



Developing countries vulnerable to extreme flooding, drought, and other impacts of climate change need reliable, accurate climate information and data in order to protect their economies and communities. Hydro-meteorological and climate services (HCS) are essential to more informed decision making, contributing directly to resilience and enabling critical adaptation measures like disaster relief management, early warning systems, and agricultural extension systems. The climate vulnerability of many poor countries is exacerbated by HCS in desperate need of modernization and expansion.



\$200

MILLION

ALLOCATED TO STRENGTHENING HYDRO-METEOROLOGICAL AND CLIMATE SERVICES

- MODERNIZE EQUIPMENT
- UPGRADE ANALYTICAL TOOLS
- INCREASE ACCESS TO INFORMATION
- EXPAND COMMUNICATION TO END USERS
- ENCOURAGE DATA POOLING AND SHARING



INVESTING IN CLIMATE INFORMATION

The CIF is home to the world's largest active adaptation fund, the \$1.2 billion Pilot Program for Climate Resilience (PPCR), which engages countries in a two-phase process to integrate climate resilience into development planning and then put those plans into action.

Approximately \$200 million, or 17 percent of PPCR funding, is earmarked for enhancing hydro-meteorological and climate services (HCS) in participating PPCR countries. Every regional and national plan for climate resilience that has been prepared and endorsed under the PPCR (20 so far) includes investments to strengthen HCS either as stand-alone projects or as components of technical assistance or projects.

To maximize HCS and its long-term sustainability, the PPCR is particularly focused on activities that raise the value and usability of these services. PPCR investments encourage data pooling and sharing across agencies and sectors, while putting the needs of end users first in developing and delivering climate information tools and services.

INVESTMENTS IN HCS

- Bangladesh
- Bolivia
- Cambodia
- Mozambique
- Nepal
- Niger
- Tajikistan
- Yemen
- Zambia
- Caribbean Region (Dominica, Grenada, Haiti, Jamaica, St. Lucia, St. Vincent and the Grenadines)
- Pacific Region (Papua New Guinea, Samoa, Tonga)

FUNDAMENTAL PILLAR OF CLIMATE RESILIENCE

HCS is about gathering climate and hydro-meteorological data and translating it into useful products and services that people can use to enhance the resilience of communities

- Emergency response and early warning systems
- Advice to farmers
- Design of infrastructure
- Insurance products





EMPOWERING CLIMATE-SMART DECISION MAKING

PROTECTING LIVES AND LIVELIHOODS ALONG JAMAICA'S COASTS

In Jamaica, 80 percent of the GDP is generated in the coastal area where over 60 percent of Jamaica's 2.8 million people live. That means a majority of Jamaica's economy and population—particularly those involved in farming and fishing—are vulnerable to the effects of climate change, including storm surges and rising sea levels. To help communities better cope, PPCR \$6.5 million (implemented by the World Bank) is supporting a project to improve climate data and information management. The aim is make climate data and information more accurate, timely, wider in coverage, and easier to access and use by coastal communities, particularly farmers, fishermen, and health care providers. The project will contribute to the foundation Jamaica is building to integrate climate change into decision-making processes and adapt current and future livelihood activities to the variability brought about by climate change.

TEXTING WITH FARMERS IN ZAMBIA

In Zambia, increased floods and droughts, coupled with aging canal systems that cannot properly drain land for planting, make life difficult for the rural populations along the Kafue and Barotse sub-basins of the Zambezi River. They depend on rain-fed agriculture and natural resource-based livelihoods, such as fishing, forestry, and livestock raising. Under the PPCR, Zambia has produced a strategic plan for climate resilience that is receiving \$91 million from the PPCR to reduce the negative impacts of climate and environmental hazards on agriculture. One key way will be to provide reliable and timely weather and climate information to farmers and their communities in local languages.

Among the solutions being piloted by the World Bank is a free mobile phone text messaging (SMS) system that local people will use to receive and send information about weather conditions. Texts will be monitored by trained teams that will use the freeware to geo-reference and map the origin of text messages. They will be able to discern quickly and accurately, for example, the extent of floods or emergency needs. Teams will also provide agricultural advice to farmers via SMS, so that they can plan in advance for the forthcoming season. In the longer term, the data collected will help farmers gain a better understanding of climate risks and adapt their crop growing cycle to shifting rainfall patterns.

EXPANDING LEARNING ON HYDROMETEOROLOGICAL AND CLIMATE SERVICES

NETWORKING AND KNOWLEDGE SHARING

HCS practitioners from seven PPCR countries—Haiti, Mozambique, Niger, St. Lucia, Tajikistan, Yemen, and Zambia—attended the Fourth International Conference on Climate Services and a PPCR workshop on "Enhancing User Uptake of Climate Services in PPCR Countries" in Montevideo, Uruguay, in December 2014. PPCR participants were able to interact with international experts in the field, share their experiences, and gain training on tailoring climate services to the needs of users. With CIF support, these countries have established a mechanism for sustained engagement and continued learning and are exploring the potential for South-South learning exchanges as a peer group.

WATER, WEATHER, AND CLIMATE SERVICES

Transforming climate data into useful information and products requires adequate financial support, human resources, and an assessment of the needs of specific end users of climate services. In collaboration with PPCR task teams and other development partners, the World Bank is leading the development of the e-learning course, "Water, Weather, and Climate Services: A Value Chain Approach to Project Design." The e-course will explain the components of the climate services value chain, including identifying user needs and benefits, service development and delivery, observation and monitoring, and stakeholder engagement to build capacity.

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