

UNCLASSIFIED



Climate Change Impact on National Security

*Dr. Mathew Burrows
Counselor
National Intelligence Council*

This Briefing is UNCLASSIFIED

UNCLASSIFIED

UNCLASSIFIED



Objective

*To provide results from a National
Intelligence Assessment (NIA) on the
national security ramifications of global
climate change. (U)*

UNCLASSIFIED

UNCLASSIFIED



Terms of Reference

An impact is significant when it causes a noticeable – even if temporary – degradation in one of the elements on national power (geopolitical, military, economic, or social cohesion) because it directly influences the US Homeland, indirectly influences the United States through a major military ally or a major economic partner, or because the global impact is so large the United States cannot be unaffected (e.g. it indirectly consumes US resources). (U)

UNCLASSIFIED

UNCLASSIFIED



Outreach Efforts

- **Joint Global Change Research Institute**
 - Intergovernmental Panel on Climate Change
 - Current Peer Reviewed Literature
- **US Climate Change Research Program**
- **Center for Naval Analysis**
- **Center for International Earth Science Information Network at Columbia University**
- **RAND Corporation**
- **Global Business Network**
- **Arizona State University**
- **Naval Post Graduate School**
- **Center for Strategic and International Studies**
- **Center for New American Security (U)**

UNCLASSIFIED

UNCLASSIFIED



Scope Note

- **This National Intelligence Assessment focuses on the implications of global climate change for US national security interests by 2030. (U)**
- *The Intelligence Community does not evaluate the science of climate change per se, nor do we independently analyze what the underlying drivers of climate change are or to what degree climate change will occur.*
 - **Instead, the Intelligence Community is reliant for this Assessment upon the Intergovernmental Panel on Climate Change and other peer-reviewed or contracted research for projections of climate change and its impacts. (U)**

UNCLASSIFIED

UNCLASSIFIED



Scope Note

- **We did not address climate change mitigation and did not make judgments on mitigation's requisite pace, its financial costs, or the most promising approaches and technologies. (U)**
- **This Assessment breaks new ground by considering the security impact of climate change on individual states.**
 - **We considered impacts on the United States itself, but our assessment was limited. (U)**
- **We briefly address economic impacts of climate change, a full-scale assessment of these impacts was beyond the scope of this study. (U)**

UNCLASSIFIED



Our Process

- **In the development of this Assessment we used a fundamentally different type of tradecraft. (U)**
- **We began our study by asking scientific experts to provide a general description of which regions and countries are likely to be relatively hard hit by climate change by 2030.**
 - **We used the most recent assessment report by the Intergovernmental Panel on Climate Change (IPCC) and published peer-reviewed material. (U)**



Our Process

- **We subsequently asked Columbia University's Center for International Earth Science Information Network (CIESIN) to develop state-specific data on water scarcity, climate vulnerability, and sea level rise.**
 - **Water scarcity "from climate change alone" as an indicator of climate-induced stress.**
 - **Climate vulnerability as a summary indicator.**
 - **Populations exposed to a one-meter sea level rise as a relative indicator of vulnerability to sea level change, including coastal inundation, erosion, and ecosystem losses and Populations at risk to a three-meter rise as a broad indicator of vulnerability to storm surge. (U)**



Our Process

- **To determine potential impacts on states and regions we consulted with IC and outside regional social scientists.**
 - We provided the regional experts with the general scientific scene-setter, extracts from the CIESIN studies, the IPCC Working Group II (Impacts, Adaptation, and Vulnerability) Technical Summary, and open source research on potential agricultural impacts.
 - We focused on mid-range IPCC scenarios and targeted their effort on approximately 50 states we judged had the potential to impact US security interests. (U)
- **We elected to report on a representative set of states where climate change effects were significant. (U)**

UNCLASSIFIED



Summary Observations

- **Overall we judge that global climate change will have wide-ranging implications for US national security interests over the next 20 years because it will aggravate existing problems—*such as poverty, social tensions, environmental degradation, ineffectual leadership, and weak political institutions*—that threaten state stability.**
 - However, climate change alone is highly unlikely to trigger failure in any state out to 2030 but it will potentially contribute to *intra-* or, less likely, *interstate* conflict, possibly over access to scarce water resources.
 - We judge that economic migrants will perceive additional reasons to migrate because of harsh climates, both within nations and from disadvantaged into richer countries. (U)

UNCLASSIFIED



Summary Observations

- **The United States will be less affected and better equipped than the vast majority of nations to deal with climate change, and may even enjoy a slight net benefit from climate change over the next few decades largely due to increased agricultural yield; *however, infrastructure repair and replacement, emissions mitigation, and emergency response will be costly.* Impacts on other states will vary:

 - Sub-Saharan Africa, because of its limited coping capacity is the most vulnerable region to the impact of climate change, with resulting challenges to its economic development and political stability. For Africa in general, higher rainfall anomalies and more intense and widespread droughts are projected. Climate change probably will cause agricultural losses of up to 50 percent for some rain fed grain crops in some North African countries. (U)**

UNCLASSIFIED



Summary Observations

- **More generally, many pivotal states counted on to act as anchors of regional stability will be negatively affected to varying degrees by climate change.**
- **The effects of climate change on weakened nations could spill over borders -- unlikely to trigger interstate war.**
 - With water becoming more scarce in several regions cooperation over changing water resources is likely to be increasingly difficult within and between states, potentially straining regional relations.
 - Such dire scenarios are not inevitable even with worse-than-anticipated climate change impacts. Economic development, the spread of new technologies, and robust new mechanisms for multilateral cooperation to deal with climate change may foster greater global collaboration. (U)

UNCLASSIFIED

UNCLASSIFIED



Summary Observations

- **By 2030, the US Homeland probably will experience more intense droughts in the southwest, exacerbating water shortages; floods in the northeast, threatening urban areas and coastlines; and storm damage along the Gulf Coast.**
 - **Climate change might open up new navigational passages in the Arctic Ocean by 2030, improving the economic prospects of “polar” neighbors. (U)**

UNCLASSIFIED

UNCLASSIFIED



Summary Observations

- **Multilateral policymaking on climate change is likely to be of a high visibility and growing priority over the coming decades—even approaching the salience of traditional security affairs.**
 - *We observe the United States is seen by the world as occupying a potentially pivotal leadership role.*
 - **As impacts begin to mount, the US will come under increasing pressure to help the international community set meaningful long-term goals for emissions reductions, to reduce its own emissions, and to help others mitigate and adapt to climate change through technological progress and financial assistance. (U)**

UNCLASSIFIED

UNCLASSIFIED



Summary Observations

- **Governments will take steps in the coming decades to adapt to and mitigate impending climate change. Low-emission civilian nuclear power will likely be pursued on a widespread basis.**
 - **More nuclear power stations mean more nuclear material and expertise for terrorists to attempt to obtain and utilize. Recognizing the increasing premium on civilian nuclear power while seeking to guard against dangerous diversions will place tremendous stress on the nonproliferation and counterterrorism regimes. (U)**

UNCLASSIFIED

UNCLASSIFIED



Summary Observations

- **Given the salience of water issues over the next 20 years and US expertise on modern water-management practices and technologies, US efforts in this area could have huge benefits.**
 - **Measures such as water provision projects could alleviate some of the projected water stresses that otherwise would prompt increasing migration. (U)**

UNCLASSIFIED



Summary Observations

- **As climate changes spur more humanitarian emergencies, the international community's capacity to act will be increasingly strained. Among other consequences, the demand of potential humanitarian responses may significantly tax US military transportation and support force structures, resulting in a strained readiness posture and decreased strategic depth for combat operations. (U)**



Summary Observations

- **To summarize, we observed three principle paths through which climate change would adversely impact national security**
 - *Changes in water availability* which in turn would force migration of people first within states then potentially between states
 - *Changes in agriculture productivity* caused by a combination of climate factors (temperature, precipitation) that would likewise motivate people to move
 - In both of these cases the movements themselves may or may not be significant to state stability and hence US security interests, it will depend upon local circumstances.
 - *Damages to economically significant infrastructure* from extreme weather events. (U)



UNCLASSIFIED

Planned Follow-On Research

- **Explore – with a “geopolitical game” the national interests of an opening Arctic**
 - In general what is the appropriate venue for raising and having an integrated discussion on Arctic issues, such as navigation, energy security, fisheries management, tourism (protection for citizens in the region), and climate change?
 - Is it possible to have a one-stop Arctic policy process? What is the role for Arctic Council, NATO, UN Climate Change Convention, the European Polar Consortium, and the International Maritime Organization? (U)
- **Failing States – Identify the states most likely to have significant stress, humanitarian disasters, and/or fail due to climate change in ten, twenty, thirty years (U)**

UNCLASSIFIED



UNCLASSIFIED

Planned Follow-On Research

- **Country/Region Studies - use the methodology of the NIA, but drill down to provide more detail on specific countries/regions**
 - Get more detailed science – what might we expect?
 - Convene experts to ascertain the national security/state stability impacts (U)
- **Foreign Reactions to aggressive US mitigation/energy transformation decisions**
 - Craft an aggressive but credible scenario
 - What are the unforeseen consequences and possible national security ramifications? (U)

UNCLASSIFIED

UNCLASSIFIED



China

- **As a major global player in human-caused climate change, China is vulnerable to the adverse impacts of climate change:**
 - Over the past century (1908 to 2007), the average temperature in China has risen by 1.1 degree Celsius.
 - Although no significant trend was observed in nationally averaged precipitation amounts over the past 50 years, a drying trend was observed in the Yellow River Basin and North China Plain.
 - Over the past 30 years, the sea level and sea surface temperature have increased 90 millimeters (mm) and 0.9 degrees C, respectively.
 - China has experienced more extreme events (floods, droughts, storms) in recent years than ever before. The extreme weather events have caused direct economic losses of \$25 to 37.5 billion in China per year.
- **Compared to other countries, China ranks lower in resilience to climate change than Brazil, Turkey, and Mexico, but higher than India. China ranks high in food security, human health, and human resources. Projections of resilience show China gaining capacity quickly and outranking Brazil, Turkey, and Mexico by 2020. (U)**

UNCLASSIFIED

UNCLASSIFIED



India

- **India is both a major greenhouse gas emitter and one of the most vulnerable countries in the world to projected climate change. The country is already experiencing changes in climate and the impacts of climate change, including water stress, heat waves and drought, severe storms and flooding, and associated negative consequences on health and livelihoods. With a 1.2 billion but growing population and dependence on agriculture, India probably will be severely impacted by continuing climate change.**
- **Adaptive capacity in India varies by state, geographical region, and socioeconomic status. Studies point to influential factors such as water availability, food security, human and social capital, and the ability of government (state and national levels) to buffer its people during tough times. Where adaptive capacity is low, the potential is greater for impacts to result in displaced people; deaths and damage from heat, floods, and storms; and conflicts over natural resources and assets. (U)**

UNCLASSIFIED

UNCLASSIFIED



Russia

- **Russia is already experiencing the impacts of climate change in the form of milder winters; melting permafrost; changing precipitation patterns; the spread of disease; and increased incidence of drought, flooding, and other extreme weather events. Many of these observed climate impacts are having concrete, negative effects on Russians' quality of life. By 2030, Russia will start to feel the impacts of climate change in relation to both water and food supply. Russia has a number of attributes that provide a greater capacity for resilience than some other industrialized countries and most developing countries.**
 - A warming climate holds the possibility of milder and shorter heating seasons, which in turn may lead to reduced Russian energy demand.
 - Increased water availability—particularly along those Siberian rivers that are used for hydroelectric power—should result in increased power production in certain parts of the country.
 - However, existing and future energy infrastructure for the all-important petroleum industry will experience more pronounced challenges— structural subsidence, risks associated with river crossings, and construction difficulties. (U)

UNCLASSIFIED

UNCLASSIFIED



Climate Change Impact on National Security

Questions?

UNCLASSIFIED

