CF Challenge Fund

FutureWater

Flying sensors for local, ultra-high resolution flood risk identification

CONTEXT

Mozambique's major rivers flood almost annually, with devastating impacts for neighboring communities. Regulating small dikes and levees is crucial in managing this flood risk, yet critical information needed by ground water managers is often lacking, including assessments of vulnerable flood mitigation infrastructure. When this type of information is available, it is typically low resolution and only made available for high-level decision makers, making real-time flood risk management a difficult prospect.

To help local water managers better detect and identify flood risk through improved monitoring of dykes, a team from FutureWater adapted a low-cost, high-resolution Flying Sensor toolkit to Mozambique's unique geographical context. The team's use of aerial photograph allows water managers to anticipate floods by developing an appropriate response plan, take immediate action in case of a flooding, and assist in recovery efforts during a flood event.

HIGHLIGHTS

Developed a new generation of the Flying Sensor toolkit for local water managers in Mozambique.

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Trained 12 officials on the use of the tool to ensure continuity of the project into the future.

Built a flood management manual for beneficiaries to help stakeholders utilize collected data.

To ensure public accessbility of the data, an online portal is also being developed.

APPROACH

A prototype of the open source Flying Sensor toolkit was already developed and tested in the Netherlands. In an effort to adapt it to Mozambique, the team upgraded the tool to the newest generation, which boasts a much longer range and endurance, as well as geo-referenced images, live video streaming, and data maps.

Local water managers in Beira and Xai-Xai were trained on how to fly the sensor, collect and assess appropriate risk data, and later employ the information in flood management plans. At first, the flight operations were planned on a laptop in a software that required extensive training – however, through the course of the project, the missions were moved to operate on a user-friendly tablet that would better visualize the data.

The Flying Sensor toolkits have been handed over to local decision makers, and continue to employed in water management plans.

"Flood monitoring with the help of Flying Sensors is very useful for our irrigation scheme. It is now possible to map flood prone areas and take measures in advance. Moreover, in case of floods, we can now quickly respond by monitoring the actual situation."

– Rogerio Manhaussele, Director of the Operations Department, Irrigation Scheme of Xai-Xai, Mozambique)

NEXT STEPS

The pilot project in Mozambique exemplified the usefulness of Flying Sensor technologies in flood risk management. The FutureWater team hopes to replicate the project in other parts of the country. There will also be focus on ensuring that the activities conducted in the pilot areas continue to build resilience, and that the data gathered is effectively used in decision-making. In an effort to make the information gathered by the tool publicly available and to create a community of practice around the tool, the team will be developing a dedicated online portal to house the data and training tools.