WATER

HEALTH

ENERGY

DISASTER RISK REDUCTION

2019 STATE OF CLIMATE SERVICES

AGRICULTURE AND FOOD SECURITY

WMO-No. 1242

WEATHER CLIMATE WATER

WORLD METEOROLOGICAL ORGANIZATION

GFCS GLOBAL FRAMEWORK FOR CLIMATE SERVICES

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"The global temperature has already risen to 1 °C above pre-industrial levels. The time left to achieve commitments under the Paris Agreement to remain within 2 °C is quickly running out requiring immediate action. The Global Framework for Climate Services was created to provide the scientific basis for adaptation. Climate services investments overall have a cost benefit ratio of 10 to one. The provision of climate services at country level relies on a cascading global-regional-national Climate Information System operated by WMO. More coherent financing is needed specifically to complete this system. Financing invested holistically in the WMO cascading operational system provides a return on investment of 80 to one."

PETTERI TAALAS
SECRETARY-GENERAL OF THE WORLD METEOROLOGICAL ORGANIZATION

Photo: UN Photo/Mark Garten

Photo: Daniel Klein

Executive Summary

In 2018, the Conference of the Parties serving as the meeting of the Parties to the Paris Agreement at the 24th Conference of the Parties to the United Nations Framework Convention on Climate Change (UNFCCC) called on the World Meteorological Organization (WMO) through its Global Framework for Climate Services (GFCS) to regularly report on the state of climate services with a view to "facilitating the development and application of methodologies for assessing adaptation needs" (Decision 11/CMA.1).

This inaugural 2019 State of Climate Services Report focuses on agriculture and food security. It reviews countries' priorities on climate services for adaptation, noting that agriculture is one of the highest, and identifies priority capacity needs. It examines capacity gaps across six components of the climate services value chain including: governance, basic systems, user interface, capacity development, provision and application of climate services, and monitoring and evaluation.

The report provides case studies, examples and explanations as to the role of climate information and services to support agriculture in the face of climate variability and change, assesses gaps and makes recommendations. This analysis helps highlight both challenges and opportunities for climate service efforts aimed at promoting climate resilient development and adaptation action.

Building on the work developed in collaboration with National Meteorological and Hydrological Services (NMHSs) and development partners, the report identifies four areas for action in enhancing climate services for effective adaptation in agriculture:

(a) Africa and Small Island Developing States (SIDS) are facing the largest capacity gaps. In particular, both regions are experiencing increasing challenges regarding the density of the observing network and reporting frequency of observations essential for generating products and data needed by the sector.

(b) Across all regions, monitoring and evaluation of societal outcomes and benefits of science-based climate services for adaptation action stand out as one of the weakest areas in the climate services value chain.

(c) Coordination in the delivery of climate services for agriculture both within and across local, national, regional and international institutions and operational systems remains challenging. Lack of data sharing is resulting in sub-optimal availability and use of climate information and services.

(d) While investments have increased substantially over the past decade, both more and better investments are needed to ensure the provision of high-quality climate information services for adaptation action in agriculture. Better investments include investments that support the national-regional-global integrated hydrometeorological system on which all countries depend in a more holistic, less piecemeal manner as well as investments in overcoming the "last mile" barriers impeding the full use and benefit of climate information and services.

The successful provision of climate services with proven, demonstrated benefits needs to be operationalized globally. Evidence suggests that the benefits of investing in the global-regional-national hydrometeorological system needed to accomplish this outweigh the costs by about 80 to one (Kull et al. 2016).

The report puts forward six strategic recommendations addressing five major areas in need of improvement:

(a) Fit-for-purpose financial support to operationalize and scale up climate services by enhancing the global-regional-national operational hydrometeorological system to support country-level agrometeorological service delivery, especially in Africa and SIDS.

(b) Systematic observations as fundamental for the provision of climate services;

(c) An enhanced climate science basis for priority climate actions;

(d) Addressing the "last mile" barrier through multi-stakeholder governance and partnerships;

(e) Systematic monitoring and evaluation of socio-economic benefits associated with climate services.

Information and analysis for this report has been provided by the WMO, the Adaptation Fund, the CGIAR Research Program on Climate Change Agriculture and Food Security, the Food and Agriculture Organization of the United Nations, the Green Climate Fund, the Global Environment Facility, the Global Facility for Disaster Reduction and Recovery, the World Bank, and the World Food Programme.

"We have learnt a lot and now know how to plan our planting and harvesting according to weather and climate conditions. Before we relied on knowledge passed down from our parents. But the weather is different from what it used to be and so traditional knowledge is no longer sufficient."

CLIMATE FIELD SCHOOL PARTICIPANT
Indonesian Agency for Meteorology, Climatology and Geophysics (BMKG)

Photo: Simon Fanger