Tanzania Meteorological Agency successfully scales delivery of improved weather forecast

Introduction

Since 2017 the Tanzania Meteorological Agency (TMA) has successfully operationalised a new and improved five-day weather forecast. The forecast focuses on the most important weather-related impacts facing coastal communities, such as flooding, strong winds, and high waves. Feedback from the Disaster Management Department and local fishermen and farmers confirm that the new forecast provides relevant information in an understandable format. Sustained awareness raising with end users, and investment in improving dissemination channels, will be key to ensure wider usage of the forecast.

Meeting the needs of weather and climate information users

A novel pilot project, initiated in 2016, to develop an improved five-day weather forecast for communities along the Tanzanian coast has overcome the first major hurdle to long-term impact: it has been successfully continued as a standard service by TMA over the past two years. TMA have also extended the geographic coverage to include areas around the lakes in the north and west of the country.

Between 2016 and 2018 TMA partnered with the Met Office, the UK’s national meteorological service, to design an improved weather forecast to serve the needs of coastal communities. This was funded by the UK Government’s Department for International Development through the Weather and Climate Information Services for Africa (WISER) programme. Through a collaborative process with key user communities from the coastal region, including fishermen, coastal traders and seaweed farmers, several innovations were made to improve the usefulness and accessibility of weather information. These included a shift from providing weather information (such as how many millimetres it will rain, or wind speed in kilometres...
The collaborative process for developing the impact-based forecast, as well as sustained engagement with a growing stakeholder community has also enabled TMA to progress its implementation of the User Interface Platform of the Global Framework for Climate Services, a key guiding goal for the agency. “TMA has used the multi-hazard impact-based forecast to reduce the gap between producers and users of climate services”, says Dr Ladislaus Chang’a, Director of Research and Applied Meteorology at TMA. “Engaging stakeholders throughout the design of the product ensures that information is clear and understandable.”

An example of the new daily multi-hazard, impact-based forecast as developed for 14 August, 2018. The forecast is delivered in Swahili, the national language of Tanzania and widely spoken in the coastal communities.

**From project to operationalisation**

Since the collaboration with the Met Office to design the new weather forecast, TMA’s efforts to operationalise the service have gone from strength to strength. It has successfully produced the forecast over the past year, employing the new innovations and the standard operating procedures developed during the WISER pilot phase. “Many projects end as projects,” says Chang’a. “However, this product is now operationally produced as part of TMA’s forecasting services.”
New pictorial symbols were developed based on local needs. For instance, the symbol for “strong winds” (“upepo mkali” in Swahili) consists of two bent-over palm trees and the symbol for “flooding” (“mafuriko” in Swahili) consists of a submerged house.

A table gives an explanation of colour-coded advice and warnings in the forecast. “T” stands for “Tahadhari”, meaning “caution”, and is presented as a function of the probability (“umezekano”) and the impact (“athari”) of a particular weather hazard.

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**Ongoing stakeholder engagement**

Along with the sustained production of the new forecast, TMA has convened a growing stakeholder community to raise awareness of the new forecast, and to improve dissemination to people who need the information most.

Currently, TMA disseminates the forecast through mailing lists, which reach the Disaster Management Department (in the Office of the Prime Minister), sectoral government ministries, extension workers, NGOs and the media. It also disseminates the forecast via its Facebook page. Reaching end-users in a timely way, however, remains a challenge. Between TMA and end-users, many intermediary stakeholders are currently required to pass on, and in some instances customise and interpret, the forecast. Different intermediaries require the forecast in different formats, along with assistance to interpret the forecast into customised advisories for specific locations.
Continuous improvement

TMA and its growing network of stakeholders have signaled their interest to experiment with different dissemination methods, and there may be good lessons to learn from neighbouring national meteorological agencies. In Rwanda, TMA’s counterpart, Meteo Rwanda, has partnered with Viamo, a mobile services company, to deliver daily weather forecasts via mobile phone. Rwandans can sign up for free extreme weather alerts on their mobile as well. Viamo, in partnership with meteorological agencies, is now providing approximately 820 000 callers directly with climate information across several African countries.

Whilst challenges persist, TMA and a growing group of stakeholders are committed to experimenting with improving dissemination. “Our focus is now to sustain awareness raising and sensitisation efforts, and aim for simultaneous dissemination of the forecast to all users.” Says Dr. Chang’a.