

**Submission of the United States of America  
on the Security Implications of Climate Change**

The United States welcomes the opportunity to provide our views on the security implications of  
subject as requested in  
A/res/63/281 to be submitted to the General Assembly at its 64<sup>th</sup> session.

This past April, Secretary of State Hillary Clinton addressed representatives at the first

adaptive capability than many nations, including strong governance and institutional capacity, climate change impacts will still be costly. Moreover, climate change impacts elsewhere in the world also have implications across international borders including for the United States.

Implications of Global Climate Change to 2030,<sup>3</sup> climate change alone is unlikely to trigger state failure in any country out to 2030, but the impacts will worsen existing problems such as poverty, social tensions, environmental degradation, ineffectual leadership, and weak political institutions. Climate change could threaten domestic stability in some states, potentially contributing to intra-

decades and sea level rise is expected to be no greater than 75mm (.075m).<sup>5</sup> The IPCC and others project that water will become increasingly scarce across several regions, including parts of Asia and parts of Africa and the southwestern United States. Water scarcity can be caused by many factors—absence of precipitation, increased evaporation, demographics, land use, or reductions in river flows.

### **...And National Security**

From a national security perspective, climate change has the potential to affect lives (for example, through food and water shortages, increased health problems including the spread of disease, and increased potential for conflict), and property (for example, through ground subsidence, flooding, coastal erosion, and extreme weather events).

Global prosperity depends on a smooth-functioning international system ensuring the flow of trade and market access to critical raw materials. Climate change and climate change policies could affect all of these—domestic stability in a number of key states, the opening of new sea lanes and access to raw materials, and the global economy more broadly—with significant geopolitical consequences.

Anticipated impacts to the United States—including possible increases in the severity of storms in the Gulf and the Atlantic, disruptions in U.S. and Arctic infrastructure, and increases in immigration from resource-scarce regions of the world—are expected to be costly. The efforts of national governments, businesses, and the public to develop mitigation and adaptation strategies to deal with climate change—from policies to reduce greenhouse gasses to plans to reduce

dependence on agriculture probably will also face a significantly higher exposure to water stress owing to climate change.

## **Asia**

Current research indicates that South, Southeast, and East Asia will face risks of reduced agricultural productivity as large parts of the region face increased risk of floods and droughts. By 2025, cereal crop yields will decrease 2.5-10 percent, according to some calculations.<sup>6</sup>

Observed increases in surface air temperature in recent decades range from less than 1 to 3 degrees C per decade, with the most pronounced warming in north Asia. Annual average rainfall has decreased in Russia, northeast and north China, coastal belts and arid plains of Pakistan, parts of northeast India, Indonesia, Philippines, and some areas of Japan; it has increased in western and southeastern coastal China, Bangladesh, and the western coasts of the Philippines. In parts of Asia extreme weather events<sup>7</sup> are more frequent and severe and intense rains and floods come more often. Droughts have intensified and/or affected more areas in Central, South and Southeast Asia.

Tropical storms are more frequent in the South China Sea, and the Bay of Bengal is experiencing fewer but more intense storms. Some projections indicate as many as 50 million additional people could be at risk of hunger by 2020, although climate change may moderate water stress in some regions of Asia. By the 2020s increases in precipitation and glacier run-off will relieve some of the water stress in Asia, but increasing consumption patterns and growing populations indicate that 120 million to 1.2 billion people will continue to experience some water stress.

## **Australia and New Zealand**

Australia and New Zealand will likely see increased temperature by 2030 and continued changes in precipitation patterns. Since 1950 there has been a 0.3 to 0.7 degrees C warming in the region, with more heat waves, fewer frosts, and an increase in the intensity of Australian droughts. Recent reports indicate more rain in northwestern Australia and southwestern New Zealand, and less rain in southern and eastern Australia and northeastern New Zealand. According to scientific research, floods, landslides, droughts and storm surges are likely to become more frequent and intense, and snow and frost are likely to become less frequent. Infrastructure design criteria<sup>8</sup> for extreme events, here as elsewhere, are likely to be exceeded more frequently.

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<sup>6</sup> This assumes no CO<sub>2</sub> fertilization. Most plants growing in normal atmospheric CO<sub>2</sub> exhibit higher rates of photosynthesis and elevated CO<sub>2</sub> alone tends to increase growth and yield of most agriculture plants. Most of the studies have been conducted either under controlled environmental conditions (chambers), or under optimal field conditions. Potential CO<sub>2</sub> effects on plant biomass depend on the nutrient and water levels. With CO<sub>2</sub> fertilization, the Asian cereal crop yields will vary from +2.5 to 10 percent, with China and Mongolia showing the slight rise in one of three data runs.

<sup>7</sup> The IPCC defines an extreme weather event as an event that is rare within its statistical reference

be as rare as or rarer than the 10th or 90th percentile.

<sup>8</sup> Infrastructure design criteria include such things as maximum and minimum temperature, rates of precipitation, snow and ice accumulation, and wind intensity and direction.

**Europe**



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negatively impacted and some states could experience economic setbacks and uneven growth leading to political change or disruption, as well as humanitarian concerns.

### **Implications for the United States**

Responding to thawing in and around Alaska, water shortages in the Southwest, and storm surges on the East and Gulf Coasts will involve costly repairs, upgrades, and modifications. A warming climate also will encourage wildfires throughout the longer summers. The IPCC estimates annual costs from severe weather in damage to property and loss of economic productivity for the United States may be in the tens of billions of dollars. Current infrastructure design criteria and construction codes may be inadequate for climate change and exacerbate vulnerability to increasing storm intensity and flooding. Two dozen nuclear facilities and numerous refineries along U.S. coastlines are at risk and may be severely impacted by storms.

Current livestock production will be increasingly challenged. Although agriculture is considered one of the more adaptable sectors, increased heat, pests, water stress, diseases, and weather extremes will pose adaptation challenges for crop and livestock production.<sup>15</sup>

Countries, particularly developed countries including the United States, will need to anticipate and plan for growing immigration pressures. Although sea level rise is a slow and long-term development, extreme weather events and growing evidence of inundation will motivate many to move sooner rather than later. For example, almost one-fourth of the countries with the greatest percentage of population in low elevation coastal zones are in the Caribbean, so assisting these populations will be an imminent task. Broad Western hemispheric cooperation will be necessary to mitigate the impact on harder-hit countries.

to respond will be increasingly strained. All countries will be called upon to respond and the United States anticipates a large support role in this context. The demands of these potential humanitarian responses may significantly tax global infrastructure and the ability for countries to continue to manage traditional domestic and international responsibilities. Moreover, care will need to be taken that people displaced by humanitarian emergencies are not relocated to other areas also vulnerable to the impacts of climate change.

### **Research and Analysis Challenges**

The present level of scientific understanding of future climate change lacks the resolution and specificity required for detailed analysis of security implications at the country level. Most of the IPCC material is based upon an understanding of how the climate may change at the global level. Improved and better-validated regional and local models (accounting for regional and local processes) of climate change, particularly models that provide details on hydrological consequences and changes in the frequency and intensity of extreme events are required. In addition, there is a need for better information on physical, agricultural, economic, social, and political impacts from climate change at country and regional levels. Such improved modeling and information would also facilitate adaptation efforts. State stability is a critical part of

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<sup>15</sup> U.S. Global Change Research Program, *Global Climate Change Impacts in the United States*, 2009.



as is mitigation and the broad issue of climate change adaptation. The UN Framework Convention on Climate Change remains a key forum for addressing climate change.

We thank the Secretary General for the opportunity to provide input into the report on the Security Implications of Climate Change and for his hard work and that of his staff on this complex issue.