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CLIMATE AND SOCIAL STRESS: IMPLICATIONS FOR SECURITY ANALYSIS

The U.S. intelligence community is expected to monitor and provide warnings about a wide variety of security threats—not only risks of international wars that might threaten U.S. interests or require a U.S. military response, but also risks of violent subnational conflicts in countries of security concern, threats to the stability of states and regions, and risks of major humanitarian disasters in key regions of the world. This intelligence mission requires the consideration of activities and processes anywhere in the world that might lead, directly or indirectly, to threats to U.S. national security.

In recent years, the accumulation of scientific evidence that the global climate is changing beyond the bounds of past experience has raised expectations of new stresses on societies around the world, creating possible security risks for the United States. Those stresses include situations in which climate events (e.g., droughts, heat waves, or storms) have consequences that exceed the capacity of affected countries to cope and respond. The U.S. intelligence and security communities have recognized the need to evaluate possible connections between climate change and U.S. national security concerns, and to increase their

Men pulling a raft filled with their belongings down a flooded street, Thailand, October 2011. Climate-related events such as flooding can disrupt societies that are not well prepared or able to respond effectively.



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ability to consider climate change when assessing possible threats to national security.

The National Research Council was asked to evaluate the evidence on climate-security connections, develop a conceptual framework, and develop conclusions and recommendations regarding what should be monitored by the intelligence community over the coming decade to anticipate security threats. The study committee proposed a strategy for developing indicators of climate change, exposures, and vulnerabilities that could be used to assess climate-related threats to U.S. national security. The committee's conclusions can be clustered under three major categories: climate-security connections; improving understanding, monitoring, and analysis; and anticipating climate-related threats.

Climate-Security Connections

Security analysts should anticipate that over the next decade, droughts, heat waves, storms, or other climate events of surprising intensity or duration will stress communities, societies, governments, and the globally integrated systems that support human well-being. These surprises are likely to appear first as unusually severe extensions of familiar experience, and the consequences of at least some of these events are likely to be felt in places remote from the regions in which the events occur. They will include both single extreme events and simultaneous or sequential conjunctions of events; both types will become progressively more serious and more frequent. The conjunctions will likely include apparently unrelated climate events that occur closely in time, although perhaps widely separated geographically, such as simultaneous droughts in the southwestern United States and in Argentina; sequences or cascades of events that precipitate unexpected physical or biological consequences; and shocks to globally connected systems, such as food markets, strategic commodity supply chains, and public health systems. Security risks posed by these climate surprises are unlikely to be anticipated by looking only at climate trends and projections.

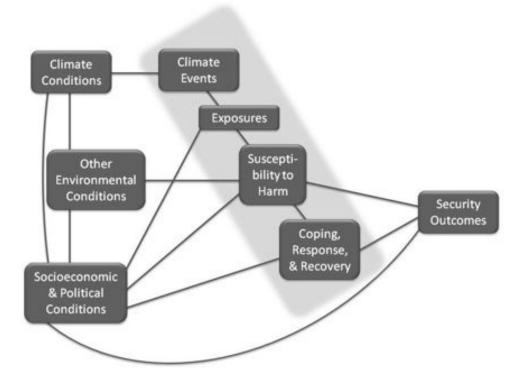
The study committee developed a conceptual framework for considering the conditions that connect climate events to outcomes related to national security. Anticipating security risks related to climate change requires an integrated understanding of climate dynamics and of the social, political, and economic conditions under which particular climate events might lead to social and political stresses. The overall risk of disruption to a society from a climate event is determined by the interplay of several factors: the severity of the event; the degree of exposure of people, valued things, or global support systems to the event; the susceptibility of those people, things, or systems to harm from the event; and the effectiveness of their coping, response, and recovery afterward (see figure). Major social and political disruption occurs when exposure and susceptibility are sufficiently great and response is inadequate. However, it is important to note that under different social and political conditions, even unprecedentedly large climate events do not create security threats.

It is prudent to expect that some climate events will produce consequences that exceed the capacity of the affected societies or global systems to manage, and therefore will have global security implications serious enough to compel international response. Even though the links between climate events and security outcomes are complex, contingent, and not well enough understood to allow for prediction, it is also prudent to anticipate that such consequences will become more common in the future.

Improving Understanding, Monitoring, and Analysis

To achieve their goals, the U.S. intelligence and national security communities need a better understanding of vulnerabilities to climate change —a need shared by various federal agencies as well as the U.S. Global Change Research Program (USGCRP). A whole-of-government approach to understanding adaptation and vulnerability to climate change can advance the objectives of multiple agencies, avoid duplication of effort, and make better use of scarce resources. This effort should support

Factors that link climate events to outcomes of security concern



research to build fundamental understanding of climate adaptation and vulnerability and create a widely useful system for monitoring and analysis. This system would aid in anticipating security threats and could be employed by the U.S. intelligence community and other domestic and international entities to inform choices about responses to climate change.

The connections between the harm suffered from climate events and the political and social outcomes of security concern have received relatively little scientific attention to date. Along with the USGCRP and relevant science and mission agencies, the intelligence community should participate in a process to develop priorities for research on climate vulnerability and adaptation and support research in the priority areas. Key research goals should include improving the ability to quantify the likelihoods of potentially disruptive climate events, especially those that could disrupt vital supply chains and thus contribute to global system shocks; improving understanding of the conditions under which climate-related natural disasters and disruptions of critical systems of life support do or do not lead to important security-relevant

outcomes; and integrating the social science of natural disasters and disaster response with other forms of analysis.

In addition, the U.S. government should begin immediately to develop a systematic and enduring whole-of-government strategy for monitoring threats related to climate change. This monitoring should be globally applicable and should include climate phenomena, exposures and vulnerabilities, and factors that link aspects of climate and vulnerability to important security outcomes. Analysis based on this monitoring will require integrating quantitative indicators with traditional security and intelligence analytic methods; collecting new and finer-grained data while maintaining critical existing observational systems; analyzing new and existing data; and improving analytic techniques. Such analyses will lead to better understanding of key causal connections and to improved indicators. Serious attention should be given to international collaborations and open data-sharing; the development of compatible concepts, databases, and indicators across countries helps speed scientific progress and improves the ability to learn from the experiences of other countries.

Anticipating Climate-related Threats

The study advises that periodic "stress testing" of the ability of countries, regions, and critical global systems to manage potentially disruptive climate events should be built into intelligence analysis. Results of such analyses would inform national security decision makers about places at risk of becoming security concerns as a result of climate events. These analyses could be used by the U.S. government or international aid agencies to target efforts to reduce susceptibilities or to improve coping, response, and recovery capacities. Stress testing might draw on various methods, including the qualitative interpretation of available

knowledge, formal modeling, and interactive gaming approaches. Decision science techniques should be employed to design processes and interpret input from different kinds of expertise and modes of analysis in order to make the best possible use of information. By accumulating data on social, political, and security consequences of disruptive events, stress testing would iteratively improve future analyses. Stress-testing exercises should themselves be monitored and critically evaluated so that the capacity to anticipate security threats can be improved over time.

COMMITTEE ON ASSESSING THE IMPACTS OF CLIMATE CHANGE ON SOCIAL AND POLITICAL STRESSES

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FOR MORE INFORMATION ... This brief was prepared by the Board on Environmental Change and Society of the Division of Behavioral and Social Sciences and Education based on the report Climate and Social Stress: Implications for Security Analysis, which was overseen by the Committee on Assessing the Impacts of Climate Change on Social and Political Stresses. The study was sponsored by the intelligence community. Any opinions, findings, conclusions, or recommendations expressed in this publication are those of the authors and do not reflect those of the sponsoring organizations. Copies of the report are available from the National Academies Press, 500 Fifth Street, N.W., Washington, DC 20001; (800) 624-6242; http://www.nap.edu

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