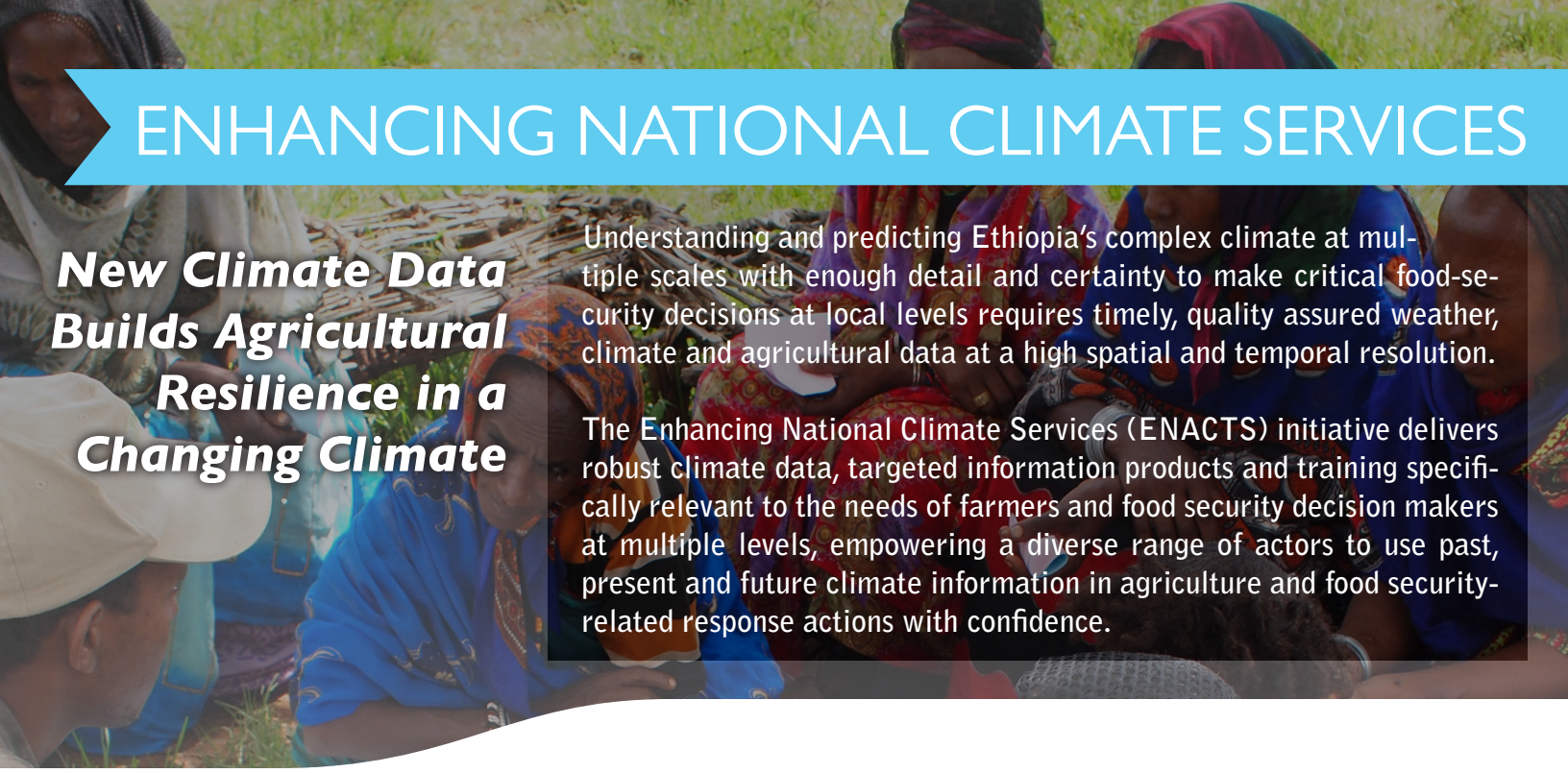

ENHANCING NATIONAL CLIMATE SERVICES

New Climate Data Builds Agricultural Resilience in a Changing Climate

Understanding and predicting Ethiopia's complex climate at multiple scales with enough detail and certainty to make critical food-security decisions at local levels requires timely, quality assured weather, climate and agricultural data at a high spatial and temporal resolution.

The Enhancing National Climate Services (ENACTS) initiative delivers robust climate data, targeted information products and training specifically relevant to the needs of farmers and food security decision makers at multiple levels, empowering a diverse range of actors to use past, present and future climate information in agriculture and food security-related response actions with confidence.

Why Quality Climate Data Is Needed

Rainfed agriculture has always been a risky business. In a changing climate, more erratic weather patterns make it increasingly hard for farmers to keep up, threatening livelihoods and food security. Factoring in past and future climate can make for more robust decision-making on multiple levels, better protecting and enhancing food security as weather and climate conditions grow more extreme and more variable.

Ethiopia has historically been similar to many developing countries, where gaps in climate observational records result in poor quality data, undermining the reliability of climate analysis, short-term forecasts and long-term projections and the ability to make evidence-based decisions at multiple scales surrounding the impact of climate on agriculture and food security planning. Global climate products – derived from satellite data, model outputs (reanalysis) or interpolated sparse station data – often freely available online provide a ready solution for those with internet access, but careful examination shows that data quality issues can severely limit their use in local analysis.

Climate data and information availability, access and use has been dramatically improved in Ethiopia through the development of Enhanced National Climate Services (ENACTS) at the Ethiopian National Meteorological Agency supported by the International Research Institute for Climate and Society, Columbia University, and international partners.

Overcoming the Climate Data Challenge

By integrating ground-based observations with global climate products, ENACTS overcomes issues of data scarcity and poor quality, introducing quality-assessed and spatially complete data services into national meteorological agencies to serve stakeholder needs. One of the strengths of ENACTS is that it harnesses all local observational data, incorporating high definition information that globally produced or modeled products rarely access. The resulting spatially and temporally continuous datasets allow for the characterization of climate risks at a local scale.

Evidence based on analyses of historical climate data can be used to understand natural variability in temperature and rainfall over national, regional and district scales and assess the impacts on food security outcomes; understand climate sensitivity to map agricultural systems at risk of climate variability and change; and improve the timing and scale of agricultural and food security interventions; and design food security early warning systems by providing downscaled seasonal climate forecast information.

ENACTS also provides the ability to monitor current climate and to develop forecasts to: trigger early warning systems to alert for potential changes in the food security situation; and strengthen activities to support climate-smart sustainable development including multi-sectoral approaches to climate risk management and longer-term adaptation through adoption of climate smart agricultural practices.

Added value of ENACTS

Climate-informed safety nets

Ethiopia's Productive Safety Net Programme (PSNP) is an innovative approach to protecting smallholders' productive resources, providing targeted payouts in times of food insecurity that forestall erosion of livelihood assets (such as selling agricultural machinery or livestock to make ends meet). Agriculture and food security

IRI International Research Institute for Climate and Society
Earth Institute | Columbia University
CGIAR Research Program on Climate Change, Agriculture and Food Security
CCAFS

ENACTS

A Climate Dependent Sector

In a variable and changing climate compounded by other social and environmental stressors, it's difficult for farmers and pastoralists to keep up with changing weather patterns and climate shocks. Historical climate data, monitored conditions and seasonal climate forecasts allow for more timely and better targeted food security early-warning systems, analysis of food-security vulnerability, and more optimal agricultural development decision making.

information, including seasonal recommendations for number of PSNP participants, is collected daily at the kebele level, and filters up through the woreda to the national levels where resource allocation decisions are made. Through the ENACTS initiative, local level decision makers have access to past, present and future climate information at relevant spatial scales tailored to the needs of agriculture and food security, providing evidence-based support for their petitions for resource allocation. ENACTS empowers decision makers at multiple scales, turning information collectors into information users, and enabling the mobilization of authoritative scientific evidence in agricultural development and food security response actions.

Next Steps

The most obvious gaps in Ethiopia's climate-informed agriculture and food security information environment relate to who has access to specific types of data. After gaining insights about how the nature, timing, and content of climate-informed agriculture and food security information packages influences evidence-based decision-making, the ENACTS team will seek to inform further development of information products that take advantage of the ENACTS platform and are targeted to particular users making specific decisions.

Significant opportunities also exist to combine ENACTS with other high resolution data sets relevant to agriculture and food security, such as the new 1 km resolution AfSIS soils dataset for Africa, that could provide improved targeted for existing government programs. Further downscaling of seasonal climate forecasts, and the exploration of scientific advances in predicting onset date of the rainy season, could help inform the development of better-targeted and timelier food security early warning systems.

Ultimately, ENACTS serves to empower a diverse user base at multiple scales to make more robust evidence-based food security response and agricultural development decisions, building adaptive capacity in a variable and changing climate.

The ENACTS initiative has so far been implemented in Ethiopia, Madagascar, Tanzania, Rwanda and Sahelian countries in West Africa via a regional collaboration with the AGRHYMET Center.

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