



# MAKING THE CASE

Effective Investments in Early Warning Systems for  
Climate Resilience



# WHAT IS CREWS

A specialized climate risk and early warning initiative that saves lives, assets and livelihoods in Least Developed Countries (LDCs) and Small Island Developing States (SIDS).

A financing mechanism driven by the expertise and specialist networks of its partners the World Bank, the Global Facility for Disaster Reduction and Recovery (GFDRR), the World Meteorological Organization (WMO) and the United Nations Office for Disaster Risk Reduction (UNISDR).

## ECONOMIC AND HUMAN IMPACT OF DISASTERS WORLDWIDE IN THE LAST 10 YEARS

**1.7 billion**  
people affected

**\$1.4 trillion**  
economic damage

**0.7 million**  
people killed

CREWS was announced by the Minister of Foreign Affairs of France, at the World Conference on Disaster Risk Reduction, in Sendai, Japan, in 2015. It was launched by five countries: Australia, France, Germany, Luxembourg and the Netherlands at the 21<sup>st</sup> Conference of the Parties on Climate Change in Paris, France, later that year.

## CREWS APPLIES A MULTI-HAZARD, PEOPLE-CENTERED, IMPACT-BASED, EARLY WARNING SYSTEMS APPROACH TO ITS COUNTRY PROJECTS

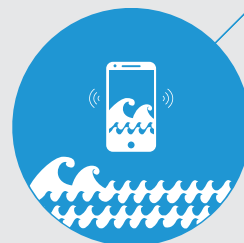
Risk and climate information that guides early warning systems



Improved service delivery of National Meteorological and Hydrological Services



Effective communication networks that reach communities at risk



Preparedness and response plans, including targeted education and public awareness



CREWS applies the Sendai Framework terminology for multi-hazard early warning systems, available at [www.unisdr.org](http://www.unisdr.org) and guided by the use of the Multi Hazard Early Warning Systems checklist available at [www.public.wmo.int](http://www.public.wmo.int).

# WHY INVEST IN CREWS

To reduce the number of people at risk of losing their lives in hydrometeorological hazards that is disproportionately higher in Least Developed Countries (LDCs) and Small Island Developing States (SIDS).

To close the capacity gap on weather, climate, and hydrological services between developed and developing countries with sustained investments in early warning systems.

## CREWS VALUE PROPOSITION

### › UNIQUE

A financing mechanism that builds sustained institutional capacity driven by the expertise and specialist networks of its partners.

### › PEOPLE-CENTRED

Local organizations are listened to and engaged so that investments are driven by the needs of end-users.

### › SOLUTION-ORIENTED

Good and innovative practices are applied and shared continuously across national and regional projects.

### › MULTIPLIER

Country portfolios promote a favorable environment for, and leveraging of, effective additional financing.

### › GENDER-SENSITIVE

CREWS recognizes women's empowerment as fundamental for building resilience, and that gender influences the way people access, process, and respond to information and warnings.

### › PROMOTE COHERENCE

Programming considers existing projects and other international partner initiatives to ensure value-added to the national context and needs.

## DEMAND FOR EARLY WARNING SYSTEMS

# 40

LDCs and SIDS require urgent support

# 88 percent

of LDCs and SIDS request early warning systems in their climate change Nationally Determined Contributions (NDCs)



# WHERE WE OPERATE

## WEST AFRICA

**Solution-oriented.** The project makes available information from global and regional climate and forecasting centers to national meteorological and hydrological services across the region. Cascading forecasts are substantially improving the lead time and accuracy of impact-weather warning in West African countries.

## MALI

**Multiplier.** The project promotes a favorable environment for, and leverages, effective additional financing. CREWS co-finances and is supporting the programming of a US\$39 million World Bank project, including financing from the Green Climate Fund (GCF).

- CREWS project countries
- CREWS pipelined countries

## CARIBBEAN

**Promote coherence.** CREWS builds on the regional context and needs. A review of the effectiveness of the 2017 hurricane season early warnings was led by regional organizations. It identified priority investment needs and gaps and ensures subsequent funding provides sustained capacity building of regional and national institutions.

## BURKINA FASO

**Gender sensitive.** 600 women farmers (out of a total of 1,100 farmers) have been trained on the use of weather and climate forecast, involving local radio communicators. The trainings facilitate the use of climate forecasts to optimize field cropping calendars. CREWS recognizes that gender influences the way people access, process, and respond to information and warnings. Women groups have been involved in the early stages of the project.

### NIGER

**People-Centered.** The project builds on existing work, supported by a World Bank Urban Development project, to identify high risk populations living in flood-prone neighborhoods of the capital Niamey that require early warning information for both flash flooding, riverine flooding and other extreme weather events including convective storms.

### PACIFIC

**Solution-oriented.** Good and innovative practices are applied through developing and increasing accessibility of global and regional forecast products for countries. CREWS is developing an impact-based coastal inundation forecast in Fiji with similar systems planned in Kiribati and Tuvalu.

Afghanistan

Bhutan

Pacific

Chad

Ethiopia

Indian Ocean SIDS

Papua New Guinea

DRC

### PAPUA NEW GUINEA

**Solution-oriented.** The project builds on existing successful regional database and web-located information tools to provide state-of-the art dynamical forecast for improved drought monitoring and early warning systems with key sectoral ministries.

Madagascar

### DEMOCRATIC REPUBLIC OF THE CONGO

**People-centred.** CREWS is carrying out flood risk mapping in order to enable the dissemination of impact-based forecasts in poor municipalities affected by flash flooding in Kinshasa. The early warning needs of vulnerable neighborhoods in the city are identified in consultation with the inhabitants to drive the use of funds.



# MEASURING SUCCESS

The overall objective of CREWS is to substantially reduce disaster mortality by 2030 (Sendai Framework Target A) and to significantly increase access to early warnings and risk information in LDCs and SIDS (Sendai Framework Target G).

CREWS measures its impact against the three global agreements through a result-based framework: the Sustainable Development Goals (SDGs), the Paris Climate Change Agreement and the Sendai Framework for Disaster Risk Reduction 2015-2030.



Reduce disaster mortality



Reduce number of disaster affected people



Increase access to early warning systems

Support is provided to countries to measure early warning access and effectiveness. This allows countries to identify priorities for programming, institutional capacity development and related resource allocation.

Continuous learning is carried out across CREWS country projects including the development of knowledge products on what constitutes effective impact-based early warning systems.

Upon requests, CREWS supports countries and regions carry out reviews of the effectiveness of their early warning systems after the occurrence of a disaster.

## AS OF 2018, THE FOLLOWING INSTITUTIONS PROVIDE EXPERT SUPPORT TO CREWS PROJECTS

- AGRHYMET Regional Centre
- Australia Bureau of Meteorology (BOM)
- Caribbean Disaster Emergency Management Agency (CDEMA)
- Caribbean Institute for Meteorology and Hydrology (CIMH)
- Deutsche Wetterdienst (DWD)
- European Centre for Medium-Range Weather Forecasts (ECMWF)
- Hydrological Research Center (HRC)
- International Research Institute for Climate and Society (IRI)
- MeteoFrance
- National Institute of Water and Atmospheric Research (NIWA)
- National Oceanic and Atmospheric Administration (NOAA)
- Nigerian Meteorological Agency (NIMET)
- Regional Integrated Multi-Hazard Early Warning System for Africa and Asia (RIMES)
- Royal Netherlands Meteorological Institute (KNMI)
- Reading University UK
- Regional Meteorological Specialized Centers of Dakar and Abuja (RSMCs)
- Secretariat of the Pacific Regional Environment Programme (SPREP)
- Spanish State Meteorological Agency (AEMET)
- The Pacific Community (SPC)

# LOOKING AHEAD

Reaching its financial targets will enable CREWS to extent its geographic reach, increase its leveraging of additional funds, and scale-up the existing support for countries and regions, expanding initial project results to address needs in their early warning systems.

## TARGETS BY 2020

**100** USD million

**CREWS Trust Fund investment target.**

*As of 2018, contributions to the Trust Fund amount to 40 USD million.*

**300** USD million

**additional financing to be leveraged through CREWS country projects.**

*As of 2018, USD 106 million has been leveraged.*

**15**

**number of countries to receive CREWS support.**

*As of 2018, 5 countries receive support.*

**5**

**number of regional programmes to receive CREWS support.**

*As of 2018, CREWS has three regional investment windows: Pacific, Caribbean and West Africa.*

**3**

**reviews of impact-based early warning systems carried out post-disaster.**

*As of 2018, one review has been done for the Caribbean 2017 hurricane season.*

## BEYOND CREWS

- › **CREWS is committed** to increase development effectiveness in investments in weather and climate services beyond its own portfolio of projects and its network of partners.
- › **CREWS supports** and is an integral part of the proposed Alliance for Hydromet Development and the Global Framework for Climate Services (GFCS).
- › **CREWS aspires** to build institutional, observation and data capacity that service other initiatives such as InsuResilience and Forecast-based-Financing (FbF).





For further information please visit [www.crews-initiative.org](http://www.crews-initiative.org) or contact us at [crewsinfo@wmo.int](mailto:crewsinfo@wmo.int)



CREWS gratefully acknowledges the contributions of its Members.

### CREWS Members



Australia



France (Chair)



Germany



Luxembourg



Netherlands



Switzerland

### CREWS Observers



Canada



Japan



Mexico



New Zealand



Norway



UNDP



USAID



ACP

### CREWS Implementing Partners



WORLD BANK GROUP



GFDRR  
Global Facility for Disaster Reduction and Recovery



UNISDR  
United Nations Office for Disaster Risk Reduction