

MHEWS: the right message, at the right time

To create a truly valuable climate service, it's vital that end users are considered every step of the way. So when it came to developing a multi hazard early warning service (MHEWS) for Tanzania, the focus turned to finding out more about the specific needs of coastal communities who are especially vulnerable to severe weather.

From droughts and floods to landslides and lightning, much of Tanzania's population is at risk to the impacts of severe weather, and high waves are also a factor for coastal communities.

To reduce the risks of high impact weather for the population and help improve resilience, the government of Tanzania approached the Met Office to co-develop a multi-hazard early warning service (MHEWS) with the Tanzania Meteorological Agency (TMA). This was made possible by the Weather and Climate Information Services for Africa (WISER) programme, which is funded by the UK Government's Department for International Development (DFID).

After initial consultation with stakeholders across the government of Tanzania, the fisheries and marine sectors were chosen as a priority for trialling the MHEWS. This is because coastal communities are among the most vulnerable to the impacts of severe weather – especially those engaged in fishing and seaweed farming. As Mwaniasha Makame from Mku FuraHiaw'ke (Seaweed Farmers Group) commented, "We're very thankful to TMA for remembering them because the seaweed farmers were marginalised when it came to climate information services". The first step was

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to learn more about these communities and how the MHEWS could best meet their needs.

The pull of the sea

Every day on Tanzania's Indian Ocean coast, approximately 50,000 fishermen put to sea in wooden dhow boats, of which over 85% are sail- or paddle-powered. This type of boat is also used by around 1,000 sailors setting out on short trading voyages. In the shallow waters just off the coast, between 15,000 and 20,000 people waded out to work on commercial seaweed farms, with up to 3,000 more tending seaweed lines on their own small-scale subsistence farms¹. The majority of this last group are women – their seaweed crop vital for supporting their families.

By engaging with members of these communities, TMA and the Met Office discovered that, before going out on the water, people need to know:

- Wind speed and direction
- Wave height
- Weather and visibility: will it be clear, overcast or rainy?

This vital information enables fishing and seaweed farming communities to make an informed decision about the safety and benefits of going to sea. The opportunity was taken to enhance the daily forecast to include some of these additional parameters. This was undertaken alongside, and in addition to, the development of the MHEWS, which will provide colour coded warnings according to the likely impact of the weather and the certainty (probability) that it will occur.

Getting the message right

The feedback received from fishermen and seaweed farmers highlighted that they found it difficult to understand the meteorological terminology used in weather forecasts. For example, many didn't understand metric measurements of wind speed in kilometres per hour, instead describing wind speed visually by referring to the effect that it has, such as causing 'white caps' on waves and wave height in terms of

¹ Figures on numbers of fishers and seaweed farmers sourced from the United Republic of Tanzania Ministry of Agriculture, Livestock and Fisheries' [Baseline Study on Tanzania Fisheries](#), June 2016.

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the height of a man. This insight was taken into account as the improved forecast products were developed.

Reaching the users

When it came to disseminating this information, it was clear that the accessibility of weather information could be improved. Weather forecast products and warnings are made available through websites and emailed to subscribers but the research confirmed that fishermen and seaweed farmers don't have internet access and only a very small number watch television. Radio – which has 85% penetration in Tanzania – stood out as the most popular media and became a focus for dissemination to this user group, with a workshop for the media held in Tanga in northeast Tanzania towards the end of the project. The media workshop included a practical session to provide training in how to turn meteorological information into short radio broadcast scripts that would be easily understood by coastal communities.

With a strong turnout of 19 radio stations, the workshop reached a large number of broadcasters. One participant, Mrisho Mapeyo from EFM Radio, reviewed the workshop positively saying, “I like the new style of getting weather information that's content-based. I like the knowledge which I have got on how to give weather information in a few minutes”.

The new MHEWS and enhanced daily weather forecasts are now being actively trialled and look set to make it easier for the people to get the weather information they need, when they need it.

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