

Strategic Defense Impacts of Climate Change: An Interagency Challenge

by Wendell Chris King

The United States faces a complex and scary national security environment. We are confronted with numerous threats to peace and security from both inside and outside our borders: North Korea's nuclear ambitions, Chinese aggression in Asia, Russian cyber activity, continued strife in the Middle East, terrorism by both state and non-state actors that can strike anywhere at home or abroad, increased pandemic disease threats, increased drug and human trafficking, illegal immigration, and growing numbers of refugees resulting from both natural and human caused disasters highlight just a few. This article addresses the national security implications of climate change from a United States strategic security perspective, while fully recognizing the complex security environment highlighted above.

The world has recognized that natural climate disasters have an added human driven component. In November 2015, 197 nations signed the Paris Agreement at the United Nations Conference of Parties Summit (COP 21) recognizing that climate change is occurring, that it has a significant human-cause effect from the ever-growing levels of greenhouse gases we emit to the atmosphere, and that the consequences of climate change represent a significant threat to peace and stability for the entire world. Climate change is an emerging national security threat our nation must address, but not the only one, or even the most immediate. And while climate change must be considered in the broader complex security environment, we must also recognize that it also portends massive long-term implications that cannot be ignored in many places around the world.

Security and peace are constitutionally mandated objectives for the government of the United States. Many see this as a mission exclusively for the Department of Defense, but the challenges we face today along with looming future threats demand a whole-of-government response to achieve our national security objectives. This is not a new approach as many of our past security challenges have required cooperation and support from all parts of our government. The wars in Iraq and

Brigadier General, U.S. Army (Retired) Wendell Chris King, Ph.D., served our nation for 45 years. He retired from federal service in 2016, and was named Dean Emeritus of the Command and General Staff College. King holds a Ph.D. in environmental engineering from the University of Tennessee and two Masters Degrees – a MS in Civil Engineering from Tennessee Technical University and a MA in National Security and Strategic Studies from the Naval War College.

Afghanistan demonstrated the criticality of interagency cooperation in achieving our defense objectives. These wars reminded us of what we should have learned from history — peace is achieved only when the fundamental causes of conflict are addressed. And these causes are rooted in a complex web of geopolitical, cultural, economic, and social differences which are not solved by the use of force alone. Likewise, another hard reality learned from history is that complex problems, like climate change, take strategic patience to solve — these are long wars.

To discuss the threats and risks posed by climate change this article begins with a brief summary and review of the environmental changes that already exist. From this basis, a strategic security analysis can be accomplished based on the best scientific data available to determine the most probable future climate change impacts. I base this on a range of future scenarios which look at different levels of future greenhouse gas emissions. The article concludes by examining how the United States might proceed to accomplish a strategic threat and risk analysis and begin to develop plans to meet our national security objectives.

Science of Climate Change

This article uses the data and analyses from the United Nations Intergovernmental Panel on Climate Change (IPCC) *5th Assessment Report (AR5)* to document the science of climate change.¹ It further considers the recently published *Climate Science Special Report: Fourth National Climate Assessment (2017)*,² to define the impacts of climate change in the United States. From a security standpoint, the IPCC *AR5* represents a tremendous source of well-researched intelligence data. These data have been collected from around the globe and peer reviewed by scientists from around the world. The challenge is to examine the pieces to the puzzle from the thousands of pages of working group reports and assemble them into

a coherent security picture. The IPCC has not ignored the idea that climate change generates security concerns, but it has rightfully focused on the broader issues of defining the most probable climate changes and then describing the direct impacts these changes will produce globally and regionally. There are sections of the *AR5*, such as the Human Security Chapter of the *Working Group II (WGII)* report, which directly relate to security and defense, but in general, this paper draws from all parts of the IPCC *AR5* for its data.

...another hard reality learned from history is that complex problems, like climate change, take strategic patience to solve...

The reports referenced above document the dramatic rate of change in our climate over the period of recorded climate data, which began on a world scale in the 1880s. These measured data show that the Earth has warmed both in the air and sea, that the sea level is rising from warming and ice melting, that ice and snow are being lost in the Arctic and from the land's cryosphere, that precipitation cycles are being altered in the amounts and timing of snow and rain, and that extreme weather is becoming more common and more powerful because of the extra heat energy from warming temperatures. In documenting these changes, the best scientific analysis concludes that a significant portion (greater than 50% according to both scientific reports) of climate change in the past 150 years has been driven by greenhouse gases from human activity, primarily the burning of fossil fuels for energy.

The impact of climate change will be determined by how the world addresses greenhouse gas emissions. The IPCC has developed four future emission scenarios to analyze the impacts of climate change. Unfortunately, current emission levels will produce continued warming and other damaging

impacts at least until 2050 because of the long residence times of greenhouse gases in the atmosphere (up to 100 years). The Paris Agreement of 2017 intended to limit future global emissions to a point that would hold the maximum global temperature rise to 2°C and achieve temperature reductions by 2100. This is the best-case scenario in the IPCC futures modeling. The worst-case scenario is a “business-as-usual” level with emissions that would result in a temperature rise to more than 10°C by 2100. The impact of that scenario would yield world devastation that human kind has not seen.³

...developed nations of the world must recognize that assisting the nations and people most at the most risk from climate change is in their national security interest.

Climate change alters the security landscape by generating new threats to human security for billions of people. A fundamental purpose for any government is to provide for the basic human needs of its people; and, without the basic human needs of food, shelter, clean water, and human health provided in a sustainable way, peace and security cannot be sustained.

There are now more than 7.3 billion people on Earth, seven times the population in 1800 when the Industrial Age began. United Nations’ projections expect the population to reach 9 billion before 2050. Large numbers of today’s world population live in conditions where obtaining basic human needs is already a day-to-day struggle. These people and their governments are most threatened by the impacts of climate change because, as the IPCC report highlights numerous times, they are least able to adapt and mitigate the harshest impacts. From a security analysis standpoint, it is also important to recognize that many people living in regions already imperiled by conflict are at the highest risk.

The most important security concept addressed by this article is that the developed nations of the world must recognize that assisting the nations and people most at the most risk from climate change is in their national security interest. This assistance needs to come in two forms: 1) Taking action to reduce greenhouse gas emissions in order to minimize the adverse global effects of climate change and acknowledging through action that further climate induced change/stresses are already locked into the system for at least the next 30 years, and 2) Providing assistance (as described later in a discussion of Table 1) to the people and nations who are most at risk by climate impacts. In this context, climate change presents a major shift in current security thinking, but this is not a new idea. Norman Myers, a founding scholar in the field of environmental security studies, made this point back in 1986:

“...national security is not just about fighting forces and weaponry. It relates to watersheds, croplands, forests, genetic resources, climate and other factors that rarely figure in the minds of military experts and political leaders.”⁴

Most nations consider defense strategy as an internal activity where plans are made within their political structures to respond to national threats to security. Climate change challenges this thinking because it cannot be solved by any single nation. No nation acting alone can protect itself from the threats posed by climate change. Nor is there a security solution to climate change — fences and/or troops guarding our borders will not protect us. Addressing the risks to national security posed by climate change requires action by all sections of society directed by a strong whole-of-government plan of action; climate change is truly one of a few extreme threats where everyone wins or everyone loses (the threat and deterrent of global nuclear arms and conflict is a similar example). And all of these

actions must be taken within a global response to climate change. The *Climate Science Special Report: Fourth National Climate Assessment*, documents the threats to our internal security posed by climate change. This report finds the consequences of extreme weather events of immediate concern and that long-term damaging impacts in the United States are highly likely. It is important to note that the team assembled to write this report provides an insight into the nature of the climate change problem and therefore, gives us a strong hint of what it will take to address the problem as a government. The authors and reviewers were from all departments of government along with the scientists from the public sector. The report is evidence that we must find interagency and whole-of-government solutions.

Security Analysis of Climate Change

WGII Table SPM.1 is the single most important resource within the IPCC *AR5* addressing the links between climate change and security. It is there that *AR5* translates the science of *WGI* into the climate-related drivers of impacts: **warming trends, extreme temperatures, drying trends, extreme precipitation, precipitation, snow cover, damaging cyclones, sea level rise, ocean acidification, and carbon dioxide concentration**. It is not an exaggeration to suggest that all these drivers have impacts on security, but it is more helpful to focus on those impacts with potential to cause the greatest harm. These risks are the first nine above and are listed in the left column of Table 1 (see page 18). Selected highlights from the scientific data of the IPCC report are also included in Column 1 of this table. These data illustrate that climate change is ongoing, and further indicate the range of impact based on different levels of greenhouse gases (GHG) emissions in the future. The IPCC report rigorously accounts for the natural and human sources of climate change

and the evidence overwhelmingly confirms that the major causation is anthropogenic produced greenhouse gases. The second column of Table 1 presents an assessment of the key risks posed by each of the climate-related drivers. These risks are derived primarily from the information developed for *WGI Table SPM.1.*, but also draw from other sections of the IPCC report, to include the Human Security chapter of *WGII*.

...the results of climate change are likely to greatly increase human suffering for large numbers of people in many places in the world.

Column 2 represents the damage to human security from each of the discrete climate-related drivers. The IPCC data also reinforces the idea that the true impact on any particular location results from the cumulative effects of several of the key risks. What *WGI* data does not account for is how cultural, political, or physical factors further add to the overall risk for a region. These factors add significant complicating factors to assessing and developing mitigation for the security risks. Summarizing what can be learned from Columns 1 and 2 of Table 1 in one sentence: **the results of climate change are likely to greatly increase human suffering for large numbers of people in many places in the world.**

The next and most critical step in this security threat analysis requires that military judgment be applied to the established climate change impacts (Column 2, Table 1) in order to assess the impacts on the military and defense sectors. Column 3 of Table 1 has been constructed by the author based on military experience from: 1) responding to natural and manmade disasters, 2) operations in support of mass migrations and large refugee populations, 3) conducting security operations in areas of conflict, and 4) other

Climate-Related Driver	Key Impacts	Security and Defense Impact
Temperature warming: 0.85 ° C in 2012, 1.0 – 3.7 °C by 2100 (WGI, SPM-3)	Increase of disease (vector and water-borne), stress on water resources, loss of arable lands, reduced food production, increase in salinity, degrading of coral reefs, loss of fish stock and livelihoods	Increase of humanitarian support missions, refugee support, medical resources to respond to epidemic disease, potential for conflict
Extreme temperature: highest in Asia, Europe, Australia, (WGI, SPM-15, 23)	Increased mortality and health and well-being issues, stress water resources, reduced crop production	Medical logistics support, increase of humanitarian support missions, security operations (ops) and potential for conflict
Drying trend: global, highest in mid-latitudes (WGI, SPM-23)	Food security threats, water resource stress	Support migrations, humanitarian ops, potential for conflict
Extreme precipitation: highest in mid-latitudes and wet tropics by 2100. (WGI, SPM-16)	Flood damage to infrastructure, loss of life, increased infectious and vector borne disease	Increase of humanitarian support missions, large-scale logistics support, medical ops in respond to epidemic disease, security ops
Precipitation: More in the high latitudes and at the equator. Drier in mid-latitudes and sub-tropics (WGI, SPM-17)	Water resource stress, loss of arable land, public health issues, water quality degradation	Increase of humanitarian support missions, logistics support, medical support to respond to epidemic disease, security ops, potential for conflict, engineering support
Snow and ice cover: Ice – 15 -85 % reduction by 2100. Snow – 7-25 % loss by 2100 (WGI, SPM-17)	Loss of snow and ice stresses water resources, increased rate of warming, flooding and droughts	Increase of humanitarian support missions, large-scale logistics support, medical resources to respond to epidemic disease, border security ops
Damaging cyclone: most likely in Western North Pacific and North Atlantic, (WGI, SPM-23)	Loss of life and property damage, extreme flooding, increased disease following disaster	Increase of humanitarian support missions, security ops, engineering reconstruction support, disaster medical relief, logistics support
Sea level: 0.19 M in 2010, 0.4-.63 by 2100 (WGI, SPM-18)	Flooding/property damage, loss of coastal and island settlements, reduced food production, water quality damage	Refugee support, large scale logistics support, security ops

Table 1. Major Impacts of Climate Change

Source: Author created. Data references specific sections in the IPCC, "Summary for Policy Makers," 2013.

missions which offer similar challenges to what can be expected from climate change.

These types of operations may not present precisely the same challenges, but they represent a best guess of what the future might look like based on past experience with military operations other than war. One frightful point of this analysis is seen if the relative scale of past operations is

compared to the range of emerging risks from climate change. Our historical operations data comes from responses to disasters such as the 2011 tsunami in Japan, cyclones in India and Bangladesh, hurricanes, earthquakes, volcanoes and floods in the Caribbean, droughts in Sudan, refugee relief in Rwanda, and many more. These missions were of limited scale and generally of

short duration. The scale of disasters that could result from the higher estimates of the impacts of climate would far exceed, in scope and duration, any previous military operations short of major conflict. It may be that the recent events in Houston and Puerto Rico have provided us a scary vision of the future of extreme weather driven by climate change, but admittedly the science is not complete on this issue. In examining Column 3 of Table 1, the major security/defense implications of climate change can be summarized as:

- Direct threats to human health from disease and other acute (heat related) injury
- Mass migrations of people driven by water and food security issues, disease, or conflict
- Loss of food production and arable lands for people who do not or are unable to migrate
- Increased rate and intensity of natural disasters producing death, destruction of critical infrastructure, and the epidemic to pandemic disease that can follow major disasters
- Large-scale and continuing logistics support to people threatened by the cumulative impacts of climate change
- Peacekeeping operations in failed or fragile states suffering the impacts of climate change
- Conflict over resource scarcities generated by climate change

Options for Adaption

Several additional factors must be considered to fully understand the impact of climate change in any particular country or region. *AR5* emphasizes that the actual impact of climate change will be unevenly distributed across the globe. A key to security risk analysis

The scale of disasters that could result from the higher estimates of the impacts of climate would far exceed, in scope and duration, any previous military operations short of major conflict.

is assessing the ability of communities of people and governments to adapt or mitigate the adverse impacts of climate change. It is fair to conclude that many nations of the world are not capable of adapting to large-scale climate change threats. Going further, the most vulnerable nations will not be able to defend themselves from even moderate impacts without considerable assistance. To better address this point, Table 2 (see page 20) presents a list of the countries at the very top of the Failed States Index⁵ (countries least capable of accomplishing the basic requirements of government). Column 3 of Table 2 adds an environmental security analysis of these countries to understand the ability of these countries to provide for the basic needs of their people. Failed governments and failed environmental conditions together assure that any significant climate-driven environmental degradation will deepen human suffering in these countries. An example from the Nile River basin which follows later will further illustrate this idea. Defense and security issues are most likely to create the highest security threats in those countries unable to adapt and mitigate the major effects of climate change and it is at this point that climate change becomes a defense and security issue.

Thinking about the security implications of climate change in abstract ways is difficult to grasp for even seasoned security analysts. However, looking at specific examples of places where impacts of climate change are visible threats to security brings these abstract ideas

Nation	Defense/Security Status	Environmental Security Rating
1. Somalia	Unstable	F
2. Democratic Republic of the Congo	Unstable	D
3. Sudan	Conflict	F
4. South Sudan	Conflict	F
5. Chad	Conflict	F
6. Yemen	Conflict	D
7. Afghanistan	War	F
8. Haiti	Unstable	F
9. Central African Republic	Conflict	D
10. Zimbabwe	Unstable	D

Table 2: Top 10 Failed (Fragile) States in 2014⁶
Source: Author created. Author created. Environmental rating from the author (D- failing, F- Failed environmental conditions)

into focus. Two case studies will illustrate the environmental security risks posed by climate change: first in the Nile River watershed, and second, the countries within the Tibetan plateau watershed.

WGI data offers a coarse scale geographic analysis of the impacts of climate change. While a worldwide analysis is well beyond the scope of this article, it is possible to utilize the data of *WGI* to examine selected areas of special concern. The nations at the Top 10 failed states index (Table 2) immediately draw attention to the Sahara region and Northern Africa (note: many more than just the top 10 nations of this region are high on the failed states index). The data from the *AR5* indicate that the cumulative impacts of warming, drying, and changes in precipitation in this region will have a significant impact on the people and the ecosystem. The overall assessment of this region is achieved by summing the impacts of climate change, with the effects of political instability (shown in the Failed States data), high population growth rates, and other socioeconomic factors. The result is an overall security threat risk that is **high to extreme**. As discussed earlier, few options for mitigation or adaption will be available for these countries, and the potential for even more

conflict will be significant. A major exacerbating factor critical to fully appreciating this example is seen by examining the population trends within the watershed. For the seven countries most reliant on the Nile water, the population is predicted to grow from 265 million in 2011 to 700 million by 2050.⁷ At current water use rates this would require three times more water than the watershed can provide. Any solution will require great diplomacy and significant changes in water use, particularly for Egypt and Sudan, who now consume the largest portion of the existing resources. And this all occurs before predicted reductions and increased demands that would be attributed to climate change. The security risks for this region are clearly significant.

A second example of an area where climate change will create major security concerns is with the countries within the Tibetan plateau watershed (See Figure 2, page 22). The impacts of climate change predicted to impact this region by 2100 represent threats to the security of almost half of the world's population (more than 3 billion people). The climate change stressors predicted to impact this region include; warming, extreme heat, drying, and extreme weather such as more frequent and severe cyclones. However, the most significant are those stressors

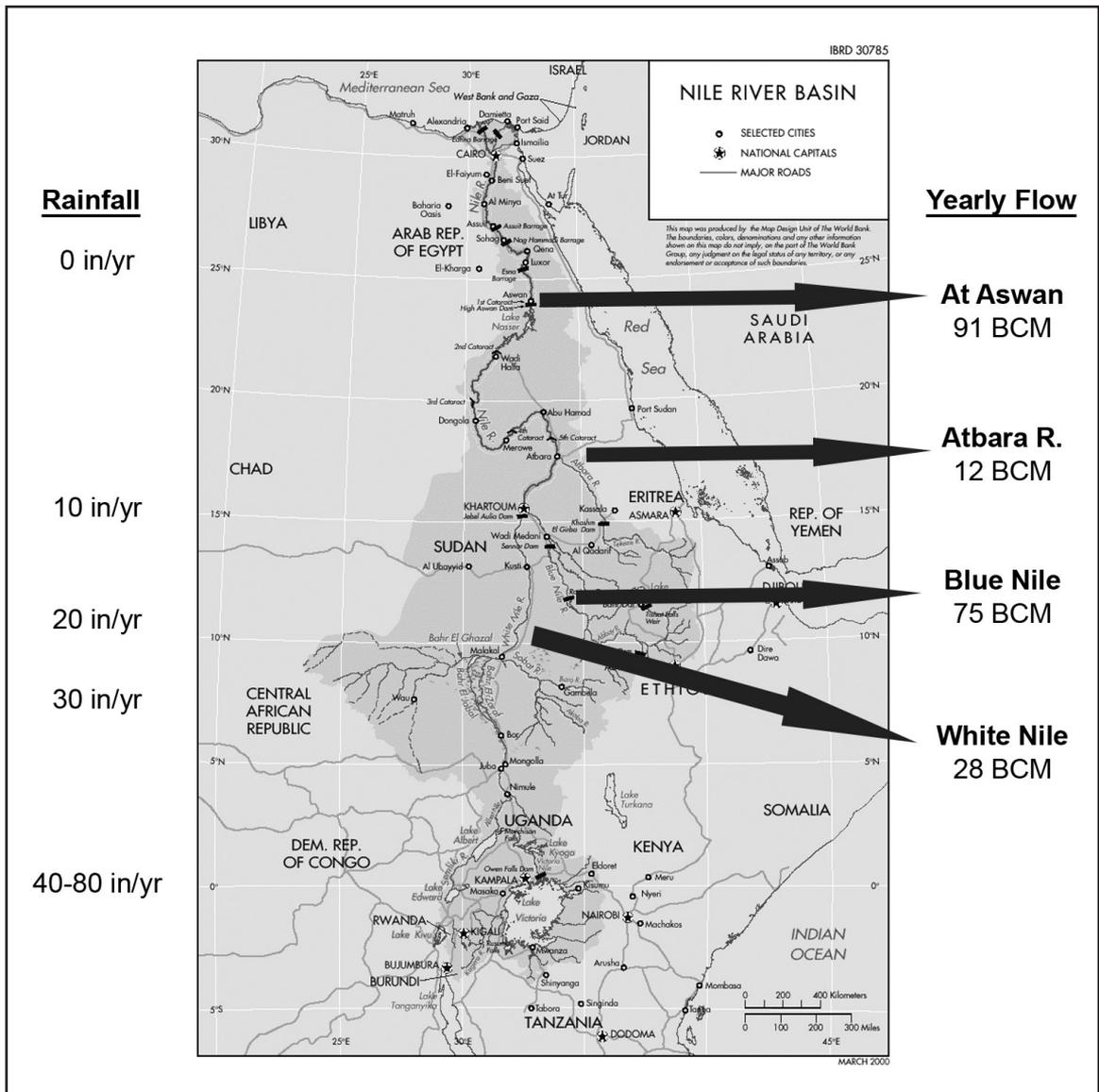
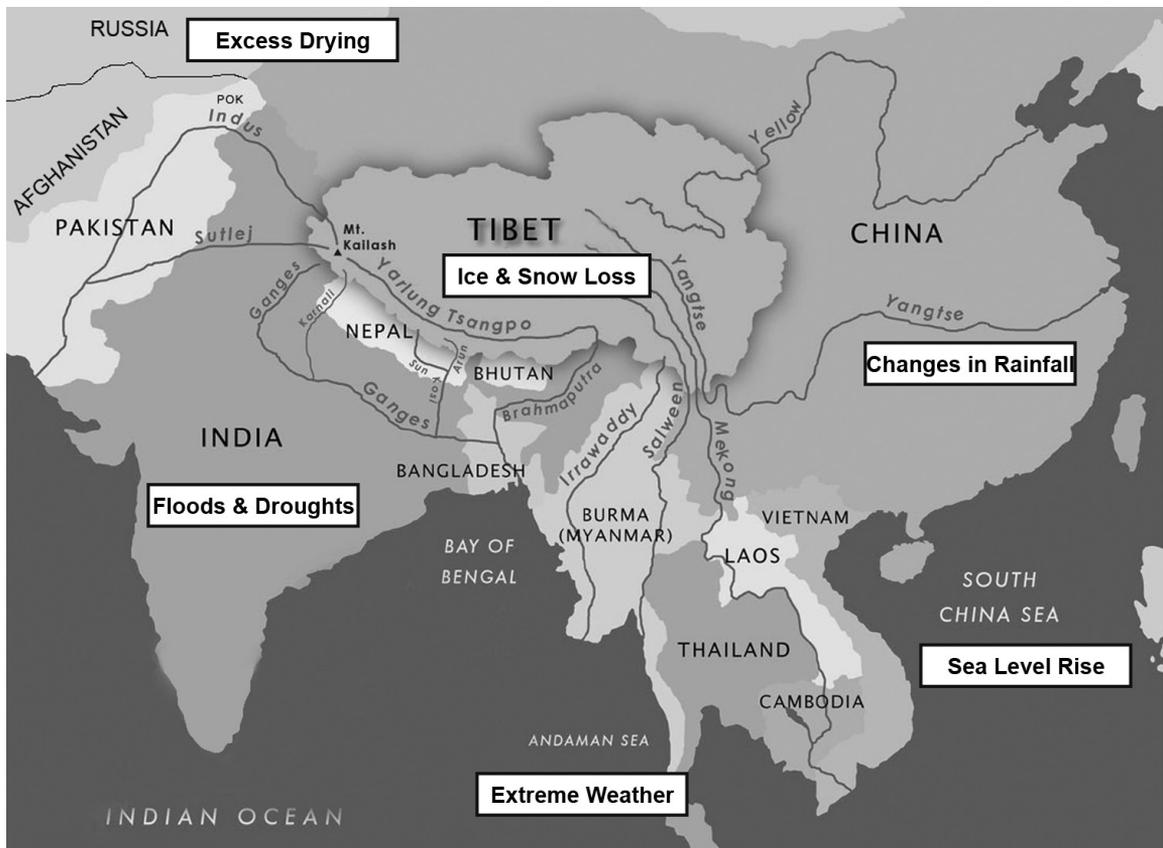


Figure 1: Nile River basin
 Source: Data compiled from various sources by the author and represents best estimates. Flow rate is in BCM, billion cubic meters per year.

that impact water resources, mainly altering precipitation patterns (how much and when it occurs) and the loss of snow and ice cover. The Tibetan ice and snow system represents the primary water resource for eight of the major rivers of the world as shown in the diagram and provides water for countries with more than 3.2 billion people. This, like the previous example, is also a region with a rapidly expanding population which will further exacerbate the region's ability to adapt and mitigate the impacts of climate

change. Climate change is predicted to make water resources worse, possibly much worse by 2100. Table 1 can be examined to assess the security risks posed by the stressors predicted to impact this region and even a conservative estimate depicts dire conditions. Any security assessment also must recognize that three of these nations are nuclear powers with some of the largest military forces in the world. This is a region with a history of sporadic outbreaks of military conflict and, at best, a fragile balance of



Seven major Rivers of the World with headwaters from the Tibetan Plateau (Ganges, Indus, Yellow, Mekong, Irrawaddy, Brahmaputra, and Salween) and putting more than 3 billion people at risk.

Source: Author created.

power. A more stable peace in this region would bring benefits for all nations. Water security risks driven by climate change can become a major destabilizing factor and major threat to peace for this region. The other climate change impacts could produce massive human suffering and large refugee populations across the region. As an example, it has been predicted that sea level rise could produce as many 35 million displaced persons just from Bangladesh by 2050.⁸

Final Thoughts and Seeking A(NY) Way Ahead

It is evidence that climate change will impact peace and security in the world. In the near-term it will be our ability to adapt to the climate impacts which will determine the magnitude of the security threat on a world scale. The tolerable

amount of human suffering will be the metric to determine the level of the security impact. In the long-term, the impact will be determined by our ability to reduce greenhouse gas emissions and thus limit the most dire consequences. The highest probability and most damaging impacts on security are:

- The loss of sustainable food production for many regions of the world
- Increased epidemic disease from polluted water and disease following natural disaster and famine
- Reduction of sufficient potable water to support basic human needs
- An increased number, intensity, and areas impacted by natural disasters

- The loss of living space caused by sea level rise and changes in ecosystems

As documented by 197 nations in Paris in November 2015, the world must act together to adapt to the unavoidable consequences of the global warming that will occur because of the greenhouse gases already in the atmosphere and must find ways to reduce the rate of greenhouse gas production in the future.

So, what are the prudent actions for the United States to address the internal and external threats to our security posed by climate change? The threats to the United States must be considered in the context of internal risks at or within our borders and external threats that create large scale instability across the world at large. The recent hurricanes in Houston and Puerto Rico gave us a stark view of the increased intensity of storms and illustrate the economic and social impact that must be addressed. These threats are discussed in the *Climate Change Impacts in the United States*, specifically the damage to or loss of our military bases. Much of our Navy infrastructure and many Air Force bases are at risk from sea level rise and extreme weather events like was experienced in Houston. The DoD highlighted these concerns in the *2014 Climate Change Adaptation Roadmap*.⁹ The conclusion from that report was that climate change is a direct threat to defense operations and facilities for the United States.

As dangerous and as costly as the internal threats may be, the more serious issue is the external threat to peace and security posed by the impacts on human security listed above. As noted earlier, the scale of the calamities that climate change can produce is frightening. It is the number of people that would be affected times the length of time that recovery and rebuilding would require that makes the risk so high. Using the example of Bangladesh given earlier, up to 35 million refugees would be displaced from the lowlands by sea level rise by 2050 — and where do they go? There will be no

rebuilding; their homes will be lost and they will have to permanently displace. Today, the world struggles to manage up to 3 million refugees from Syria; this is ten times more — just from Bangladesh! Even worse, other nations of this region such as India, Pakistan, and Myanmar will also generate untold numbers of refugees from their river lowlands as sea levels rise; and, what will happen to them?

Our government must recognize and respond to the threats and risks posed by climate change. One article is not going to present the solutions,

The threats to the United States must be considered in the context of internal risks at or within our borders and external threats that create large scale instability across the world...

but can offer at least a brief outline of a way ahead.

1. *Leadership*

Some organization must be put in charge while all other elements of the government must be active participants in the climate change response. Externally, the majority of responsibilities fall under the Department of State, with the Department of Defense and National Intelligence community also strongly involved. The Department of Homeland Security is the primary organization that addresses the risks to internal security posed by climate change, but nearly every part of the government must be involved. This is evident when examining the conclusions from the *Climate Change Impacts in the United States* report. Considering that two different departments will have responsibility of internal and external climate change responses, leadership will need to come from an overarching leader. This leader will need to coordinate the actions of the Departments of State and Homeland Security while assigning

responsibilities across other agencies within the government as required. The position must possess both responsibility for developing a climate change operational plan and the authority needed to execute all elements of the plan. The position would need to be legislated to achieve continuity across political changes within the executive branch and sit at cabinet level or higher.

2. Key initial actions:

- a. Develop a plan to collect the appropriate intelligence data on the impacts of climate change, just as we collect intelligence on other threats.
- b. Develop operational plans and conduct exercises to respond to the primary threat internally.
- c. Rejoin the Paris Agreement from the United Nations Conference of Parties Summit of 2015 (COP 21). The accord provides the flexibility to adjust our greenhouse emission goals; there is no need to withdraw from the accord. The United States must assume a leadership role in this fight to assure that our internal and external climate change goals are met.
- d. Make the United States the world leader in new energy solutions.
- e. Direct the DoD to study the overall long-term impacts, internally and internationally, on defense operations.

While the threats and risks of climate change are dire, the future also offers opportunity. The United States is the greatest nation in the world; it needs to act like it on this topic. We should lead the world in creating sustainable energy and environmental security for the 21st century and beyond. We have the unequalled economic and intellectual capability to succeed in this goal. The end state must be a world that achieves a more durable peace where many more people can meet their basic human needs with the root causes of insecurity and conflict greatly diminished. We must recognize that defeating climate change is truly a long war where everyone wins or everyone loses; the United States cannot stand in isolation in or ignore this security risk. **IAJ**

NOTES

1 United Nations Intergovernmental Panel on Climate Change (IPCC), “Summary for Policymakers,” *Climate Change 2013: The Physical Science Basis*. Contribution of Working Group I (WGI) to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change, T.F. Stocker, D. Qin, G.K. Plattner, M. Tignor, S.K. Allen, J. Boschung, A. Nauels, Y. Xia, V. Bex and P.M. Midgley (eds.), Cambridge University Press: Cambridge, United Kingdom and New York, 2013.

United Nations Intergovernmental Panel on Climate Change (IPCC), “Summary for Policymakers,” *Climate Change 2014: Impacts, Adaption, and Vulnerability*. Part A: Global and Sectoral Aspects. Contribution of Working Group II (WGII) to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change, C.B. Field, V.R. Barros, D.J. Dokken, K.J. Mach, M.D. Mastrandrea, T.E. Bilir, M. Chatterjee, K.L. Ebi, Y.O. Estrada, R.C. Genova, B. Girma, E.S. Kissel, A.N. Levy, S. MacCracken, P.R. Mastrandrea, and L.L. White (eds.), Cambridge University Press: Cambridge, United Kingdom and New York, 2014.

- 2 U.S. Global Change Research Program, *Climate Science Special Report: Fourth National Climate Assessment, Volume I*, D.J. Wuebbles, D.W. Fahey, K.A. Hibbard, D.J. Dokken, B.C. Stewart, and T.K. Maycock (eds.), Washington, D.C., 2017.
- 3 IPCC.
- 4 Norman Myers, “The Environmental Dimension to Security Issues,” *The Environmentalist*, (1986), pp. 251-257.
- 5 Fund for Peace website, <http://fundforpeace.org/fsi/>, accessed June 27, 2018. It is very similar to a Failed States Index published each year by Foreign Policy Magazine. This list is based on analysis of population, migration, internal strife, poverty and economics, public service, security forces, basic governance capacity, and external actors.
- 6 Wendell Chris King, Neal Morisetti, and Joseph Singh, “Strategic Defense Impacts of Climate Change,” Proceedings of Organization for Security and Cooperation in Europe, Conference on Environmental Security, 2014.
- 7 IPCC.
- 8 Major General (Retired) Muniruzzaman, President of the Bangladesh Institute of Peace and Security Studies, from a speech presented at COP21, Paris, 2015.
- 9 U.S. Department of Defense, “Climate Change Adaptation Roadmap,” June 2014.



Fort Leavenworth Ethics Symposium

An intellectual forum co-sponsored
by the U.S. Army Command and General Staff College
and the CGSC Foundation, Inc.



SPECIAL REPORT

A Selection of Papers Presented at the 2017 Fort Leavenworth Ethics Symposium

2017 Fort Leavenworth Ethics Symposium

The Ethics of Future Warfare

An Intellectual Forum Co-sponsored
by the U.S. Army Command and General Staff College and the CGSC Foundation, Inc.

April 24-25, 2017
Lewis and Clark Center
Fort Leavenworth, Kansas

CGSC Foundation, Inc. • Arthur D. Simons Center • U.S. Army Command and General Staff College

Beginning in 2009, the Command and General Staff College Foundation has partnered each year with the U.S. Army Command and General Staff College to host an annual ethics symposium at Fort Leavenworth.

These annual symposia provide an opportunity for academics and practitioners to come together to discuss ethics as they relate to the profession of arms, the practice of state controlled violence, and national security.

The papers presented at the 2017 and 2018 Fort Leavenworth Ethics Symposia are now published as a collection as part of the Simons Center’s *Special Reports* series.

SPECIAL REPORT

A Selection of Papers Presented at the 2018 Fort Leavenworth Ethics Symposium

2018 Fort Leavenworth Ethics Symposium

The Impact of Diverse Worldviews on Military Conflict

An Intellectual Forum Co-sponsored
by the U.S. Army Command and General Staff College and the CGSC Foundation, Inc.

April 26 – May 1, 2018
Lewis and Clark Center
Fort Leavenworth, Kansas

CGSC Foundation, Inc. • Arthur D. Simons Center • U.S. Army Command and General Staff College

Special Report: The Ethics of Future Warfare, featuring 17 papers presented at the 2017 Ethics Symposium, is available online —

TheSimonsCenter.org/
special-report-the-ethics-of-future-warfare

For more information about the Fort Leavenworth Ethics Symposium visit

www.leavenworthethicssymposium.org

Special Report: The Impact of Diverse Worldviews on Military Conflict, featuring 19 papers presented at the 2018 Ethics Symposium, is available online —

TheSimonsCenter.org/
special-report-the-impact-of-diverse-worldviews