the White House to the Geographic Combatant

³⁰ Jennifer Hillman, Alex Tippet, "The Climate Challenge and China's Belt and Road Initiative," *Council on Foreign Relations* (from *The Internationalist*), March 31, 2021, <https://www.cfr.org/blog/climate-challenge-and-chinas-belt-and-road-initiative>.

³¹ Hillman, "The Climate Challenge and China's Belt and Road Initiative," (citing statement by China to Bangladesh's Ministry of Finance made during debt negotiations in February 2021).

³² David Sandalow, "China's Response to Climate Change: A Study in Contrasts and a Policy at a Crossroads," *Asia Society Policy Institute*, July 2020, 12; The World Bank, "China's Transition to a Low-Carbon Economy and Climate Resilience Needs Shifts in Resources and Technologies," October 12, 2022, <https://www.worldbank.org/en/news/press-release/2022/10/12/china-s-transition-to-a-low-carbon-economy-and-climate-resilience-needs-shifts-in-resources-and-technologies#:~:text=The%20World%20Bank%20Group%E2%80%99s%20Country%20Climate%20and%20Development,before%202030%20and%20achieve%20carbon%20neutrality%20by%202060>. (As noted in this article, China currently has an "estimated 54 million 'green jobs' with over 4 million jobs in renewable energy". China has also pledged to stop building coal-fired power plants abroad.)

³³ Abraham Denmark, "The Climate Crisis and Southeast Asian Geopolitics," *Wilson Center* (blog), April 6, 2021, <https://www.wilsoncenter.org/blog-post/climate-crisis-and-southeast-asian-geopolitics>

³⁴ Caroline Baxter, Erin Sikorsky, "Want to Compete with China? Deliver on Climate Security for the Indo-Pacific," *Just Security*, May 21, 2021, <https://www.justsecurity.org/76226/want-to-compete-with-china-deliver-on-climate-security-for-the-indo-pacific/>

Commands to the individual military services. The DoD is formally incorporating considerations for climate change mitigation, adaptation, and resilience into planning, decision-making, and acquisition strategies. A review of DoD's strategic framework and policy goals pertaining to addressing the security concerns posed by climate change and the status of current DoD initiatives to address climate change provides context for its current approach.

Current Approaches

US national policy incorporates climate change and associated strategic objectives to address security concerns domestically and abroad. Addressing the destabilizing impacts of climate change domestically and abroad is a recognized US priority, as outlined in the *National Security Strategy (NSS)*.³⁵ The *NSS* affirms the US commitment to enhancing partners' climate resilience and seeking climate solutions.³⁶ Recognizing the need for financial assistance to lower- and middle-income countries, the *NSS* sets a goal of committing \$11 billion annually in climate funding and investment strategies incorporating climate change and collaboration with development finance institutions, the World Bank, and regional development banks.³⁷

The US Indo-Pacific Strategy describes a quickly changing strategic landscape in the Indo-Pacific region, with China expanding its influence in Southeast Asia as its governments struggle with increasingly severe and frequent natural disasters and resource scarcity due to climate change impacts.³⁸ Echoing the *NSS*, the Indo-Pacific Strategy seeks to support “ a free and open Indo-Pacific that is more connected, prosperous, secure, and resilient,” through efforts

³⁵ White House, *National Security Strategy* (Washington, DC: White House, 2022), 28, <https://www.whitehouse.gov/wp-content/uploads/2022/10/Biden-Harris-Administrations-National-Security-Strategy-10.2022.pdf>

³⁶ White House, *National Security Strategy*, 38

³⁷ White House, *National Security Strategy*, 28

³⁸ White House, *Indo-Pacific Strategy of the United States* (Washington, DC: White House, 2022), 5, <https://www.whitehouse.gov/wp-content/uploads/2022/02/U.S.-Indo-Pacific-Strategy.pdf>

to “modernize... alliances, strengthen emerging partnerships, and invest in regional organizations” to build a collective capacity to meet security challenges in the region.³⁹ In early 2021, President Biden issued Executive Order 14008, affirming “[US] Policy that climate considerations will be an essential element of United States foreign policy and national security.”⁴⁰ Emphasizing the urgent need for US engagement internationally to address climate change, the Order tasks federal agencies, including the DoD, to prioritize climate change and incorporate identified security implications into their future strategic plans and programs.⁴¹ In 2021, the DoD published its Climate Adaptation Plan (CAP), a roadmap for operational resiliency in light of climate change impacts. While predominantly internally focused, the CAP alludes to opportunities for engagement with partner countries. These engagements include achieving better Humanitarian Assistance and Disaster Relief (HADR) support through early identification of climate impacts and efforts to help prepare partners to face climate-related conflicts through strengthened military to military engagement programs.⁴² The CAP promotes the enhancement of partner capacity for response to climate impacts, acceleration of climate change-related knowledge through technical exchanges, and support for the development of infrastructure that is resilient to local climate-change conditions.⁴³

Although climate change is being incorporated into DoD planning and strategy documents, full integration is still several years away. Likewise, the DoD's plan to train and equip a climate-literate force is still in development. It will take several years to fully integrate

³⁹ White House, *Indo-Pacific Strategy of the United States*, 6.

⁴⁰ Executive Order 14008, Sec. 101, 7619, (January 27, 2021), <https://www.federalregister.gov/documents/2021/02/01/2021-02177/tackling-the-climate-crisis-at-home-and-abroad>

⁴¹ Executive Order 14008, Sec. 103(c) and (d), 7621.

⁴² US Department of Defense, Office of the Undersecretary of Defense (Acquisition and Sustainment), 2021. *Department of Defense Climate Adaptation Plan*. Report Submitted to National Climate Task Force and Federal Chief Sustainability Officer (Washington, DC: Department of Defense, September 2021), 7

⁴³ US Department of Defense, “*Department of Defense Climate Adaptation Plan*,” 19

into Professional Military Education for leader development.⁴⁴ Future use of the DoD Climate Assessment Tool (DCAT) by Combatant Commands (CCMDs) will support incorporating climate data into assessments globally.⁴⁵ Future initiatives, such as the development and implementation of climate change awareness and training programs for uniformed and civilian personnel will support the integration of climate change considerations in decision-making at all levels.⁴⁶ As the DoD begins to roll out these initiatives to train and equip a climate-ready force, the next step will be to integrate this knowledge, technology, and lessons learned to begin building partner capacity in Southeast Asia.

Recommendations

Recommendation 1: A Climate Literate Force

The DoD is incorporating climate change into its Joint Professional Military Education (JPME) curriculum to train and equip a climate-ready force. Current Senior Service College programs have begun to offer select climate change-focused courses.⁴⁷ To complement education and climate literacy, the DoD also seeks to integrate climate change into wargaming and training exercises to better understand impacts and factors that may present challenges in future

⁴⁴ US Department of the Army, *The Army Climate Strategy Implementation Plan, Fiscal Years 2023-2027*, (Washington, DC: Department of the Army, October 5, 2022) https://www.army.mil/e2/downloads/rv7/about/2022_Army_Climate_Strategy_Implementation_Plan_FY23-FY27.pdf

⁴⁵ *Department of Defense's role in supporting the State Department, USAID, and allies and partners to address the effects of climate change in the Indo-Pacific region: Testimony before the Committee on Foreign Relations, Subcommittee on East Asia, the Pacific, and International Cybersecurity Policy*, 117th Congress (July 21, 2021) (Statement by Melissa Dalton, Acting Assistant Secretary of Defense for Strategy, Plans, and Capabilities, Office of the Secretary of Defense), 3-4

⁴⁶ US Department of Defense, Office of the Undersecretary of Defense (Acquisition and Sustainment), 2022. *Department of Defense Climate Adaption Plan 2022 Progress Report*. Report Submitted to National Climate Task Force and Federal Chief Sustainability Officer (Washington, DC: Department of Defense, October 2022), 5 (ref: LOE 2)

⁴⁷ Greg Pollock, John C Ellis, "Integrating Climate change into professional military education," *Journal of Security, Intelligence and Resilience Education*, Volume 12, No. 5 (2021): https://jsire.org/wp-content/uploads/sites/661/2021/12/v12_5_pollock-ellis.pdf

conflicts.⁴⁸ Wargaming exercises with partner nations in Southeast Asia that address impacts caused by climate change will enhance partner nation knowledge, assessment capabilities, and development of operational resilience to improve response to and mitigation of security risks posed by climate change.⁴⁹ In addition to building partner knowledge and capacity to respond to climate crises and build operational resilience, the DoD will gain valuable lessons that can better inform its climate-literacy curriculum while building interoperability and insight into unique climate considerations. Professional military education institutions can offer this curriculum as part of its JPME-I and JPME-II course load and introduce it to international students studying in the US, specifically to those students from climate vulnerable nations like those in Southeast Asia.

Recommendation 2: Expand Partnership Agreements

The US continues to support the autonomy and territorial integrity of countries in Southeast Asia.⁵⁰ Visiting Forces or Partnership agreements allow for greater engagement, information sharing, and rapid response during natural disasters or crises. In 2013, for example, the US was able to leverage its Visiting Forces Agreement with the Philippines to provide an immediate and substantial large-scale response to the catastrophic Typhoon Haiyan, contributing immediate transportation and logistics operations support.⁵¹ The agreement supported increased mutual trust and interoperability and allowed for smooth and rapid coordination in response to

⁴⁸ US Department of Defense, *Climate Adaptation Plan Progress Report*, 3.

⁴⁹ Baxter, Sikorsky, "Want to Compete with China? Deliver on Climate Security for the Indo-Pacific,"

⁵⁰ US Department of Defense, *INDO-PACIFIC Strategy Report Preparedness, Partnerships, and Promoting a Networked Region*, (Washington, DC: Department of Defense, June 2019), 47, <https://media.defense.gov/2019/Jul/01/2002152311/-1/-1/1/DEPARTMENT-OF-DEFENSE-INDO-PACIFIC-STRATEGY-REPORT-2019.PDF>

⁵¹ Catherine A. Reppert, "Climate Change: An Opportunity for INDOPACOM," *Parameters* 53, no. 1 (2023), 72–73, doi:10.55540/0031-1723.3204.

the crisis on the ground.

One of the goals outlined in DoD's CAP is to reinvigorate the Defense Environmental International Cooperation (DEIC) program.⁵² DEIC is an engagement tool that Combatant Commands can use to support security cooperation activities.⁵³ DEIC could be a useful pathway to strengthen strategic partnerships to improve climate security resiliency for allies and partners.⁵⁴ A review of other current US agreements to identify areas for further development, modernization, or establishment with Southeast Asian nations provides a mechanism for additional climate change engagement. The results of these engagements could support future exercises and joint training, build interoperability for expedited and effective response, and a means for the DoD to work with allies and partners more effectively "to increase resilience and reduce the potential political instability that climate change represents."⁵⁵

Military-to-military collaborations and engineering exercises can incorporate climate risk assessments into future exercise rotations to strengthen partner capabilities and knowledge. One example where this could be implemented is the Pacific Partnership, the largest annual multinational HADR preparedness mission in the Indo-Pacific.⁵⁶ Pacific Partnership focuses on synchronization and enhanced interoperability in response to natural disasters and emergencies.⁵⁷

⁵² US Department of Defense, "*Department of Defense Climate Adaptation Plan Progress Report*," 4

⁵³ Susan L. Clark-Sestak, *A History of the Defense Environmental International Cooperation Program*, IDA Document D-10600, (Alexandria, VA: Institute for Defense Analysis, 2019), iii, <https://www.ida.org/-/media/feature/publications/a/ah/a-history-of-the-defense-environmental-international-cooperation-program/d-10600.ashx>

⁵⁴ US Department of Defense, "*Department of Defense Climate Adaptation Plan Progress Report*," 4

⁵⁵ Deborah Loomis, "High Level Discussion," (presentation, National Security Significance of a Changing Climate, Naval Climate Engagement Leading International Action, United States Naval War College, Newport, RI, January 19, 2023), <https://usnwc.edu/News-and-Events/Events/National-Security-Significance-of-the-Changing-Climate-Naval-Climate-Engagement>

⁵⁶ US Department of the Navy, "Pacific Partnership 2022 Kicks off in Solomon Islands," August 31, 2022, <https://www.navy.mil/Press-Office/News-Stories/Article/3144949/pacific-partnership-2022-kicks-off-in-solomon-islands/>

⁵⁷ US Department of the Navy, "Pacific Partnership 2022 Kicks off in Solomon Islands."

Integrating practical engineering and technical expertise and data-driven climate assessments into operational training like this provides a means for DoD to build partner capacity and self-reliance.⁵⁸ Additionally, focused assessments of infrastructure failure and collaborative discussions regarding mitigation opportunities to prevent these failures from occurring in the future will provide the pathway for future DoD support projects and investment opportunities from interagency organizations like USAID.

Recommendation 3: Leverage the Agreements

As the DoD integrates climate change into risk analyses, strategic development, planning, modeling, simulation, training and wargaming, and key strategy documents, it will develop critical knowledge, expertise, and best practices for combating the security threats posed by climate change. While it may not be the lead US agency in addressing climate change impacts worldwide, the DoD is well positioned to leverage agreements with allies and partners to facilitate sharing lessons learned, technical expertise, data modeling, risk assessments, and decision-making strategies. The DoD's unique global and regional perspectives, ability to adapt to a shifting operational environment, and technical knowledge will position it as a trusted partner in tackling security risks posed by climate change.

In 2019, the Combat Capabilities Development Command under Army Futures Command participated in the Capable Logistician exercise in Poland, a joint NATO exercise involving 30 countries to integrate a tactical microgrid designed to test energy interoperability. The exercise resulted in a fuel reduction of 90% when compared to 24/7 diesel generator use.⁵⁹

⁵⁸ US Department of Defense, "*Department of Defense Climate Adaptation Plan*," 9-11, 19-21 (Ref: LOEs 2, 5.)

⁵⁹ "NATO Tests Smart Energy Technologies At Exercise In Poland," North Atlantic Treaty Organization, June 13, 2019, https://www.nato.int/cps/en/natohq/news_166827.htm?Selectedlocale=en; Dan Lafontaine, "Army Futures Takes Key Step In Enabling Interoperability Of Multinational Power System," Combat Capabilities Development Command C5ISR Center, June 16, 2019,

Exercises like this promote sharing of information and technical knowledge while providing solutions to real-time security concerns and strengthening partner capacity and the overall security environment. In Southeast Asia, similar bilateral or multilateral exercises would promote knowledge sharing and interoperability while promoting new adaptive and mitigation technologies and enhancing operational resilience. Additionally, the DoD should consider expanding the use of the DCAT tool beyond the DoD's current commitments with Japan and the Republic of Korea to extend sharing of data with allied and partner nations in Southeast Asia.⁶⁰

As the DoD assesses its installations and climate vulnerabilities, climate-conscious acquisitions will support sustainable building and provide low-carbon alternatives to traditional building materials such as concrete and steel and alternative renewable energy sources.⁶¹ While reducing the DoD's carbon footprint, this also makes the DoD a global leader in mitigation and adaptive technologies. By leveraging established partnerships with Southeast Asian countries, DoD can provide technical knowledge and best practices to help inform a model for reducing carbon emissions while remaining operationally resilient.

Conclusion

Climate change continues to emerge as a national security risk for the United States and an international security challenge. Global collaboration and cooperation will be needed to meet this challenge. The DoD is positioned to leverage its forward posture and reach to help address

https://c5isr.ccdc.army.mil/news_and_media/Army_Futures_takes_key_step_in_enabling_interoperability_of_multi-national_power_systems/

⁶⁰ Dalton, testimony on *DoD's role on climate change*.

⁶¹ Regarding meeting objectives laid out in Executive Order 14008, the 2022 NDAA, Sec. 2861 authorized the "Pilot Program on Increased Use of Mass Timber in Military Construction." Mass Engineered Timber provides a low-carbon emitting alternative construction material, an example of technology that could be shared with Allies and partners in Southeast Asia to mitigate climate change impacts and meet goals to reduce carbon emissions by 2050.

these security risks with its allies and partners. In Southeast Asia, the DoD's goals of countering climate security risks can be accomplished by integrating climate into operational considerations and planning, developing a more climate literate force, and building regional partner capacity to better respond to climate crises. To meet its goals, the DoD must employ a deliberate strategy of establishing formal partnerships and enhancing existing partnerships. The DoD must use these partnerships to promote more exercises that integrate climate change factors and considerations in order to build interoperability by sharing best practices; technological expertise, and practical solutions to improve infrastructure and operational resilience.

Additionally, as the DoD continues to integrate climate focus at all levels, continuous improvement with a stronger emphasis on climate change in strategy and policy documents is critical to ensuring all levels understand the DoD's priorities. The most recent DoD Indo-Pacific Strategy Report from June 1, 2019, for example, does not yet incorporate all the recent policy changes related to DoD's climate-specific lines of effort. This is a missed opportunity to better integrate climate considerations into preparedness and partner engagement in Southeast Asia and highlight these priorities as a current effort. Future revisions must integrate a stronger emphasis on climate change and identify specific areas of opportunity for the DoD to strengthen regional partnerships and build partner capacity and climate resilience. The meaningful actions we take today will be critical for future advancement, integration, and continued prosperity tomorrow.