

# BRIEFER

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## Climate Security Risks in the Asia-Pacific: An opportunity for U.S. Engagement

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The United States is a Pacific nation with significant economic and security interests in the region that will continue to be an important factor in shaping U.S. foreign and security policy. Climate change is affecting security dynamics in Asia-Pacific in a variety of ways, and more widespread and severe climate impacts will make the challenges of managing climate risk in the region more acute. Asia-Pacific is home to rising powers and a number of failed states – including states with nuclear capabilities – and climate risks will bring significant tensions and friction to the regional geopolitical context.

These ongoing challenges are likely to have repercussions for strategic U.S. interests and alliances in the region, and recognition of this fact has shaped the expansion of U.S. engagement in Asia-Pacific, which has prioritized cooperation with allies on capacity-building for disaster risk reduction and humanitarian assistance and disaster response.

The U.S. military hosts numerous coastal installations across the region, including on the west coast of the U.S., many of which are vulnerable to climate change impacts including sea level rise. Over time, climate impacts on military installations could degrade the DoD's ability to achieve its mission in Asia-Pacific.

Promoting peace and stability in the context of climate change will require ongoing regional foreign policy and security engagement from the United States. Given the scale and likelihood of the threats climate change poses, continuing to assess and respond to climate change risks in the region should continue to be a core element of U.S. national security and foreign policy.

### **Reaffirming alliances in Asia-Pacific**

U.S. economic and security interests in Asia-Pacific remain strong. Maintaining close alliances is important to achieve strategic objectives in the region, and the U.S. has recently restated its security commitment to long-standing allies in North-east Asia. Communications between the U.S. President and the leaders of Japan and the Republic of Korea, as well as a visit by the Secretary of Defense to each of these countries, have sent [clear signals](#) early in the new Administration that close cooperation with the U.S. is likely to continue. Japan and ROK are key U.S. trading partners and trade relationships between the U.S. and countries in Asia-Pacific are likely to remain significant, providing the additional benefit of helping maintain stability in the region.

### **Engagement for managing climate security risks**

An Asia-Pacific strategy that promotes stability across the region will also rely on strengthening partnerships with a range of U.S. allies. One effective method of doing so has been to support capacity-building around disaster risk reduction and response. As one of the most disaster-prone regions of the world, Asia-Pacific is vulnerable to both direct and indirect security risks associated with climate change. The U.S. has a long history of cooperation with countries and regional security entities in Asia-Pacific to manage disaster-related risks, and this cooperation forms a key pillar of the U.S. engagement strategy in the region. Effective disaster response not only serves to meet immediate humanitarian needs, it also helps maintain the rule of law, and can prevent extremist groups from taking advantage of ungoverned spaces. U.S. Pacific Command coordinates regular training and capacity-building exercises in Asia-Pacific annually that meet this objective.

### **Climate impacts on security dynamics in Asia-Pacific**

Climate impacts are likely to become more severe and disruptive in the future, with attendant security risks. Extreme weather events will drive more severe disasters, warming and acidifying oceans will increase competition for marine food resources. Sea level rise will impact coastal populations, infrastructure and maritime boundary delimitations, presenting significant geopolitical, economic and security risks. Much of Asia-Pacific's economic infrastructure and population is located on or near coasts, including a number of coastal megacities. In addition to causing coastal flooding and erosion, sea level rise amplifies the destructive power of tidal surges from storms, which are likely to become more frequent and intense in some parts of the region. Food insecurity is likely to increase as a result of simultaneous trends of population growth and declines in crop yields and marine-based food sources, which will create pressure on food costs. A combination of factors, some of which are related to climate stressors, is likely to drive more internal and cross-border migration; this will pose additional governance challenges in a region where migration is already a source of tension between some countries. Regional security and cooperation bodies have sometimes fallen short of their objectives in managing these challenges.

A number of countries in Asia-Pacific, such as Indonesia and the Philippines, face significant underlying security fragilities as well as climate vulnerabilities. The strategic risks posed by climate change will remain an important factor in assessing the evolving geopolitical landscape in Asia-Pacific. Addressing climate risks will continue to provide opportunities for engagement and relationship-building between the U.S. and its allies in the region.

### **Pacific military installations and climate threats**

Military installations across the region are vulnerable to climate impacts, including those on the west coast of the U.S. Sea level rise will exacerbate coastal flooding, erosion and inundation. Changing climate norms and more variable climate may also affect military installations through drought, wildfires (which burned 23,000 acres, or 18% of the base, at Marine Corps Base Camp Pendleton in southern California in 2014),<sup>i</sup> thermal stress, reduced freshwater availability and strain on the electricity grid that compromises energy security.

An independent review by a [Military Expert Panel](#) convened by the Center for Climate and Security concluded that sea level rise presents “serious risks to military readiness, operations and strategy.” The report states that:

“Major transportation, command and control, intelligence, and deployment hubs may face unremitting erratic outages, or curtailment of operations in the future, due to sea level rise and storm surge. In that context, the ability of the Department of Defense (DoD) to fulfil mission requirements will be more costly, take more time, and be hindered by a lack of planned-for assets at critical junctures. As these threats to coastal military infrastructure play out over this century, they may become strategic vulnerabilities that could affect our ability to deter our enemies, defend our interests, and support our friends.”

The report also outlines how climate change will impact key Pacific military installations:

**Naval Base Coronado** in the San Diego, California area is highly sensitive to inundation and flooding. The buildings are particularly vulnerable to flooding, with a replacement value that may be as

high as \$3.75 billion under a 2m sea level rise flooding scenario.<sup>ii</sup> Sea level rise greater than 0.5m would also affect training areas, narrowing the beach below the width needed to conduct training at most of the training lanes.<sup>iii</sup>

**Marine Corps Base Camp Pendleton** in southern California hosts an array of training facilities used by Marine, Army and Navy units. MCBC Pendleton coastal training areas are highly susceptible to flooding; with only 0.5 m of sea level rise, the average beach would be reduced to 17% of its current width.<sup>iv</sup> Most of the infrastructure at MCBC Pendleton is less vulnerable to flooding, but buildings are vulnerable to erosion, with about 66 structures in the erosion pathway with 1m of sea level rise, and 90 in the erosion pathway with 2m.<sup>v</sup>

**Diego Garcia**, a low-lying atoll in the Indian Ocean, hosts a joint UK-U.S. military facility that provides logistics and operations support for U.S., UK and Allied forces in the Indian Ocean region, including in Afghanistan. The base is geostrategically important, offering access to areas of concern on its littoral including Iran, and the area's sea lines of communication and transit routes for economically important goods and oil from the Persian Gulf. It is vulnerable to increasing hurricane intensity in the near-term,<sup>vi</sup> and will be increasingly vulnerable to extreme water level events, erosion and salinization of drinking water supplies.<sup>vii</sup>

**Guam:** Naval Base Guam and Andersen Air Force Base (now called Joint Region Marianas) house a range of naval and coast guard commands, as well as a ballistic missile defense system focused on the North Korean missile threat. Forthcoming studies of climate impacts on the island should indicate how the DoD installations might be affected.<sup>viii</sup>

The **Marshall Islands** continue to host missile and missile interceptor testing sites, as well as a radar system and operations center that supports space situational awareness for the U.S. The islands are experiencing more severe impacts from storms and sea level rise, and may become uninhabitable later in the century.

As these examples illustrate, climate change will impact a range of installations that support the DoD's operating posture and mission in the Pacific. Cognizance of these threats and the impact they

may have on capabilities in the region and the broader DoD mission over time can support adaptation and resilience efforts to maintain longer-term capabilities.<sup>ix</sup>

### **Domestic climate resilience for US national security**

Military installations and their surrounding communities, such as those in the Pacific coast, are not necessarily separate entities; for example, they often share energy, water and transport infrastructure. Hence local initiatives for climate resilience are connected to a broader international strategic picture; building local and regional climate resilience can strengthen these installations and has relevance for U.S. national security.

Resilient communities with robust climate adaptation measures (including climate-resilient *institutions* that effectively incorporate climate change information into decision-making) can support military infrastructure and readiness. Distributed energy resource systems and other climate-resilient utilities, flood protection for public road infrastructure or areas that house base personnel, and similar civilian adaptation measures can benefit military installations. Effective coordination between the range of local, state and federal agencies involved in addressing different aspects of this risk nexus can help to clarify the interconnections and leverage responses commensurate with the risk.

### **Conclusion - Opportunities for US leadership**

U.S. economic and security interests in Asia-Pacific are unlikely to diminish significantly. Climate change impacts will continue to accelerate in this vulnerable region. Many nations in Asia-Pacific recognize the risks climate change poses, including the potential threats to peace and stability. Continuing to engage these countries in addressing climate risks presents significant opportunities for the United States, both in terms of reducing potential instability and strengthening alliances. The U.S. is at a critical moment in time when it must decide whether or not the country will lead in addressing the most pressing challenges of the 21st century.

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<sup>i</sup> Marine Corps Base Camp Pendleton, ‘Press Release #14-035 UPDATE #23: Camp Pendleton fire update; acreage and containment status’, May 17, 2014, <http://www.pendleton.marines.mil/News/Press-Release-View/Article/538123/press-release-14-035-update-23-camp-pendleton-fire-update-acreage-and-containme/>

<sup>ii</sup> Chadwick, B., Wang, P.F., Brand, M., Flick, R., Young, A., O’Reilly, W., Bromirski, P., Crampton, W., Guza, R., Helly, J., Nishikawa, T., Boyce, S., Landon, M., Martinez, M., Canner, I., and Leslie, B., ‘A Methodology for Assessing the Impact of Sealevel Rise on Representative Military Installations in the Southwestern United States’ (RC-1703), The Strategic Environmental Research and Development Program, March 2014.

<sup>iii</sup> Ibid.

<sup>iv</sup> Ibid.

<sup>v</sup> Ibid.

<sup>vi</sup> Committee on National Security Implications of Climate Change for U.S. Naval Forces, ‘National Security Implications of Climate Change for U.S. Naval Forces’, Naval Studies Board, Division on Engineering and Physical Sciences, National Research Council.

<sup>vii</sup> Quataert, E., Storlazzi, C., van Rooijen, A., Cherton, O., and van Dongeren, A., 2015, The influence of coral reefs and climate change on wave-driven flooding of tropical coastlines, *Geophysical Research Letters*, 42, <http://dx.doi.org/10.1002/2015GL064861>.

<sup>viii</sup> For example, see U.S. Geological Survey, “Water Resources on Guam: Potential Impacts and Adaptive Response to Climate Change for U.S. Department of Defense Installations,” online project description accessed August 2016 at <http://hi.water.usgs.gov/studies/guam-serdp/>; and East-West Center and U.S. Geological Survey, “Climate Trends and Projections for Guam,” April 2015, <http://www.pacificrisa.org/wp-content/uploads/2012/01/Pacific-RISA-Guam-flyer.pdf>

<sup>ix</sup> For more on climate change, Pacific military installations and the US Asia-Pacific rebalance, see Constantine Samaras, ‘[U.S. Military Basing Considerations during a Rebalance to Asia: Maintaining Capabilities under Climate Change Impacts](#)’, November 2015.