WHY THE EMERGENCY MANAGEMENT COMMUNITY SHOULD BE CONCERNED ABOUT CLIMATE CHANGE

Increases in the concentrations of atmospheric greenhouse gases from activities such as burning fossil fuels and deforestation have caused a measurable increase in global temperatures. As greenhouse gas concentrations continue to increase, further changes in the Earth’s climate are expected. These changes may impact the location, frequency, and occurrence of natural hazards, including tropical cyclones, floods, winter storms, and wildfires. Thus, the historical data that typically provides the basis for hazard identification and risk assessment may not accurately forecast future events. Consequently, we need to begin to evaluate and better understand how climate change could affect the identification and selection of disaster mitigation strategies, the types of preparedness activities that jurisdictions undertake, the execution of response operations, and the implementation of long-term recovery strategies.

CNA discusses these issues in a report entitled, Why the Emergency Management Community Should be Concerned about Climate Change: A Discussion of the Impact of Climate Change on Selected Natural Hazards. The report is one of several from CNA that examine the impacts of climate change on U.S. policy. This particular publication focuses on the impact of climate change on comprehensive emergency management and preparedness policy. It seeks to outline key climate change issues for consideration from an emergency management perspective and to begin a conversation on potential implications for the near-, medium-, and long-terms. It also lays the foundation for future dialogue among emergency management practitioners from all levels of government to explore policy solutions in greater depth. The scientific foundation for much of this discussion comes from the recently published report from the U.S. Global Change Research Program—Global Climate Change Impacts in the United States.

IMPACT OF CLIMATE CHANGE ON HAZARDS
CNA identified several natural hazards that are both of significant interest to the emergency management community and are expected to be impacted by climate change, including tropical cyclones, floods, wildfires, winter storms, heat waves, and food-borne and water-borne disease outbreaks. The figure below summarizes the predicted impacts of climate change on hazards by region in the United States. The climate change literature indicates that all regions of the U.S. may be susceptible to an increase in frequency and/or severity of flooding and food-borne and water-borne disease outbreaks. Other climate-induced changes are predicted only in certain regions. We used the Federal Emergency Management Agency (FEMA) regions to depict the impact of climate change. However, there are several hazards that may impact segments of a FEMA region differently or areas where an increased likelihood of a hazard may span multiple FEMA regions.

POLICY IMPLICATIONS
Analysis of these hazard shifts will allow regions to incorporate emerging challenges into planning cycles and build response capabilities accordingly. This is an opportunity to further
use the measured, deliberate, and already-established risk-analysis process in the emergency management community to identify risk analysis, disaster mitigation, and preparedness efforts and to arm communities against these shifting hazards. A summary of key considerations is included below.

**Disaster Mitigation**

- Adapt current disaster mitigation strategies to the anticipated short-, medium-, and long-term impacts of climate change.
- Engage proactively with regional, state, and local climate research groups for data to support more accurate forecasts for the future occurrence of hazards affected by climate change.
- Coordinate with regional, state, and local climate change-adaption planning groups to support the Hazard Identification and Risk Assessment process and to develop regional disaster mitigation strategies.

**Preparedness**

- Review and update preparedness activities to account for changing risk profiles and their consequences.
- Encourage the inclusion of the emergency management community in regional, state, and local climate change adaptation planning processes and strategies.
- Consider and plan for the impacts on vulnerable populations.
- Incorporate information on the effects of climate change into existing community preparedness campaigns.

**Response**

- Develop models to estimate the financial impact of larger and more frequent response operations on local budgets.
- Anticipate command and control challenges, and develop new strategies to manage more frequent and complex disasters.

**Recovery**

- Increase the efficiency of the recovery process to deal with the aftermath of more frequent and/or more severe disasters.
- Consider developing rigorous criteria to help policy-makers with post-disaster rebuilding decisions.
- Incentivize self-sufficiency and rapid essential service restoration in the private sector.