

UNCLASSIFIED



Climate Change Impact on National Security

Rich Engel
Maj Gen USAF (Ret.)
Director, Climate Change and State Stability Program
National Intelligence Council

This Briefing is UNCLASSIFIED

UNCLASSIFIED

UNCLASSIFIED



Overview

- **Objective**
- **National Intelligence Priorities Framework**
- **Outreach Efforts**
- **Scope Note**
- **Our Process**
- **Summary Observations**
- **Challenges for the Intelligence Community**
- **Planned Follow-On Research**

UNCLASSIFIED



UNCLASSIFIED

Objective

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

UNCLASSIFIED



UNCLASSIFIED

National Intelligence Priorities Framework

Environment and Natural Resources

Definition: Production, development, transport, and consumption of strategic natural resources—excluding energy resources—critical to the economy and/or associated with production of militarily significant items. Access to water supplies to sustain national economies. Production, release, illicit sale and disposal of pollutants and hazardous materials including their potential human health effects. Compliance with international environmental or resource sharing agreements. *Activity impacting international oceanic and atmospheric environments, including activities in space. Policies and positions of state and non-state actors relative to environmental and resource issues.* Indications and warning of environmental warfare, crime or “ecoterrorism” or attacks against critical infrastructure—excluding energy—and water production, transport and distribution facilities. *Physical environment conditions including weather, climate, geography, terrain, and urbanization.* (U)

UNCLASSIFIED

UNCLASSIFIED



Terms of Reference

The National Intelligence Council will develop a National Intelligence Assessment (NIA) – targeted at the UNCLASSIFIED level – on the national security challenges and opportunities through 2030 resulting from global climate change (GCC). This effort is being undertaken as a result of draft bipartisan legislation and in support of the NIPF Topic: Environment and Natural Resources. (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

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)**

UNCLASSIFIED

UNCLASSIFIED



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)**

UNCLASSIFIED



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

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



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

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)**

UNCLASSIFIED



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

Challenges for the Intelligence Community

- **Collection – this is about the science**
 - **Need specificity and resolution**
 - **Below the country level – water and temperature**
 - What does it mean for agriculture, disease, animals, humans?
 - **Extreme weather events**
 - Where, what frequency, what infrastructure at risk? (U)
- **Analysis – this is about state stability**
 - **How will humans react? (U)**

Continued research to model social human dynamics at the individual and society level could have huge payoffs. (U)

UNCLASSIFIED



UNCLASSIFIED

Planned Follow-On Research

- **Strategic - use the methodology of the NIA but drill down to provide more detail on specific countries/regions (U)**
- **Tactical - scenario work on near term mitigation options**
 - **Look at four candidate “principle” mitigation strategies**
 - **Carbon Capture Sequestration, Nuclear, Biofuels, or a family of renewables (geothermal, wind solar)**
 - **Identify possible national security ramifications**
- **Identify changes in great power relationships (U)**

UNCLASSIFIED

UNCLASSIFIED



Climate Change Impact on National Security

Questions?

UNCLASSIFIED

