CF Challenge Fund

IBIMET

Building resilience to drought in the Sahel through early risk identification

Early warning systems are a fundamental component in preventing and managing food crises in the Sahel. While there are a number of tools and models that allow for near-real-time monitoring of the crop season, those in the Sahel region are often outdated and obsolete, hindering yield gains and putting populations at greater risk of food shortages.

In an effort to address this, the Institute of Biometeorology of the National Research Council (IBIMET–CNR) co-designed and co-developed an open source crop risk zone monitoring system called 4Crop, along with the national meteorological services of Mali and Niger. The tool, which uses open source meteorological satellite data sets, offers decision-makers and interested stakeholders a long-term and sustainable solution in accessing risk information.

Based on the Crop Risk Zone (CRZ) agro-meteorological model, the newly built open source web application allows national Early Warning Systems to better detect seeding failures, and to monitor state of crops throughout their growth cycle.

HIGHLIGHTS

Held user consultations with the National Meteorological Services of Niger and Mali.

Developed an open source crop monitoring web application for Sahel countries.

Incorporated traditional local knowledge of weather patterns into the application.

MODE	SCOPE	ACTION	USERS
PREDICTIVE	SOWING ADVICE	PLANNING FIELDWORK REDUCE SOWING FAILURE	FARMERS EXTENSION SERVICES
	CROP STATUS PREDICTION	CROP RISK ZONES MONITORING	NATIONAL & REGIONAL EWSs
DIAGNOSTIC	DROUGHT MONITORING	DROUGHT MANAGEMENT	EXTENSION SERVICES AGRICULTURAL SERVICES
	CROP RISK ZONES IDENTIFICATION	FOOD INSECURITY VULNERABILITY ASSESSMENT	NATIONAL EWSs REG/ INT ORGANIZATIONS & DONORS NAT/REG NETWORKS FOR FOOD CRISIS PREVENTION

APPROACH

In order to overcome the problems associated with early warning software programs, the team opted for a web-based application. Through a two-part consultative process, IBIMET developed the application alongside key beneficiaries. First, the team submitted questionnaires to the targeted users of Niger and Mali meteorological services in order to understand their user experience with current tools. The results of this initial step guided the design phase of the new web infrastructure. Secondly, the team tested wireframes and prototypes with specified users, and shared mockups of the web application. Moreover, targeted training was provided to decision makers to better understanding the overall system, in addition to performing analysis of crop conditions.

"4Crop strengthens our capacity to monitor agricultural campaigns, and early identify crop-risk-zones. Thus National Food Security Authority can implement effective actions to improve resilience of farmers and mitigate food crises."

– Labo Moussa, Director of Niger Meteorological Service

NEXT STEPS

Currently, the 4Crop system is a web application directly available for defined user profiles. By moving the application to a web-page, users can have easier access to the tool, in addition to training manuals and diagnostics.

There will also be greater efforts to disseminate drought risk information derived from the tool widely to national and local stakeholders. Currently, the team are looking at developing agro-climate information products for farmers in order to improve their resilience against food insecurity.

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