



U.S. Navy (Eva-Marie Ramsaran)

Sailors and Marines from USS *Essex* clean debris from roads and school in Oshima, Japan, during Operation *Tomodachi*

Building Resiliency into the National Military Strategy

By DAVID H. CARSTENS

Rising demand for resources, rapid urbanization of littoral regions, the effects of climate change, the emergence of new strains of disease, and profound cultural and demographic tensions in several regions are just some of the trends whose complex interplay may spark or exacerbate future conflicts.

—The 2010 Quadrennial Defense Review

Colonel David H. Carstens, USA, is currently serving as a Senior Service College Fellow and Associate at the Central Intelligence Agency in Washington, DC.

The Quadrennial Defense Review (QDR) prediction of future trends in an emerging complex environment is arguably more accurate than many leaders might like to believe. Whether or not we have reached the “tipping point,”¹ or that period in history when we will be subjected to irreversible detrimental environmental consequences, is a subject of intense scientific debate. The fact is that natural disasters in 2010 killed 295,000 people and cost world economies an estimated \$130 billion.² This 2010 data is but one point on a trend line that depicts a sharp increase in disaster reporting between 1960 and 2009.³ The climate is changing and a confluence of worsening environmental conditions is creating the perfect storm of regional security crises and humanitarian disasters. The U.S. military will be called upon to assist in such situations based on binding cooperation agreements or because it has the demonstrated capacity to act quickly and effectively.

Humanitarian assistance and disaster relief missions pull resources from the available force structure that might otherwise be used for defending the Nation and preparing for tomorrow’s combat contingencies. In 2010, U.S. Southern Command (USSOUTHCOM) responded to natural disasters in Guatemala, Chile, and most notably Haiti, where a 7.0 magnitude earthquake shook the country, causing a reported 316,000 deaths and countless injuries and homes destroyed. To these crises, USSOUTHCOM collectively deployed more than 20,220 military personnel, 24 ships, and dozens of aircraft, and helped deliver millions of pounds of food and water.⁴ The numbers of natural disasters will increase as the globe experiences the worsening effects of climate change. This will create a further drain on available combat forces and decrease the ability of combatant commanders (COCOMs) to effectively plan for and execute combat contingencies.

Consequences of Climate Change

In a landmark report issued in 2007, a panel of 11 retired senior military leaders concluded that climate change “poses a serious threat to America’s national security.”⁵ The report addressed the concern that the United States may be drawn more frequently into volatile and rapidly eroding regional situations to help provide stability before environmental conditions worsen or before the situations can be exploited by extremists.⁶ One way to avoid

this pitfall is for the United States to make its allies and partners *resilient*—more adaptable to the impacts of climate change and more capable of dealing with disaster prevention and response. Failing to help allies and partners build adaptive programs and preparedness will only delay the inevitable U.S. involvement to avert larger and more frequent humanitarian crises.

One need only look as far as recent events in Tunisia and Egypt to appreciate how resource scarcity can trigger internal unrest or even revolt against the government. While the public outcry against former Egyptian President Hosni Mubarak grabbed the headlines in late January 2011, it was a dramatic rise in food prices that brought masses of protestors into Cairo’s streets.⁷ Climate change will create increasingly dry conditions across much of the globe in the next 30 years, putting the world’s food-producing countries under immense stress.⁸ According to Richard Seager, a noted climate change expert, “The term ‘global warming’ does not do justice to the climatic changes the world will experience in coming decades.”⁹

As the Earth’s temperatures increase, so too do concerns about water shortages. In no other area of the world are the stakes higher over water than in the Hindu Kush–Himalayan region. Scientists in India monitoring the water situation reported an alarming 38 percent shrinkage in the Himalayan glaciers over the last 40 years.¹⁰ Some experts argue that this is a phase in the natural life of the region. Nevertheless, there is ample cause for concern over this freshwater source that sustains 1.3 billion people and impacts food and energy production for 3 billion. The Himalayas are the lifeline for almost half of humanity.¹¹ Adding to the concern is the knowledge that this region is bordered by three countries possessing nuclear weapons and which have historical adversarial relationships: China, Pakistan, and India.

Ocean levels are rising at an alarming 3 millimeters per year based on satellite data observed since 1993.¹² At this rate, factoring in an increase brought on by warming ocean temperatures and melting ice caps, sea levels could rise by 1 meter or more by the end of this century. What will this do to countries across the globe in the long term (20 years and beyond)? Consider Vietnam: in a projection released by the Vietnamese government, more than one-third of the Mekong Delta, where 17 million people live and nearly half of the

country’s rice is grown, could be submerged if sea levels rise by 3 feet.¹³ The impacts on neighboring countries like India and Bangladesh are equally grim.

Typhoons and hurricanes and their associated storm surges present the greatest near-term (next 10 years) danger to countries with populations living in low-lying coastal regions. Climatologists predict a dramatic increase in these events that could ultimately drive hundreds of thousands of residents from their homes.¹⁴ Central India has witnessed a 50 percent increase in the number of extreme weather events over the last 50 years.¹⁵

In summary, the consequences of climate change include destruction of coastal settlements and a loss of life and livelihood on a scale that could eclipse anything seen to date.¹⁶ In the near term, countries across the globe will face a larger number of storms of increasing intensity. In the long term, drought and rising ocean levels will create more catastrophic impacts. As one example, in Vietnam alone, a staggering 11 percent of the population might be forced to displace from coastal residencies in the coming decades.¹⁷ Food and water shortages due to drought, and forced migration due to sea-level rise, will bring social and economic upheaval to countries that are vulnerable to climate change on a scale that is incalculable. The resulting political unrest will exceed governments’ internal capacities to cope with the crises in all but the most advanced countries. Even Japan, which has the world’s third largest economy and arguably the most resilient infrastructure in regard to earthquakes, was hard pressed to deal with the aftermath of the natural disasters that hit the country in March 2011. Although the Tohoku earthquake and tsunami were devastating, the impacts pale when compared to the estimated combined effects of climate change on whole societies over the next several decades.

Toward a Strategy of Resiliency

In developing a strategy that emphasizes resiliency, the military must undergo a cultural transformation. General George Casey, former Chief of Staff of the Army, spoke in 2010 about an Army “out of balance.”¹⁸ Arguably, all of the Services are out of balance with only enough time and resources to continue planning based on the assumptions of the current wars. A mention of climate change in the 2010 QDR was a groundbreaking beginning to this dialogue. The 2011 National Military

Strategy (NMS) identifies “the uncertain impact of global climate change” as a challenge to both governance and natural disaster response in developing nations. Given the weight of current scientific data, the NMS grossly understates the grave impact that climate change will have on regional stability and national security. A much more aggressive approach is required to fully integrate a climate change response framework into the NMS that better addresses national security challenges.

COCOMs must begin to address the near-term effects of climate change as a growing regional threat and design a coherent approach to adaptation and preparedness into their theater campaign plans. For this issue to be taken seriously by Capitol Hill lawmakers, COCOMs need to more fervently identify climate change as a force protection issue. A failure to confront these risks now will cost lives and require additional force deployments to respond to crises in the future.

The military must redefine what is being taught to its next generation of leaders. Most

resource systems. Integration of these subject matter experts into the strategic and operational levels of command is fundamental to the success of creating viable theater campaign plans that address climate change adaptation and preparedness.

The Department of Defense (DOD) has the will and demonstrated capacity to lead in the area of sustainability. In 2008, the Nature Conservancy recognized this in its recommendations to the new U.S. Presidential administration: “Just as DOD has served as an engine of progress in developing and taking full advantage of information technology, it can serve as an engine of technical and policy advance related to reducing green house gases, reducing reliance on fossil fuels, greatly improving energy efficiency and conservation, and attaining energy security.”¹⁹ Developing adaptive capabilities and disaster preparedness in allied and partner nations, however, falls more into the area of security sector assistance, and in that arena, DOD is clearly a supporting organization. The Department of State is responsible to

objectives, given the overwhelming data that suggests adverse environmental conditions will trigger tomorrow’s crises, a larger portion of FMF and Section 1206 funding must be jointly focused on building climate change adaptation and disaster preparedness programs in allied and partner nations.

In the case of Vietnam, for example, a country that is already experiencing the detrimental effects of climate change, a portion of FMF dollars might be best spent giving the Vietnamese a means to access large data repositories of previously classified imagery and the training to interpret this imagery in order to assess the long-term impacts of erosion on coastal communities. This type of soft engagement may prove more beneficial to the Vietnamese in the long term and be less contentious than conventional military training and equipping to neighbors such as China.

Partnerships

DOD should continue doing what it does best: engaging other militaries. The focus should be expanded to include assessing allied and partner nations’ military capabilities to deal with climate change adaptation and disaster response and prevention, and then systematically building their capacities to adapt and respond to these challenges. Most foreign militaries are not restricted by legislation such as *Posse Comitatus*,²¹ so they can play a larger role in support of civilian authorities. DOD must look through the lens of allied and partner nations’ military mandates, and not their own, when exploring new ways to support climate change adaptation and disaster response and prevention initiatives abroad. Brigadier General Bob Barnes, USA (Ret.), a senior policy advisor for the Nature Conservancy, expressed similar views during his testimony before the Defense Science Board on January 13, 2011. More importantly, General Barnes stressed the need to help partner nation militaries “move beyond disaster response to prevention.”²²

Admiral Mike Mullen, former Chairman of the Joint Chiefs of Staff, recognized that DOD cannot address the complex issues of climate change unilaterally. “We cannot, nor should we do this alone,” he remarked in 2010. The admiral went on to say that partnerships within the interagency, with industry, and with allies and partners will be “essential as we push the bounds of what is possible and affordable.”²³ In this light, the U.S. Agency for International Development (USAID),

failing to help allies and partners will only delay the inevitable U.S. involvement to avert larger crises

of the junior officers who entered service after the 9/11 attacks are focused on the lessons learned of the current war. The spark igniting tomorrow’s conflicts may be less about terrorism and peer competition and more about resource scarcity and relocation of whole societies due to sea-level rise. The military needs to embrace this eventuality and begin to build climate change adaptation and disaster preparedness as core competencies. Existing joint and Service-specific military planning courses must be updated to include these new core competencies into the curricula.

The military must also appropriately resource educational institutions and organizations that have the mandate to train a new generation of subject matter experts on dealing with the challenges caused by climate change. These centers of excellence need to be capable of partnering across a broad range of expertise that possesses cutting edge insights into the issues of climate change. The new breed of military “resiliency warriors” educated at these centers should be identified and managed under a separate functional area within their respective Services’ human

lead integrated U.S. Government reconstruction and stabilization efforts as directed by National Security Policy Directive (NSPD) 44. Yet even in this supporting role, DOD must shoulder more than its share of the leadership burden in a strategy of building the capacity of the Nation’s allies and partners to adapt to, prepare for, and respond to climate change. While the State Department understands the foreign policy objectives as well as the cultural/political context of particular countries, it is DOD that has the logistical resources and expertise in planning and execution to drive the mission. DOD also has the experience of bringing different organizations together and forming a cohesive team.

This imperative is not about spending more money. Instead, the portion of the U.S. budget earmarked for foreign military financing (FMF) and DOD’s Global Train and Equip Program (Section 1206) needs to be spent more prudently as a means of confronting tomorrow’s climate change impacts. Two key objectives of FMF are to maintain regional stability and to improve response to humanitarian crises.²⁰ Working within these

U.S. Forestry Service, and U.S. National Oceanic and Atmospheric Administration are examples of potential government partners that DOD must begin to engage more broadly with regard to climate change.

The most beneficial partnerships for DOD may be with academic and scientific institutions. These nongovernmental organizations represent the vanguard of work on climate change. The International Research Institute for Climate and Society (IRI), part of the Earth Institute at Columbia University, is one such example of a potential partner for DOD. IRI works with local communities across the globe to develop and evaluate climate risk management strategies. This institute possesses both top-driven analytical assessment tools and bottom-up-driven feedback from local communities on climate change requirements, all of which are necessary to shape adaptation programs.²⁴ IRI has what DOD lacks: an understanding of tomorrow's environment and a strategy to deal with it.

There is already a funding vehicle to take advantage of the academic capacity of institutions such as IRI. The Minerva Initiative, launched in 2008 by then Secretary of Defense Robert Gates, is a DOD-sponsored, university-based initiative designed to harness social science research and apply it to areas of strategic importance to the United States.²⁵ When unveiling the program, Secretary Gates clearly articulated his desire to find untapped elements of national power in the halls of academia.²⁶ The problem is that Minerva has limited funding that is further at risk due to current budget constraints. What funding does exist is spent on a very broad range of issues. The single Minerva Initiative award, granted in 2008 under the project title of "Climate Change, State Stability and Political Risk," was given to an institution that conducts research almost exclusively on Africa. Finally, while the Minerva Initiative may ultimately create a consortium of social scientists conducting research on issues relevant to U.S. national security, these individuals and institutions are not directly responsive to the emerging requirements of the COCOMs—the decisionmakers who need the information most.

Similar invaluable partnerships exist in the private sector. The Rockefeller Foundation is a prominent philanthropic organization fully engaged in climate change adaptation projects. In 2007, the organization

pledged \$70 million to help cities around the world confront the dangers of increased flooding, severe drought, and the spread of infectious diseases.²⁷ The foundation is involved both in climate change research and in the funding and management of actual climate change adaptation projects focused on a combination of top-driven assessments and local-level requirements.

What all of these organizations lack is the unity of purpose that comes with direction. There is no established authority for bringing these sectors together. What is needed is a responsive network of academics, scientists, engineers, and philanthropists that can provide a way forward on climate change adaptation to the Chief of Mission and COCOM in a specific country.

To help drive climate change adaptation and disaster preparedness planning using this broad range of available resources, COCOMs should turn to organizations such as the Center for Excellence in Disaster Management and Humanitarian Assistance. The power of this relatively small organization rests in its broad authorities. It is a DOD organization with a global mandate that reports to the regional COCOMs.²⁸ While its mission is primarily to educate, train, conduct research, and assist in international disaster preparedness, this role could be expanded to include climate change adaptation planning. The center could help DOD bridge the cultural

projects addressing resiliency would be jointly approved by the Chief of Mission and COCOM in the field, followed by approval by the Secretary of State and Secretary of Defense. This is the only way to truly avoid redundancy, maximize the impact of limited resources, and ensure that climate change adaptation and preparedness measures are addressing the assessed security shortfalls of both State and DOD.

As part of this reform, planning timelines must also be compressed. Agility is key when responding to unpredictable climate conditions. The Cold War-era planning system that currently drives security sector assistance project approval is far too slow. DOD can learn from organizations like the Rockefeller Foundation's Asian Cities Climate Change Resilience Network, which is successfully implementing an aggressive 2-year approach to move beyond climate change adaptation problem identification to implementation of effective urban resilience-building projects. How? "The natural tendency is to invest in the thing . . . but there never is just one thing," said Maria Blair, former managing director for the Rockefeller Foundation. "The key is to embrace uncertainty and navigate within it."²⁹

The impacts of climate change will increasingly put internal stresses on countries that are least prepared to deal with them and

the most beneficial partnerships for DOD may be with academic and scientific institutions

divide of working with organizations comprised of academics, scientists, and engineers. Civilians with a wide range of public-private partnership experience make up the ranks of the center and speak the same language as those engaged in climate change research. Furthermore, the center can bring the whole of State/USAID to the table to ensure that adaptation program recommendations match foreign policy objectives.

Both Secretary Gates and Admiral Mullen openly acknowledged that engagement across the globe would be greatly enhanced by an all-out reform of security sector assistance. An imperative to drive a unified resiliency strategy is the "dual-key" approach, one of several security sector assistance reform options mentioned in the 2010 QDR. Under such a proposal,

external stresses on countries like the United States that will assuredly assist. The environment is being transformed and military leaders must be prepared for the inevitable changes and their consequences. There is cultural resistance to meeting this challenge while the Nation is engaged in war. Raindrops kill fewer people than bullets, and the war in Afghanistan remains a first-order emphasis. Yet if DOD does not define a better strategy aimed at shifting resources toward building U.S. allies' and partners' capacities to adapt to, prepare for, and respond to climate change, it will continue to be caught up in responding to disasters and regional security crises after they occur. Enabling the Nation's allies and partners to deal with the impacts of climate change will ultimately allow our out-of-balance military to reset and prepare for



Sailors clear debris in Joplin, Missouri, in the wake of F5 tornado that killed 138 people

tomorrow's threats. In doing so, the United States will strengthen the security environment, be more prepared for an uncertain future, and assure its allies and partners with a strengthened image abroad. **JFQ**

NOTES

¹ James Hansen, "Tipping Point: Perspective of a Climatologist," in *State of the Wild 2008–2009: A Global Portrait of Wildlife, Wildlands, and Oceans*, Eva Fearn, ed., (Washington, DC: Island Press, 2008), 7–8.

² Juan Barreto, "Natural Disasters 'killed 295,000 in 2010,'" Agence France-Presse, January 3, 2011, available at <www.breitbart.com/article.php?id=CNG.0fdada25599cfdc1fbf798ce7851d9c51.3a1&show_article=1>.

³ EM-DAT, The International Disaster Database, "Natural Disaster Trends: World 1900–2009," Centre for Research on the Epidemiology of Disasters, 2009, available at <www.emdat.be/natural-disasters-trends>.

⁴ U.S. Southern Command, "Humanitarian Assistance," September 2010, available at <www.southcom.mil/AppsSC/pages/humanitarianAssistance.php>.

⁵ General Gordon R. Sullivan, USA (Ret.), et al., *National Security and the Threat of Climate Change* (Alexandria, VA: The CNA Corporation, April 2007), 6.

⁶ Ibid.

⁷ Marilyn Geewax, "Rising Food Prices Can Topple Governments, Too," National Public Radio, January 30, 2011, available at <www.npr.org/2011/01/30/133331809/rising-food-prices-can-topple-governments-too>.

⁸ Aiguo Dai, "Drought Under Global Warming: a Review," Wiley Interdisciplinary Reviews: Climate Change (October 2010), 48.

⁹ Aiguo Dai, "Drought May Threaten Much of Globe within Decades," University Corporation for Atmospheric Research, October 19, 2010, available at <www2.ucar.edu/news/2904/climate-change-drought-may-threaten-much-globe-within-decades>.

¹⁰ Nitin Sethi, "Himalayan glaciers have shrunk by 38% in 40 years," *The Times of India*, July

19, 2009, available at <<http://timesofindia.india-times.com/india/Himalayan-glaciers-have-shrunk-by-38-in-40-years/articleshow/4793466.cms>>.

¹¹ John D. and Catherine T. MacArthur Foundation, *The Himalayan Challenge: Water Security in Emerging Asia*, Paper presented at the Second International Workshop for Himalayan Sub-Regional Cooperation on Water Security, Dhaka, Bangladesh, January 15–16, 2010.

¹² S. Solomon et al., *Contribution of Working Group I to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change, 2007* (Cambridge: Cambridge University Press, 2007), FAQ 5.1.

¹³ Seth Mydans, "Vietnam Finds Itself Vulnerable If Sea Rises," *The New York Times*, September 23, 2009, available at <www.nytimes.com/2009/09/24/world/asia/24delta.html?_r=2>.

¹⁴ Ibid.

¹⁵ Gokul Chandrasekar, "Scientists See Massive Rise in Extreme Weather Events in Last 50 Years in India," *New Indian Express* (Chennai), January 6, 2011, available at <<http://indiaenvironmentportal.org.in/category/thesaurus/climate-change/natural-disasters/extreme-weather-events>>.

U.S. Army (Jim Greenhill)



Alabama Army National Guardsmen assemble wall of HESCO barrier containers on Dauphin Island to protect beaches from Deepwater Horizon oil spill in Gulf of Mexico

¹⁶ Isaac Boateng, “Spatial Planning and Climate Change Adaption in Coastal Regions: The Case of Vietnam,” Paper presented at the 7th International Federation of Surveyors Conference, Hanoi, Vietnam, October 19–22, 2009.

¹⁷ Susmita Dasgupta et al., “The Impact of Sea Level Rise on Developing Countries: A Comparative Analysis,” World Bank Policy Research Working Paper 4136, February 2007, 28.

¹⁸ General George W. Casey, Jr., USA, speech presented at the Eisenhower Luncheon as part of the Association of the United States Army’s Annual Meeting and Exposition, Washington, DC, October 26, 2010.

¹⁹ Brigadier General Bob Barnes, USA (Ret.), interview by author, January 21, 2011, Arlington, VA, PowerPoint slides received from source.

²⁰ Department of State, Bureau of Political-Military Affairs, “Foreign Military Financing,” available at <www.state.gov/t/pm/65531.htm>.

²¹ The Posse Comitatus Act is a U.S. Federal law (18 U.S.C. § 1385) passed on June 18, 1878, after the end of Reconstruction, with the intention of substantially limiting the powers of the Federal Government to use the military for law enforcement. The act prohibits most members of the Federal uniformed Services from exercising nominally state law enforcement, police, or peace officer powers that maintain “law and order” on nonfederal property (states and their counties and municipal divisions) within the United States.

²² Barnes.

²³ Admiral Mike Mullen, speech presented at the Energy Security Forum, Washington, DC, October 13, 2010.

²⁴ Stephen Zebiak, interview by author, December 19, 2010, Palisades, NY.

²⁵ Department of Defense, “Program Overview,” The Minerva Initiative, available at <<http://minerva.dtic.mil/overview.html>>.

²⁶ Robert M. Gates, speech presented to the Association of American Universities, Washington, DC, April 14, 2008.

²⁷ Brennen Jensen, “Rockefeller Commits \$70 million to Climate Change Response,” *The Chronicle of Philanthropy*, August 10, 2007, available at <<http://philanthropy.com/article/Rockefeller-Commits/62676/>>.

²⁸ Lieutenant General John F. Goodman, USMC (Ret.), interview by author, November 17, 2010.

²⁹ Maria E. Blair, interview by author, December 14, 2010.