

NOVEMBER 20-22, 2009

INTERNATIONAL SECURITY AND CLIMATE CHANGE

— Sherri Goodman and David M. Catarious, Jr., Ph.D.

For many years, climate change was an issue that only captured the attention of the environmental community. Observed and predicted climatic changes were seen wholly in their own environmental context, such as increasing air temperatures, rising seas, and melting glaciers.

Recently, however, attention has turned to the impact climate change will have on environmental systems critical to human populations and how these impacts could force populations to react. The authors of this paper were involved in one such effort at the CNA, a U.S.-based nonprofit, public interest, and national security think tank comprising the Center of Naval Analyses and the Institute for Public Research. In 2006 and 2007, CNA assembled a team of analysts and joined them with a Military Advisory Board (MAB) of 11 retired three- and four-star admirals and generals to consider the potential security implications of climate change on the United States. The result of that effort was the report, “National Security and the Threat of Climate Change.”

This report concluded that “projected climate change poses a serious threat to America’s national security.” The report also articulated the concept that climate change will act as a “threat multiplier for instability in some of the most volatile regions of the world,” and that “projected climate change will add to tensions even in stable regions of the world.”

The MAB came to these conclusions after listening to scientists, intelligence professionals, government officials (from the United States and abroad), and the business community. During the process, the CNA MAB did not weigh in on the causes of climate change; instead, they examined

the trends and predictions through the lens of their military experience. Regarding the destabilizing outcomes of climate change, the board was concerned primarily about the pressures that will be increasingly felt by human populations in four main areas: water, food, health, and shelter.

Water, food, health, and shelter

Fresh water—for drinking, irrigation, and sanitation—is the most basic prerequisite for human habitation. The loss of fresh water resources through changes in rainfall, snowfall, snowmelt, and glacial melt will have significant effects on fresh water supplies, as will the salination of coastal freshwater aquifers by rising seas. All of these events could force the relocation of large populations across national borders.

In terms of food production, agricultural productivity will be affected differently in various parts of the world. In the near term, tropical regions are likely to suffer the most, as many of their crops are already being grown at the high end of their temperature tolerance. In the mid-latitudes, an atmosphere with increased levels of carbon dioxide may enhance growth over the next few decades. However, it is also expected to lead to an increase in crop diseases and pestilence. In the long term, global agricultural productivity is expected to decrease.

Climate change also poses several health risks. While milder winters will result in fewer cold-related deaths, more frequent and intense heat waves will threaten increasing numbers of people around the world. In many tropical and sub-tropical areas, populations are expected to suffer from an increase in pathogenic microorganisms

(such as malaria and dengue fever) as the changing climate allows the disease carriers (including mosquitoes and ticks) to survive longer and expand their range. Waterborne diseases will also be more common as sea levels rise and extreme storms swamp coasts and flood rivers.

Land loss and flooding risks displacing populations on a worrying scale. Through this century and beyond, sea levels will rise. Even if greenhouse gas emissions were stabilized immediately, the heat already present in the world's waters will cause the oceans to continue to expand. The melting of land-based glaciers will also contribute to this inexorable rise. Coastlines are some of the most heavily populated areas in the world and feature critical commercial and government infrastructure. Over the last few years, several peer-reviewed scientific studies have suggested that in this century alone, sea levels could rise by a meter or more—a catastrophic increase that would destroy the homes, businesses, and livelihoods of hundreds of millions of people.

Acting individually or in concert, the above issues are likely to affect the security of the United States and other nations by sparking mass migrations (which can be hugely destabilizing events to governments and the social order), fostering conditions likely to facilitate the failure of some states, and potentially escalating conflicts over scarce resources.

A global problem with localized effects

In regard to specific security concerns, the impacts of climate change will manifest themselves in different ways in different regions of the world. One of the most worrisome is the melting of Himalayan glaciers, which are the birthplace of the great river valleys of the Indus, Ganges, and Brahmaputra. These glaciers are the primary source of fresh water for hundreds of millions of people in key regions of Asia, including Pakistan, India, and Bangladesh. The most immediate threat here is the potential for severe, recurrent flooding, putting the lives of tens of thousands of people in the region at risk every year. Likely outcomes of these recurrent events are an increase in humanitarian crises requiring an international military response and increased regional tensions. Longer-term risks are posed by potential water shortages and drought and their impact on food production. (A recent study commissioned by the U.S. National Intelligence Council (NIC) found that in the first few decades of glacial melt, the flow of the Indus could increase by 90 percent. Conversely, by the end of the century, flows could

be only 10 percent of what they are today.) This type of volatility is especially alarming for Pakistan where, with 90 percent of its agricultural irrigation dependant on rivers that originate in Kashmir, water is already undermining its stability. The Middle East is also of particular concern. As climate change progresses, environmental and population pressures in the region could result in humanitarian disasters that will be difficult to address and will only exacerbate existing tensions. For example, water scarcity and high concentrations of (non-climate related) semi-permanent refugee populations have played a central role in the conflict between Israel and the Palestinian Territories of the West Bank and Gaza Strip. How much more acute will this conflict become when water resources are further depleted as overall precipitation decreases, intense rain events generate runoff that cannot be absorbed into the aquifers, and continued overexploitation of the aquifers further degrades water quality?

Africa too will experience severe impacts from climate change. Desertification is already destroying land that supports crops and livestock (and many even point to such climatic changes as one of the root causes of the genocide in Darfur). Rising seas threaten to destabilize Nigeria, which, in addition to being an increasingly important producer of oil, features a low-lying river delta with an estimated 30 million residents.

As a result of these impacts, particularly within Africa, it is likely that the international community's call for help with human assistance missions and disaster response efforts could increase dramatically. In many cases, response operations will be so large that they can only be dealt with, at least in the initial response phase, by military operations. Such operations divert military forces from their primary missions and result in a decrease in resources and manpower for other tasks.

Additionally, as states begin to realize they lack the capacity to adapt to the effects of climate change, resentment will build toward the nations of the developed world. They will be viewed as responsible for the disasters these states face. Such resentment is already observed in international discussions over climate change.

Climate, energy, and security are interconnected

The CNA MAB's final finding was that "climate change, national security, and energy dependence are a related set of global challenges." To focus more tightly on this interconnection, the Board

reconvened in 2008 and 2009 to issue a second report, "Powering America's Defense: Energy and the Risks to National Security." This report examined how the world's distribution of fossil fuels (primarily oil) has a distorting effect on international relations, often leaving the United States and its allies vulnerable to supply shocks and economic volatility. The report also examined how the nation's fragile electric grid—which is now mainly constructed upon centralized, fossil fuel-based generation—leaves the country vulnerable to both accidents and malicious attacks.

The main conclusion was that America's energy posture constitutes a serious and urgent risk to national security—militarily, diplomatically, and economically.

While the intersection of the issues of climate change and energy security does indeed make both issues more complex, it also presents an opportunity to pursue solutions to alleviate both at the same time. Simply put, energy security and a sound response to climate change cannot be achieved by increased use of fossil fuels. The United States (as well as many of our allies) requires diversification of energy sources, aggressive pursuit of energy efficiency, and a serious commitment to renewable energy. These actions must not be taken simply for environmental reasons—but for national security reasons as well.

In the international arena, discussions about climate change have been focused on reducing the emission of greenhouse gases, which many believe to be the root cause of the earth's warming. Since the 1990s, the United Nations has convened annual meetings to consider how best to reach an international agreement on greenhouse gas emissions. The next such meeting will take place in December 2009 in Copenhagen. The crux of the meeting is on finalizing an agreement on a cap-and-trade arrangement, where nations would agree to "cap" their emissions of greenhouse gases and emitters would be able to "trade" permits to continue their emissions until they can be reduced economically. While the meeting is eagerly awaited, it is unclear if it will result in an agreement amenable to all parties.

Important precedents

It is important to remember that the types of challenges presented in international climate negotiations have some historical precedents, albeit on a smaller and less complicated scale than at Copenhagen. The business, military, and environmental communities have a great deal of

experience in reducing emissions of substances that cause environmental damage. Examples include the reduction of ozone-depleting gases through the Montreal Protocol and the reduction of acid rain-inducing agents in the United States through a cap-and-trade mechanism in the Clean Air Act. However, reducing greenhouse gases presents a more challenging problem due to the wide variety of sources of the emissions, the difficulty in ensuring enforcement, and the large investment in fossil fuel-intensive energy sources. Also, even if agreements were limited to a smaller group of nations, the mechanisms to reduce emissions are complex and would likely still require careful and deliberate negotiations.

A critical aspect of an effective emissions-reducing agreement will concern the provisions for accurate measuring, reporting, and verification. As such, making progress on this front would be a logical first step that would provide the foundation for further efforts. The security community, with decades of experience in pursuing similar goals in nuclear arms reduction, would be a valuable contributor to this process. In addition, widespread adoption of technologies and policies to measure, report, and verify emissions and energy usage would provide an incentive to accelerate the deployment of energy-efficient technologies.

International climate change negotiations should also focus significant attention on not just mitigating the emission of greenhouse gases, but on adapting to the impacts that are likely to occur no matter what preventive actions are taken. Many of the nations and regions most at-risk of severe security impacts have done little to no contingency planning or disaster preparedness work. Such work needs to begin quickly, by the military as well as by governments and civil society. The U.S. Department of Defense is in the process of incorporating the impacts of climate change into its strategic planning processes.

Bring in NATO

In the international security arena, to best plan for the inevitable security impacts of climate change, NATO should also incorporate climate change into its strategic planning process. Specifically, NATO should integrate climate security into its new Strategic Concept, the document that lays out the alliance's objectives and provides guidance on how best to achieve them in political and military terms. In April 2009, NATO's leadership called for the development of a new Strategic Concept (to update the previous version developed in 1999). A final draft is due in late 2010. As this document is only

updated approximately once a decade, including climate security into the 2010 version is critical to focusing the proper planning and resources from the international security community.

While it is clear that there are a number of difficulties involved in addressing the threats posed by climate change and energy security, the potential consequences of inaction are too severe to ignore. Making progress in achieving a meaningful reduction in climate change-inducing greenhouse gases will require persistence, determination, and leadership. But along with the challenge also come opportunities: the nations that develop the low-carbon and highly efficient energy technologies will also be the ones to benefit by forming new industries, investment opportunities, and a new class of “green-collar” jobs. These nations would also strengthen their hand in the foreign policy arena by decreasing their dependence on hostile and unstable energy

suppliers. Militaries that adopt aggressive energy-efficient technologies would also better protect their men and women and improve their agility by lessening the burden of battlefield operations on long, vulnerable fuel lines.

Through their two reports, the CNA MAB has urged the United States and its allies to work cooperatively to tackle these issues. There is much to be lost through delay, and much to be gained through action.

Sherri Goodman is senior vice president, general counsel, and corporate secretary of CNA, and David Catarious is a research analyst at CNA. The views expressed are those of the author and do not necessarily represent the views of the German Marshall Fund of the United States.

