

Developing a System of National Climate Assessment Indicators to Track Climate Change Impacts, Vulnerabilities, and Preparedness

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National Climate Assessment

The National Climate Assessment (NCA) is an important resource for understanding and communicating climate change science and impacts in the United States. It informs the nation about observed changes, the current status of the climate, and anticipated trends for the future. The NCA report process integrates scientific information from multiple sources and sectors to highlight key findings and significant gaps in our knowledge. In addition to periodic reports, the sustained assessment process includes ongoing studies, activities, and information sharing. An important element of this process is the development and implementation of an indicator system.

Indicators typically consist of summary measurements or calculations that represent important features of the status, trend, or performance of a system of interest (e.g. the economy, agriculture, air quality).

Indicators System

A system of physical, ecological, and societal indicators, based on key information about the physical climate, climate impacts, vulnerabilities, and preparedness, provides both decision-makers and the public with scientifically valid information that is useful for decision-making. As a part of the sustained assessment process, the indicators will be tracked, reviewed, and updated to reflect changes in our understanding and in climate conditions. Teams of scientists and potential users are currently developing the indicator system. After it has been externally reviewed, it is expected that the indicator system launch in 2015.

Goals

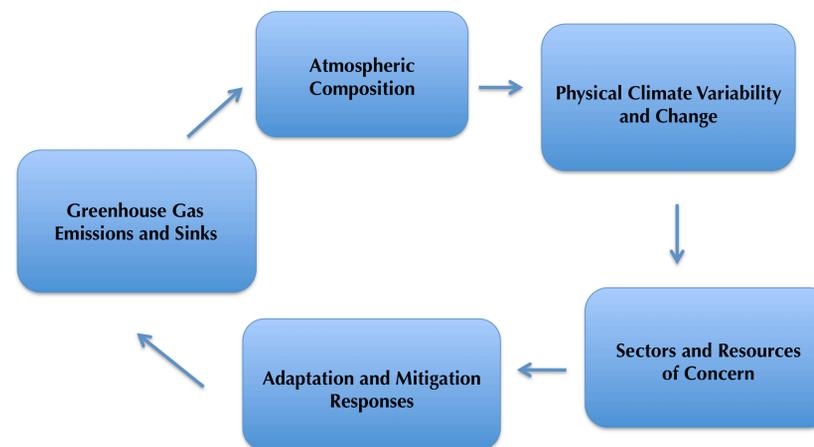
The goals for the NCA indicators are to:

- provide meaningful, authoritative climate-relevant measures about the status, rates, and trends of key physical, ecological, and societal variables and values;
- inform decisions on management, research, and education at regional to national scales;
- identify climate-related conditions and impacts to help develop effective mitigation and adaptation measures; and
- provide analytical tools by which user communities can derive their own indicators for particular purposes.

Conceptual Framework

The NCA indicator system is not intended to serve as a vehicle for documenting rigorous cause and effect relationships. It is reasonable, however, for it to serve as a guide to those factors that affect the evolution of variability and change in the climate system, the resources and sectors of concern that are affected by it, and how society chooses to respond. Different components of the end-to-end climate issue serve as categories within which to organize an end-to-end system of indicators:

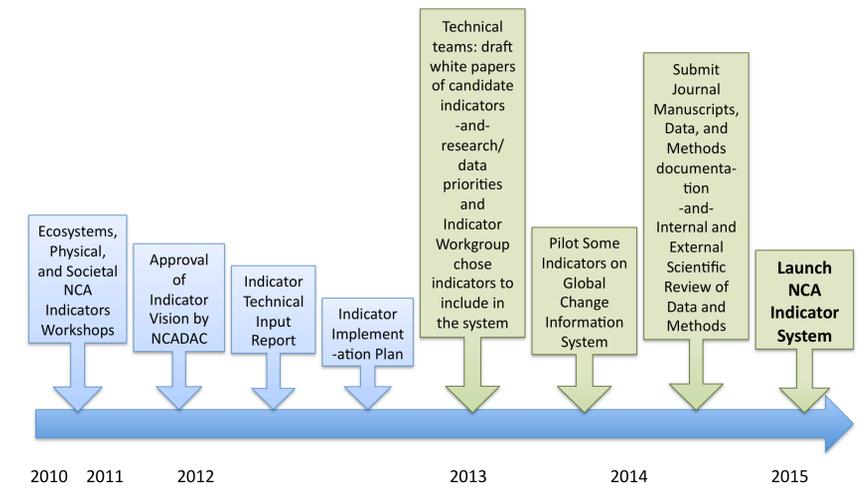
- Greenhouse Gas Emissions and Sinks
- Atmospheric Composition
- Physical Climate Variability and Change
- Sectors and Resources of Concern
- Adaptation and Mitigation Responses



Categories of Indicators: Framework for the National Climate Assessment Indicator System. The physical, ecological, and societal indicators could fall into different categories of this end-to-end framework. The framework includes the linkages between sources and sinks to impacts to responses, which over time can impact sources and sinks.

This framing has several advantages. It can be used to identify the different components of the end-to-end climate issue that both decision-makers and researchers are interested in. It is independent of scale, and therefore allows the indicators themselves to be described at spatial scales that are the most relevant for their intended use. National decision-makers may find indicators of national greenhouse gas emissions to be informative; however, state or local decision-makers have the freedom in this framework to define indicators of state, regional, or local greenhouse emissions that are more relevant to their concerns. The framework is also independent of time scale and topics within the broad categories. It therefore allows indicators of different sectors to be developed, and allows the consideration of both indicators of current state, past trends, and leading indicators.

Milestones and Timeline



How to Participate

The NCA is convening workshops and other meetings to develop the indicator system and research agenda. The scientific community and the public are invited to discuss needs for specific indicators and to provide descriptions and supporting information for indicators for consideration in the NCA indicator system.

To learn more about NCA activities and opportunities for involvement, please visit <http://www.globalchange.gov> and sign up online for our periodic newsletter.

Contact us at indicators@usgcrp.gov

NCA Indicators Technical Input Report:
<http://downloads.usgcrp.gov/NCA/Activities/NCA-Indicators-Technical-Input-Report-FINAL--3-1-12.pdf>

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