



THE DEBATE

Climate Change Endangers Security; Can the Military Help Humanity Respond?

The growing threat of climate-related disasters creates new risks to human and environmental security. It constitutes both an accelerator of instability and a threat multiplier. As is well known, in many countries, responses to floods, cyclones, droughts, and other climate-related disasters are impeded by limited capacity, insufficient planning and preparation, and lack of coordination between government actors. As Hurricane Katrina demonstrated, even a rich country can exhibit such symptoms, as it did previously in the Dust Bowl 80 years ago. In both cases, prior action greatly exacerbated a natural threat to create a human security disaster. This is exactly what is increasingly on display and predicted with respect to climate change.

As a consequence of the linkages between humanitarian disaster relief, military organizations, human security, and environmental security, climate change generates an ever-greater impetus for engagement between military and civilian authorities. Involvement of both is necessary when disasters overwhelm the capacity of civil authorities, as is increasingly likely because of the deadly buildup of atmospheric greenhouse gases.

Civil authorities are often tasked, and taxed, while dealing with disasters from a variety of settings — the crisis over Ebola in Africa is a recent example of an acute one, generating responses around the world. Desertification in northern Africa (and elsewhere) and a years-long drought that threatens water security in the American Southwest are examples of long-scale problems.

These challenges call for collaborative, whole-of-government disaster risk management efforts, including disaster prevention, planning, preparedness, response, and recovery, as well as new policies recognizing linkages between climate, disasters, and security. These collaborations can help to create more resilient, self-sufficient societies that are better equipped to adapt to a changing climate and are therefore more secure.

What kinds of new challenges are emerging at the nexus of environmental, human, and regional security, and how should we respond to them? What are the biggest obstacles to effective disaster risk management, and what strategies can we use to overcome them? How can military and civilian authorities work together to address the growing risk of climate-related natural disasters?



Carl Bruch

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“The United States should enter into the necessary treaties and make the resource allocation for its Navy and Coast Guard to protect U.S. interests in the Arctic.”



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“The military is a very expensive asset, so it is important to know when it should and should not be used.”



Rene Nijenhuis

Humanitarian Affairs Officer
UN OFFICE FOR THE COORDINATION
OF HUMANITARIAN AFFAIRS

“It is not only the obvious disasters like tsunamis and earthquakes that cause avoidable suffering. Technological disasters strike when least expected.”



Swathi Veeravalli

Physical Scientist
U.S. ARMY CORPS OF ENGINEERS

“The creation of sustaining and enduring partnerships between civilian and military entities is vital to alleviating disaster risks.”

Peacebuilding Should Improve Resilience

CARL BRUCH

Countries emerging from conflict are particularly susceptible to disasters. Such states tend to have less institutional, technical, and human capacity to prevent, respond to, or recover from disasters. Many people have expended their reserves to survive, and are thus more vulnerable, and the public often harbors great distrust of the government.

Steve Garrison and Daniel Lowe examined the effect of natural disasters on political stability. Looking at experiences in 201 countries from 1945 to 2001, they found that the ability to minimize disaster-related deaths was critical to the survival of democratically elected leaders. They also found that droughts and other slow-onset disasters, if addressed properly, provided leaders with opportunities to increase political survival. The post-conflict period provides a window in which countries can rebuild, and even build back better. Post-conflict peacebuilding provides opportunities to build a more resilient society.

There are four broad pillars of peacebuilding: security; economics and livelihoods; basic services; and reconciliation and governance. Each provides opportunities for managing disaster risks.

Within the security pillar, demobilization, disarmament, and reintegration programs can provide short-term employment opportunities for ex-combatants. These include rebuilding vulnerable, degraded infrastructure to make it more resilient to droughts, floods, and other disasters — even as the ex-combatants receive training for longer-term employment. For example, the Afghan Conservation Corps engaged thousands of former combatants to replant deforested regions, rebuild

reservoirs, and construct retaining walls.

Security-sector reform seeks to professionalize armed forces. It presents an as-yet underutilized opportunity to introduce National Guard-type functions to reforming militaries. This would empower civilian governments to better make use of military assets in responding to floods and other disasters, as well as taking measures to help prevent and mitigate damage from disasters such as sandbagging rivers.

Restoring livelihoods and rebuilding the economy usually rely on a wide range of natural resources for agriculture, forestry, mining, and manufacturing. In most conflict-affected countries, 50 to 80 percent of livelihoods historically have relied on farming, and post-conflict initiatives often focus on agrarian reform. With the best land already claimed, farming is often pushed onto marginal lands. These countries are already feeling the effects of climate change, though, and an emphasis on business-as-usual undermines livelihoods — and creates conditions for recruitment by rebel movements.

The better approach is to diversify livelihoods beyond agriculture, focus on building local industries, and put in place early warning systems to identify potential drought years and support farmers in making the necessary adjustments to their cropping patterns.

Peacebuilding efforts emphasize basic services (such as the delivery of electricity, water, and sanitation) as a means of improving welfare. Restoration — and in some cases, the installation of those services for the first time — is a priority. When successful, basic services generate peace dividends; when unsuccessful, such initiatives undermine government legitimacy. In Afghanistan, Sudan, and other water-scarce environments, efforts to generate peace dividends by drilling wells proved short-lived as the water table fell and wells ran dry. Climate-proofing efforts to provide basic services starts with an assessment of the long-

term situation (including projected changes in precipitation, temperature, and extreme weather events), and then considers how to design the effort appropriately (through location of the services and the technologies used).

Disaster risk management can also support efforts to promote reconciliation and improve governance after conflict. The shared risks present an opportunity for dialogue and cooperation. Moreover, efforts to prevent and mitigate disasters (as well as to prepare for, respond to, and recover from them) can be opportunities to support local governance through land use planning and zoning.

The post-conflict period is fluid and dynamic, characterized by a profound need to act quickly and on imperfect information. While often beyond human control, disasters can undermine or even undo peacebuilding investments if they have not been undertaken with due consideration for the risks. To make peacebuilding more resilient, it is important to mainstream disaster risk identification and analysis into peacebuilding planning. These efforts can be enhanced through participatory processes of risk identification and analysis as well as in the planning and implementation of disaster prevention, mitigation, preparedness, response, and recovery.

Indeed, one of the most effective ways to improve both peacebuilding and disaster risk management is through participatory processes. They engage more stakeholders, improve the information upon which decisions are made, improve governance and government legitimacy, and can bring additional resources to bear (for example through in-kind labor).

Through these measures, mainstreaming disaster risk management into peacebuilding can improve the resilience of a conflict-affected country to the risks of both disasters and conflict relapse.

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Ill-Prepared for Climate Change in the Arctic

LEO GOFF

The impact of the world's changing climate is most obvious in the Arctic. The ice is melting and the open ocean and a bounty of hidden resources are becoming accessible. 2015 had the lowest winter ice coverage in 40 years of satellite monitoring. What was once a frozen wasteland is now lively with ships, oil companies, and eco-tourists. Polar nations and others that want to use the region's resources are staking claims on a complicated geography. The unprecedented pace of environmental change and geopolitical posturing raises security concerns.

The military often explores future security through scenario-based planning like the vignette which follows. The year is 2025. A Chinese ship, operating in the ice-free area north of the Bering Strait, moves seven tons of rock from the sea floor to develop the final piece of their newly formed artificial island, New Xi'an. Including those built in the Spratly Islands in 2014, the Chinese now have eight artificial "landlets." Over U.S. objections, artificial islands were defined as landlets in the 2020 update to the UN Convention of the Law of the Sea, which included assigning them underwater economic zones. Since the United States was not a party to the original UNCLOS, it had little say on the 2020 update.

By 2025, climate change has made the waters surrounding the Bering Strait ice free for most of the year. Thousands of ships now transit the Arctic each year with nearly half bringing oil and gas to China or moving Chinese exports. In 2021, China began construction of an Arctic landlet in the shallow water, north of the Bering Strait and above the Arctic Circle. By 2025, New Xi'an was inhabited and

completion of a runway would certify the landlet under UNCLOS 2020. With a Chinese landlet in the Arctic Ocean, Beijing could claim fully that China is an Arctic nation with legal access to the resource-rich ocean floor of the polar sea.

Four ice-hardened Russian warships shadow the landlet. The president of Russia said that he would take military action to prevent the completion of another Chinese landlet in Moscow's backyard. This could be the start of the third Russo-Sino Arctic battle in as many years. The U.S. Navy could not intervene, because over the last decade Congress failed to invest in cold-water/ice-hardened ships.

This scenario might seem far-fetched in just ten years, but so too was the 2001 coordinated terrorist attack on the United States using commercial airliners. We were ill-prepared then and we are ill-prepared now for the climate-induced changes already happening in the Arctic.

Over the past decade, satellite imagery shows the old ice in the Arctic decreasing rapidly. Because of this changing ice coverage, the Arctic is already seeing increases in maritime transit, resource extraction, fishing, and tourism. Over the last five years over a hundred ships have transited through the Arctic to reduce their sailing distance between Asian ports and Europe by 40 percent. Oil companies are now exploring new areas of the Arctic sea-floor, where geologists estimate that more than one-tenth of the world's undiscovered oil and one-third of the undiscovered natural gas lie. We worry about competition for these resources and the legal responsibility to respond to oil spills or other man-made disaster in this fragile ecosystem.

Although security experts think the likelihood of near-term conflict in the Arctic is low, the geopolitical situation is complex, nuanced, and never certain. Maritime issues involving existing and potential claims of the extended outer continental shelf and shipping routes already exist. Denmark recently laid claim to the North Pole, as earlier

did Canada and Russia. The competition is not just between Arctic nations. China is now an observer to the Arctic Council, claiming its 1.4 billion people gives them a vested interest in "world" resources.

As a warming planet affords increased access to the Arctic, we should expect new disputes over natural resources and control of lucrative shipping lanes. In the spring of 2015, Russia will demonstrate its ability to resolve disputes with force by conducting a major military exercise in the Arctic involving over 40,000 troops, ships, and submarines.

While the U.S. government has an Arctic Strategy and the Navy and Coast Guard have planning documents, there is insufficient budget to build a force capable of keeping pace with today's rate of change in Arctic operations. To those in the know, the Arctic is beginning to look a lot like the wild West; lawless and filled with early settlers staking claims. It is in desperate need of a good sheriff.

One mechanism that could establish some law and order into the pending Arctic chaos is UNCLOS, a treaty for resolving complex maritime issues. It provides the framework for broad naval partnership and cooperation. Since the United States is not a party to UNCLOS, it will be more difficult for Washington to have much say in the evolving geopolitics of the Arctic. With rapid changes already happening in the region it is time for the U.S. Senate to ratify UNCLOS.

The United States is ill-prepared for the pace of change in the Arctic. It should enter into the necessary treaties and make the resource allocation for its Navy and Coast Guard to operate in the area and protect U.S. interests and peace in the region. It's time for the United States to saddle up.

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Disasters: How Predictable Is Unpredictable?

MARCEL LUCACIU

Europe is a very crowded geographical space where more than 740 million people live in 50 countries. In such a geopolitical environment, natural disasters often cause loss of lives and property damage despite measures enacted to diminish impact and vulnerability. The combination of high hazard and vulnerability leads to complex, cascading effects. There are signs that climate change has begun to intensify this problem.

To improve the level of communities' resilience and to harmonize different states' approaches in dealing with risk assessment and disaster management, the European Union has started to ask member states to adopt common standards, methodologies, and intervention structures. Starting in 2007 a coordination mechanism (the Civil Protection Mechanism) was put in place and a Monitoring and Information Center (now the Emergency Response Center) established to mobilize resources and provide support to any affected state. The mechanism has continued to evolve and grow stronger, and its efficiency was increased by putting together intervention teams with the necessary funds to support an affected country or region.

The EU endeavor has been difficult to achieve, as the norms, laws, and regulation governing risk management are different from one country to another. There is political will, however; coordinating structures have been put in place, and preventive and intervention activities are being considered.

But there are some questions to be answered as we plan and mobilize to respond to climate change.

First, how can we modify our emergency management structures to

be sure that we can deal with the new threat? It took 10 years for Romania to implement a new management system and it's already obvious that it has to be improved. The German disaster organization started to develop a concept five years in advance of its implementation, and it began another one immediately after putting the new one in place. This question begets additional ones: Is this the time to adopt emergency management structures to deal with climate change? At what cost?

Second, how can we respond to the details of risk assessment? A small example: Romania finished its national flood risk maps three years ago. Geographical information systems were used to provide the details for each river basin and maps were accessible to communities on the website of the Romanian Water Authority. These data are used in planning communities' development and increasing their resilience. This year, because of climate change, severe floods happened in the areas where flood risk had previously been close to zero. As a result, affected communities were totally unprepared. A huge public debate followed as the media questioned the money spent for the flood risk assessment maps. We should ask ourselves how much money can we afford for such risk assessment and how accurate are these assessments when experiencing the influences of climate change.

Third, how can we improve the connection among professionals in emergency management and politicians? All prevention measures and associated financial resources needed for emergency management require a political decision. In Romania much time and energy and many arguments are needed to promote a legal act related to prevention and emergency management. Disasters do not happen every day and memories related to such catastrophic events are short.

Fourth, How can we better integrate scientific research into risk assessment and how can we improve the accuracy of forecasting? Science can provide powerful tools in emergency

planning and management. GIS technology is now an "old" technology and an international standard but, even so, it has not been adopted in all countries.

In terms of forecasting, recall snow predictions for New York City this past winter, when a huge storm was forecast, disaster teams mobilized, and only a little snow fell. Contrast that situation with the one of Hurricane Katrina, where forecasts were accurate but government response was lacking.

Finally, how can we harmonize the needs of a resilient community, which has some resources, with the requirement for additional resources to deal with catastrophic phenomena due to the onset of climate change? How can we increase resources at the regional level? The resource problems are related to how much money a community can mobilize to increase its safety. These costs involve equipment, materials, and manpower. The military has important resources but not all societies can easily use them for disasters. Additionally, the military is a very expensive asset, so it is important to know when it should and should not be used. Similar debates exist about the appropriateness of use of the military and about the use of volunteers.

It is obvious that climate change is a challenge, and there are a variety of approaches in dealing with its varying manifestations. In some situations, approaches have extended beyond national boundaries and also the boundaries of past approaches. Based on my experience I favor simplicity, a collective approach, and integrated efforts. The EU provides one example, but certainly not the only one. The solutions will require the right balance between financial resources, preventive and protective measures, and appropriate interventions.

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“Technological Disasters” Now Loom Large

RENE NIJENHUIS

The humanitarian system, built on our instinct to help one another when in need, is facing an ever-increasing number of people to support, often repeatedly, and often for longer periods of time. In 2014, an astonishing 52 million people required humanitarian assistance. The cost of humanitarian aid has more than trebled over the last ten years. At the same time, we have come to a realization that the business model for humanitarian assistance necessitates a paradigm shift from a reactive “response only” model to a pro-active “disaster/risk management” approach, with greater investment in prevention and preparedness.

Let me use the example of environmental emergencies, as a sub-set of humanitarian crises. We can expect an increase in “technological disasters” and their impacts in the years to come. We can now see the interplay of climate change, urbanization, and industrialization becoming a determining factor in both developing and developed countries. This interplay adds up to more vulnerable people being exposed to environmental emergencies. In that vein, vulnerable megacities continue to grow — with a large number of them being exposed to sea-level rise and other climate-related disasters.

Economic development has brought prosperity to many who need it, but at the same time, safety standards, urban planning, and emergency preparedness have not always been able to keep up with rapid industrialization and growth.

The recent World Conference on Disaster Risk Reduction held in Japan addressed for the first time at the highest level the challenges created from human-made, technological haz-

ards and risks. Until then, the focus had solely been on natural disasters. To me it is apparent that the lessons from the triple disaster that struck Japan in 2011 — an earthquake, followed by a tsunami and then a nuclear disaster— are quickly finding their way onto the international policy agenda.

It is not only the “big and obvious” disasters like tsunamis and earthquakes that cause avoidable suffering to communities. Technological disasters strike when least expected, as in Japan sometimes hidden as collateral damage of larger natural disasters. Following Supertyphoon Haiyan in the Philippines last year, authorities and international humanitarian responders were confronted with an “emergency within the emergency”: An oil-spill off the coast of an already heavily impacted island displaced hundreds of typhoon survivors — at some point they even outnumbered the displaced people on the island from the typhoon itself.

While ten years ago, countries and the United Nations were primarily focused on responding to environmental emergencies, I can now see a collective effort to integrate environmental considerations in risk reduction and collaborative initiatives between development and humanitarian actors to prevent and better prepare for these types of accidents.

For example, following the 2004 Indian Ocean tsunami, we designed a scientific rapid environmental assessment tool for industrial accidents for international humanitarian responders who were being deployed to provide assistance. Ten years later, this same methodology is being used by countries like Armenia and Kenya to identify and prioritize industrial hazards as part of their national efforts to reduce disaster risks. This way, we have managed to adapt existing response tools and risk-proofed them to allow for wider uptake and application in disaster risk management.

The political commitment attained at the world conference now needs

to be translated into concrete actions at the country and community level. Tools to do so already exist. But more is still needed for the paradigm shift to take place. Studies have shown that between 1991 and 2000, only a meagre 0.5 percent of all international development aid was used for preparedness and prevention. This funding situation needs to change drastically. Dedicated budgets for preparedness and prevention need to be established, and instead of having strictly separate budgets for humanitarian response and for development aid, budgets need to be more flexible.

While it is never a problem for countries to nominate responders for a humanitarian emergency mission, it is still challenging to find experts for preparedness and capacity-development activities. Sometimes, different budget holders are in charge, sometimes entirely different organizations are responsible. Humanitarian response is led by the humanitarian imperative and principles. Preparedness and prevention activities are driven by competing and more political criteria.

Here we see the first glimmers of hope. The European Union recently adapted its legislation concerning civil protection to now address both response and preparedness. The Sahel countries are now benefitting from a regional approach to the challenges they face, as well as a multi-year humanitarian support plan.

This is an enormous step forward, as it breaks with the yearly bandage on the wounds and allows countries and the international community to build resilience in those communities taking the brunt in what has been dubbed the ground-zero of climate change.

Now, we need to keep the momentum and ensure that the sum of our collective efforts really becomes more than the total of its parts.

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The Military Can Enhance Readiness and Resilience

SWATHI VEERAVALLI

Despite scientific uncertainty as to precise effects, there are general trends that we can expect from climate change in the future: increased frequency of extreme events. These extreme events, or disasters, are composed of changes in warm and cold temperature extremes, an increase in sea-level rise, and increases in heavy precipitation.

Both military personnel and civilians agree: climate change threatens security and stability. A country's capability to deal with these shocks depends on its ability to concurrently respond to the disaster while resuming normal functions. There is an important linkage between the short-term imperatives of immediately resuming essential services during a disaster with longer-term objectives of stability. Building redundancies into global governance systems allows them to quickly recover from disaster-induced shocks. Redundancies can be defined as shock absorbers that duplicate various system functions in order to resume stability.

Partnerships between civilian and military stakeholders can help create this redundancy and allow an affected region to return to stability. Such partnerships are critical, given the increased frequency of disasters. The development of effective civilian-military partnerships must occur prior to the onset of extreme events. Waiting until catastrophes occur is too late, with response efforts targeted solely to humanitarian assistance, at which point state stability may be threatened. Preparing for disaster presents opportunities for civilian-military partnerships to create redundancy and consequently

increase resilience and decrease vulnerability.

The U.S. military is undergoing a paradigm shift, creating new capabilities to shape the security environment. As a result, the military needs increased resources to understand how climate change impacts cause vulnerabilities within the security environment and endanger military readiness and response capabilities.

Dealing with climate change presents a complex operational planning problem. As disasters are intensifying, often requiring large-scale, multinational responses, the military must understand the dynamic relationship between vulnerability and resilience when planning for and engaging in disaster risk management.

Vulnerability can be described as a system's susceptibility to harm caused by changes in the environment and the absence of the capacity to adapt to those changes. Resilience then becomes the capacity of systems to absorb disturbances while reorganizing to preserve the essential function and structure of the system. Resilience cannot occur without redundancies built in to ensure duplicate system components exist to prevent system failure.

Dialogue between civilians and the armed services is essential not only to facilitate resilience but also ensure appropriate response. Employing the wrong type of disaster response can actually create failure. Additionally, a system may become so tuned to a particular type of shock that it becomes in essence vulnerable to other, unknown shocks. Both occur if the only choice is to apply textbook plans in the hope of dealing with the aftermath of disasters. Coordination and collaboration between civilians and the military can ensure that risk response is diversified, thereby ensuring that negative trade-offs increasing risk and instability do not occur.

Despite institutional and operational differences, civilian-military collaboration is an untapped re-

source to mitigate disaster risk. Increasing such collaboration is especially critical in areas already threatened by instability. When disasters occur in such regions, it is almost impossible for response and assistance to occur without a strong military presence. Last year's Typhoon Haiyan exemplified how successful disaster risk management depends on coordination between civilians and various global militaries. Response would have been even more successful and timely if coordination prior to the disaster had occurred.

More global civilian-military exercises are key. Replicating the success of military-to-military exercises by adding a civilian component is vital. Begun almost 33 years ago, Cobra Gold began as a bilateral military training exercise between the U.S. and Thai militaries. It expanded more than a decade ago to bring together the United States, Thailand, Japan, South Korea, Indonesia, Malaysia, and Singapore. Adding a civilian component is vital. Participating nations could then practice multinational and interagency planning, design, control, and evaluation.

The creation of sustaining and enduring partnerships between civilian and military entities is vital to alleviating disaster risks. Elevating climate change to an international security issue highlights the need for increased global approaches to mitigate threats.

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