

USDA Regional Hubs for Risk Adaptation and Mitigation to Climate Change

Terms of Reference for Individual Hubs

For nearly 30 years, the United States Department of Agriculture (USDA) has been investing in research and technology to understand the impacts that climate variability and changes has on agriculture and natural resources. There is now a critical need to operationalize this science by bringing knowledge, information and tools to the farmers, ranchers, producers, landowners and managers, and community leaders who are the backbone of rural America. The establishment of these USDA Regional Hubs will provide an infrastructure to bring USDA science and service to the American people, creating a network that connects with other Federal activities in a manner that will bring added value to our efforts.

Vision: Agricultural production and natural resources maintained and strengthened under increasing climate variability and climate change.

Mission: To develop and deliver science-based, region-specific information and technologies to agricultural and natural resource managers that enable climate-smart decision-making.

Why Regional Hubs are Needed:

Climate change presents real threats to U.S. agricultural production, forest resources, and rural economics. These threats have significant implications not just for farmers, ranchers, and forest landowners, but for all Americans. USDA's mission is to help farmers, ranchers, and forestry professionals manage risks and to ensure access to food, fiber, and a range of ecosystem services for current and future generations – as such, USDA has an obligation to address climate change. USDA's climate change investments have benefits today and will build the infrastructure and capacity in rural communities needed to respond to the challenges ahead.

The Hubs will focus on working lands with a goal of helping to ensure continued production of goods and services from farms, grazing lands, and forests in light of changing climate conditions. Many of the climate change challenges facing farmers and rural economies are best addressed at a regional level. Farmers in the Northeast are coping with issues such as the chilling requirements for fruit trees and expansion of the range of certain pests. Farmers in the Southwest are dealing with risks from drought and water supply, heat tolerance, and range quality. Foresters are dealing with increased pressures from wildland fires and pest outbreaks. **The USDA Regional Hubs will provide the focal point for regionally-relevant science and**

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technical information, incorporating the newest information from our researchers and moving it to field application. Through this mechanism, we can provide streamlined and coordinated service delivery from multiple USDA programs, as well as a direct connection to other partner service providers, such as the National Oceanic and Atmospheric Administration (NOAA) and the United States Geological Survey (USGS).

Features that define and distinguish the Regional Hubs:

- The USDA Regional Hubs will emphasize rural communities and economies and focus on production agriculture, grazing systems and forest lands;
- The Hubs will support USDA programs and activities at the regional and local levels, and will contribute to development of Agency Adaptation Plans;
- The Hubs will be responsive to the information and technical needs of USDA's National Forest System and private forest landowners through the authorities of the Forest Service;
- The Hubs will engage the Cooperative Extension system – a partnership of USDA and the land-grant university system –as well as USDA service agencies (e.g. the Natural Resources Conservation Service (NRCS), the Farm Service Agency (FSA), and Rural Development, (RD)) to deliver knowledge, tools and information to farmers, ranchers and foresters.
- The Hubs will build upon the research and development expertise of USDA through the Agricultural Research Service (ARS), Forest Service (FS), Research and Development (R&D) and Economic Research Service (ERS).

Functions:

The Hubs will provide service in the following categories:

Technical Support:

- Work with farmers, ranchers, and forest landowners to test and deliver new management practices that increase the resilience of forest and grassland to better withstand the combined stresses of changing climate, pests, pollutants, and wildfire;

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- Provide coordinated technical support to supplement USDA agriculture and land management program delivery, especially to underserved and vulnerable communities, tribes, and individuals;
- Deliver evidence-based agriculture and land management tools and strategies for climate change response (adaptation and mitigation) strategies;
- Support applied research and development and innovation partnerships for all-risk resource management and climate change response, through joint solicitations and collaborative efforts to appropriate funding agencies;
- Develop suites of strategies that enable farmers, ranchers, and resource managers to cope with the challenges associated with drought, heat stress, excessive moisture, longer growing seasons, plant community changes, and changes in disease and pest pressure;
- Develop and deliver new systems for sustainable agricultural production and for increasing ecosystem resilience responding to both the risks and the potentially beneficial aspects of climate change;

Assessments and Forecasts:

- Perform periodic regional assessments of risk and vulnerability production sectors and rural economies, suitable for contribution to the National Climate Assessment conducted through the United States Global Change Research Program (USGCRP);
- Provide usable and easily accessible regional data and climate change forecast services for incorporation into individual and community hazard and climate adaptation planning, through our partnership MOU with NOAA;
- Analyze the economic impacts of exposure to climate-induced risks, the costs and benefits of alternative producer and market responses, and the potential regional consequences of alternative incentive, insurance, and other risk management policies;
- Deliver information to incorporate knowledge about impacts on ecosystem services such as water supply, wildlife, biodiversity, clean air, high-quality soils, and carbon storage of climate-driven risks and climate adaptation measures;

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Outreach and Education:

- Provide outreach and extension to farmers, ranchers, and forest landowners on science-based risk management through the land grant universities, Cooperative Extension, USDA service agencies, and public/private partnerships;
- Educate natural and agriculture resource managers on the latest understanding of climate change science and the affects of climate change on, and the vulnerability to agro-ecosystems and forests;
- Develop and/or provide information to the public on our understanding of climate change and the risks posed to agricultural and forested lands.

Leadership:

- Hubs will concentrate on bringing the science and communities-of-practice together around the theme of cooperative response to multiple risks.
- Each Hub will be the center of a network of connected activities or services with the operational center located in a USDA facility (for example ARS, FS, or NRCS) within the region. Criteria for selection of the Hubs will include proximity to other centers of coordination including NOAA Regional Integrated Sciences and Assessments (RISA) program centers and the Department of Interior (DOI) Climate Science Centers (CSCs).
- Hubs will build and maintain a vibrant network of public, academic, and private sector organizations, researchers, and outreach specialists to carry out the elements of the regional Charter/Terms of Reference.
- A Director will be identified for each Hub. The Hub Director shall manage a small Secretariat/Coordination Office to provide logistical support and oversee activities of the Hub with existing resources.

Membership and Partners:

- Land Grant and other college and university systems
- Cooperative Extension and other Extension systems such as NOAA Sea Grant
- Relevant programs in USDA agencies, including NRCS Plant Materials centers, and Technology Support Centers
- USDA researchers (ARS, FS) and program delivery specialists conducting work on topics of relevance to the region

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- USDA programs, field offices, and assets that are clients for regional climate change information and decision support services, for example, Regional Sustainable Agriculture Research and Education Program (SARE) projects
- Private Sector (companies addressing climate change adaptation and mitigation, and developing innovative tools and solutions for risk management within the region)
- State, local, and regional governments and agencies with natural resource and agriculture responsibilities
- NOAA and DOI regional climate change experts/institutions
- Non-profit sector (conservation groups, foundations, and others that provide assistance to landowners in addressing land management issues)

Coordination with other Agency regional activities

There are two existing networks focusing on climate change response that have a direct relevance to our efforts at USDA: 1) NOAA's RISA (Regional Integrated Sciences and Assessments) Program and Regional Climate Centers, and 2) DOI Climate Science Centers for fish and wildlife. These efforts complement the USDA Regional Hubs because they can provide data, findings, tools, and forecasts that USDA agencies and the Hubs could build into integrated services for the agricultural and forestry sectors. In addition, the NOAA Regional Climate Services offices have important capacity in climate models and forecasting at a relevant scale. These and other science, technology and application networks will be critical partners in achieving the functions of the Hubs. One of the primary functions of a Hub will be to connect and coordinate with these other networks in an effective and efficient manner and scale. An early activity will be to establish formal agreements with NOAA (through our existing MOU) and DOI to ensure cooperation, coordination and complementarity.

National Coordination

Recognizing that there will be a need to coordinate and integrate the work of the Regional Hubs, a focal point will be established at USDA headquarters.

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