

CF Challenge Fund



Program Overview

CONTEXT

How can innovative approaches make communities more resilient to climate change and natural disasters?

Developing countries are often the hardest hit by floods, cyclones, droughts, and earthquakes, yet are also the least equipped to understand or address these risks.

There are a number of exciting innovations that could help – from crowd-sourced mapping projects that reveal hazards with unprecedented precision, to self-learning modeling algorithms that can predict a disaster before it strikes. The real challenge, however, is bringing together those who understand these new technologies with at-risk communities on the ground.

This is why the Challenge Fund was created. An initiative of the Global Facility for Disaster Reduction and Recovery (GFDRR) and the UK's Department for International Development (DFID), the Challenge Fund aims to connect innovation to local contexts to help better identify changing climate and disaster risk and enable more effective decision-making to build resilience.



FROM
DATA



TO
INSIGHT



TO
BEHAVIOR CHANGE

APPROACH

The Challenge Fund seeks to **bridge the gap between technology and on-the-ground user needs** in the field of disaster risk identification. Through targeted investments in innovation, the Challenge Fund is better enabling communities to build resilience to climate change and natural disasters in more than 20 countries around the globe by **moving from data to insight to behavior change**.

Through more than USD 1 million in targeted investments in innovation, the Challenge Fund has already helped finance more than 15 projects, tackling issues like gender, language barriers, open data access, and gaps in risk communication. From collecting data through Twitter for flood analysis in the Philippines, to visualizing risk data for civil society groups in Africa, Challenge Fund winners are harnessing the power of technology for climate and disaster resilience.

PROVIDING LOCAL RISK KNOWLEDGE TO STRENGTHEN EFFECTIVE COMMUNITY RESILIENCE

GNDR (Global Network of Civil Society Organizations for Disaster Reduction)

Through consultations of its diverse members, GNDR created an e-learning platform to facilitate the use of risk data gathered on an online dashboard for local action planning and advocacy.

BUILDING RESILIENCE TO DROUGHT IN THE SAHEL THROUGH EARLY RISK IDENTIFICATION

IBIMET (Istituto di Biometeorologia)

To support drought risk reduction and decision-making to build resilience, an open access and open source crop risk monitoring system, 4Crop, has been developed to predict crop failure and risk zones in Niger and Mali.

REAL TIME URBAN FLOOD RISK MANAGEMENT VIA CELLPHONE NETWORK ANALYSIS

Institut de Recherche pour le Développement

This pilot project tested an urban flood protection system that is based on rain measurements from cellular phone networks, which monitors rainfall via loss of network signals to provide a cost-effective, reliable, and sustainable solution for improved risk assessment in Burkina Faso.

REDUCING URBAN FLOOD HAZARDS THROUGH PARTICIPATORY TERRAIN MODELING

Deltares

This prototype tool enables users to establish a high-resolution terrain dataset with locally collected information on roads, water ways, and buildings stored in OpenStreetMap, enabling urban risk managers to build local models and identify critical hazardous flood areas in Tanzania.

MULTILINGUAL AND MULTI-PLATFORM FILMS FOR RESILIENCE TO RISKS FROM VOLCANIC HAZARDS

University of Bristol

To help spread awareness about the behavior of volcanoes and the necessary steps to increase resilience, several multilingual short films have been developed that help communicate both the risk and the proper emergency steps.

ONLINE OPERATIONAL NATURAL DISASTER RISK ASSESSMENT

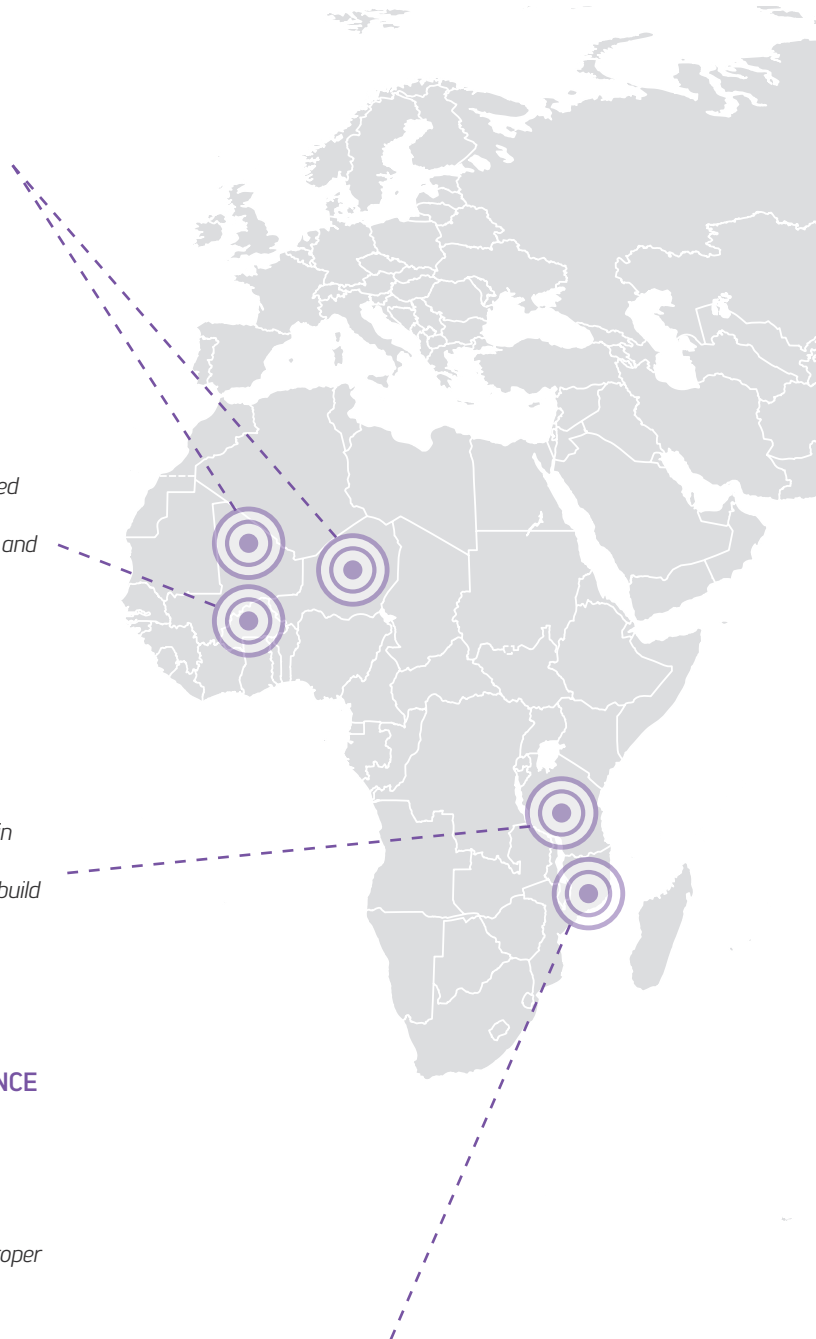
Information Management and Mine Action Programs

This project seeks to provide an online global operational platform that acts as a data repository that can be accessed by all, and can readily feed into other existing data and scenario-based platforms.

WEB MAP SERVICES TO IMPROVE REAL-TIME FLOOD DATA FOR AFRICAN REGIONS

Dartmouth Flood Observatory

This project measures surface water and river discharge throughout Africa in near real-time, and improves data visibility through a newly-developed web mapping service to enable more effective decision making to reduce flood risk.



FLYING SENSORS FOR LOCAL, ULTRA-HIGH RESOLUTION FLOOD RISK IDENTIFICATION

Futurewater

Flying sensors (drones) can provide an affordable, locally-based monitoring of dykes and levees to help local water managers and decision makers identify flood risks to build flood preparedness, spur immediate action in case of flooding, and help recovery efforts after flood events in Mozambique.

OPEN-SOURCE MOBILE WEATHER STATIONS TO REDUCE FLOOD DAMAGES AND INCREASE PREPAREDNESS

IWMI (International Water Management Institute)

This project pilots an open source mobile weather station to provide a low-cost, locally manufactured solution to provide reservoir managers with timely information on rainfall and other weather parameters via SMS to reduce flood risk in Sri Lanka.

INTEGRATING LOCAL INFORMATION AND USERS IN THE GLOBAL FLOOD AWARENESS SYSTEM

University of Reading

To better enable decision-makers to reduce flood risk at the local level, a learning framework was developed for West Africa to explore how probabilistic flood forecasts from the Global Flood Awareness System are used on the ground.

PILOTING CROWDSOURCING ENHANCEMENT FOR MULTI-HAZARD MOBILE APPLICATIONS

American Red Cross & Global Disaster Preparedness Center

This multi-hazard mobile application harnesses chained crowdsourcing to build situational awareness on the ground for first responders. The app allows users to report incidents and sends out notifications to nearby users to see if they are experiencing a similar situation. The app is available for free to the public in Indonesia, Myanmar, and the Philippines.

DEVELOPING AN OPEN SOURCE, REAL TIME, PROBABILISTIC DROUGHT RISK VISUALIZATION TOOL

National Institute of Water & Atmospheric Research

Under this project, an open source, real-time probabilistic drought risk visualization toolkit for Pacific Island meteorological services has been developed. The tool provides specific drought information time series, maps, and advisories to help national drought services more effectively trigger response in Samoa, Fiji, and the Solomon Islands.

ENABLING INSTITUTIONS TO MANAGE STORM SURGE RISKS

New York University

Using Typhoon Haiyan as a case study, this project develops products that can be used to improve the design of storm surge warning messages coming from the national weather agency, resulting in a greater awareness of risk at the local and regional levels in the Philippines.

USING TWITTER DATA TO MAP FLOOD RISK

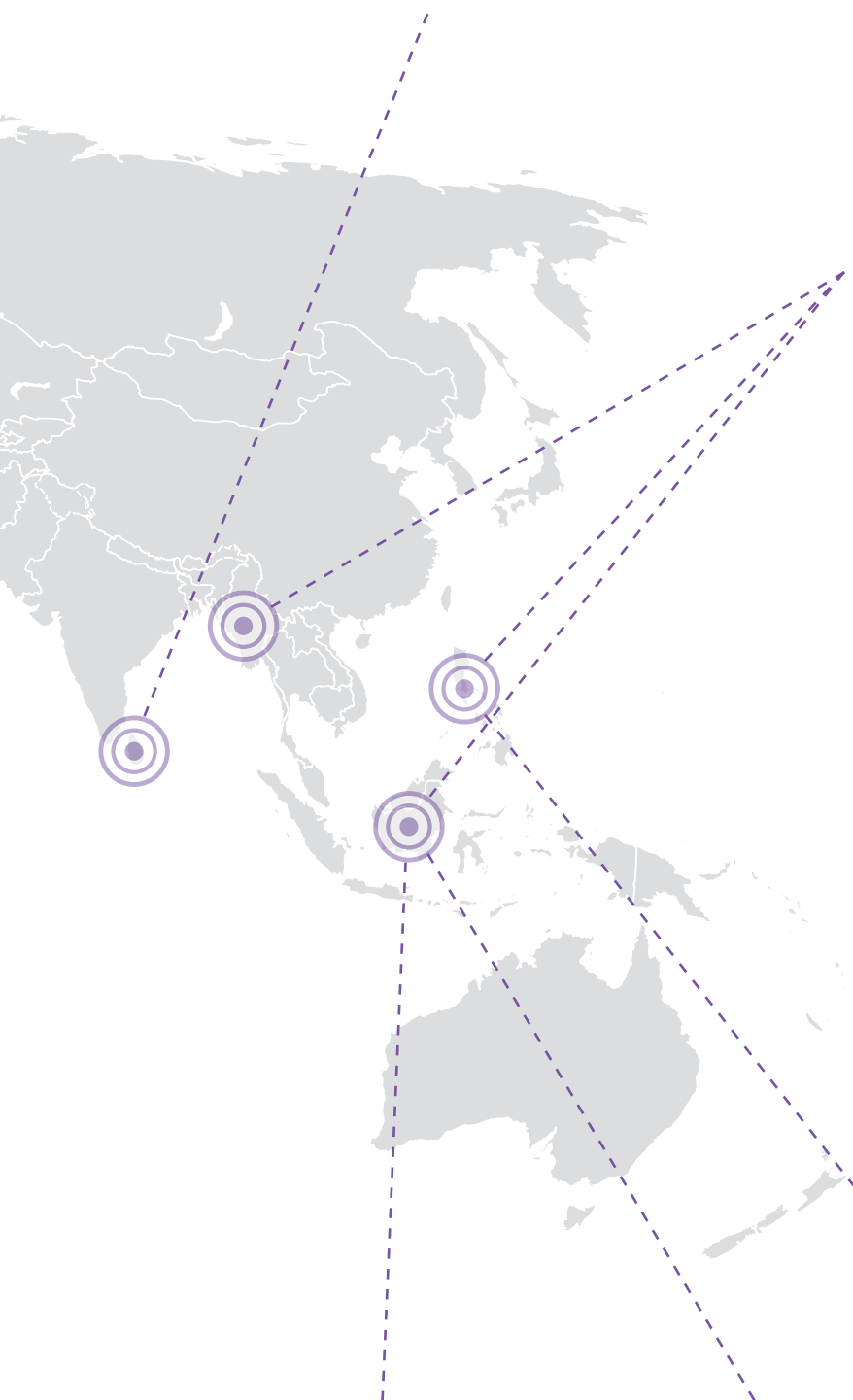
Floodtags

Working with first responders, an online service has been developed in Indonesia that collects data from Twitter, uses natural language processing for analysis, and can be used by first responders following floods to better understand the situation on the ground.

MULTI-HAZARD SCHOOL SAFETY IN INDONESIA

UNESCO (United Nations Educational, Scientific, and Cultural Organization)

Under this project, the team developed a methodology called Visual Inspection for Defining the Safety Upgrading Strategies (VISUS) to help inform decisions on where and how to invest available resources efficiently and cost-effectively to maximize school building resilience in Indonesia.





SOLVING THE PUZZLE

To further explore community perspectives on priorities for disaster risk information for developing countries, GFDRR and DFID recently launched a new report, *Solving the Puzzle: Innovating to Reduce Risk*. Extensive consultations with more than 100 institutions across 5 continents revealed important gaps in key areas like risk models, risk data, platforms, and capacity building.

The report revealed that in many developing countries, there simply isn't enough available data related to risk – limiting the development of risk-reducing policies. Moreover, current efforts do not adequately take into account needs of practitioners on the ground, and effective policy requires eliminating the communication gap between information producers and policy makers.



EXPOSURE



VULNERABILITY



HAZARD

SECOND ROUND

In August 2016, the Second Round of the Challenge Fund was launched, focusing on key challenges identified in the *Solving the Puzzle* report, with an emphasis on high-impact activities that will promote the creation and use of risk-related data and a better understanding the needs of end users.

Project proposals were required demonstrate how their project(s) can be piloted locally in two countries and scaled regionally to demonstrate the potential to be applied at a global scale. Three pilot projects have been launched focusing on Africa and Central and South Asia, with winners expected to be announced by early 2017.