



Strengthening weather and climate services to support development

Rwanda Meteorology Agency (Meteo Rwanda)

Severe weather-related events such as landslides, droughts and floods have a serious impact on Rwanda's agriculture-dominated economy, affecting lives and livelihoods. The Met Office has worked closely with Meteo Rwanda since 2000, and in 2014 we co-developed a project proposal, having identified an opportunity that could be funded by the Rwandan Government's Climate Change Fund (FONERWA). The proposal was successful, and the 'strengthening Meteo Rwanda's weather and climate services to support development' project was approved. The project aimed to improve the range of weather and climate information available to inform decision making at all levels and to promote the understanding and application of weather and climate information in Rwanda.



Approach

The project, led by Meteo Rwanda, had four themes including creating and enhancing engagement with key stakeholders to identify requirements, improving scientific knowledge and skill to enable service and product development to meet user needs, increasing the reach of weather and climate information, and enhancing awareness of weather and climate issues.

In March 2016, the Met Office was contracted to provide a package of technical assistance to support Meteo Rwanda deliver the project. This activity was led by a Met Office Technical Co-ordinator embedded in the Meteo Rwanda project team. The Met Office technical assistance package was completed in September 2017, delivering several activities in support of the project as detailed here.

Identifying socio-economic benefits

To enable Meteo Rwanda and its stakeholders to better understand the socio-economic value of improved weather and climate services, we commissioned NEF Consulting Limited (founded by the New Economics Foundation) to carry out a Cost Benefit Analysis (CBA) forecast. Focussing on impacts related to droughts and landslides, this found that for every 1 Rwandan Franc (RWF) invested by the project, the value created was projected to be at least 4.1 RWF. Socio-economic benefits include safer evacuations and preventing loss of life in areas susceptible to landslides, as well as avoiding crop losses for farmers.

Evidence generated through this activity can be used to inform policymakers of the importance of ongoing investment in Meteo Rwanda. NEF Consulting provided training and guidance to Meteo Rwanda staff in how to apply the CBA model, enabling them to undertake further analyses on other severe weather-related impacts.

"This cost benefit analysis shows that investment in weather and climate services is to the benefit of the country, with a conservative estimate of a return of over 4 Rwandan Franc for every 1 Rwandan Franc invested. With climate change likely to affect the rainfall and temperature in Rwanda, these services are essential to short, medium and long term decision making across the country and all sectors."

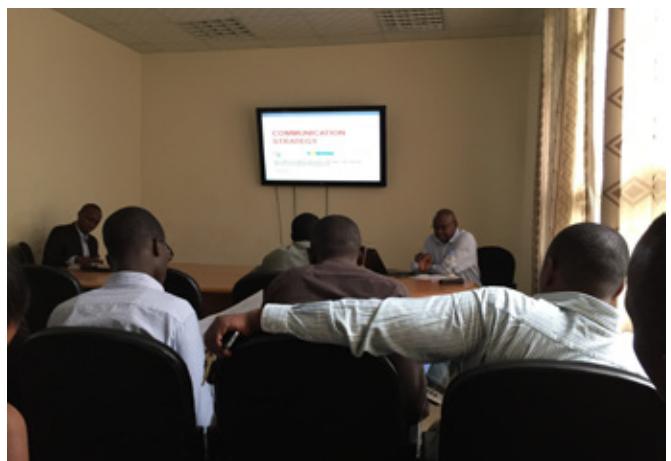
Dr Desire Kagabo

Chairman of Meteo Rwanda's Board of Directors

Improving user engagement and communications

To develop relevant products and services, it is essential to engage with users of weather and climate information to understand their requirements. Communications workshops were held with Meteo Rwanda and key stakeholders, including national and local government representatives, community leaders and the media. Meteo Rwanda staff were given practical training in user engagement to improve awareness and understanding of user needs. A farmer from Eastern Rwanda visited Meteo Rwanda to meet forecasters and explain why weather was important to him and what information he needed from Meteo Rwanda, including when and in what format. Focussing on user engagement underpins the transition of Meteo Rwanda from a technical institution to a customer focused service delivery organisation, in line with the World Meteorological Organization's (WMO) Strategy for Service Delivery and its Implementation Plan¹.

In addition to developing a communications strategy and product development framework, Hamwe East Africa Ltd was commissioned to develop templates for five improved weather and climate products. They also initiated the reintroduction of forecasts on the national radio station, Radio Rwanda, and its community radios. With a coverage of 98%² of the population, this greatly increased access to forecasts.



Strengthening capacity

To identify improvements required to enable enhanced product and service development, a training needs assessment (TNA) was carried out by the Met Office College. The TNA focussed on newly recruited operational forecasting staff who had not received formal meteorology training. The Met Office College developed a bespoke training course, incorporating subjects of particular interest and relevance to Rwanda. The course was delivered through theory lessons and mentored sessions where new learning was applied to the current weather situation in the forecasting office. A Standard Operating Procedure (SOP) for handovers between incoming and outgoing forecasters was also collaboratively developed.



As well as training on weather forecasting and nowcasting, a regional climate modelling workshop was delivered to strengthen capacity to develop outputs on climate timescales. Met Office Hadley Centre representatives installed PRECIS (Providing REgional Climates for Impact Studies) software and delivered a regional modelling workshop, enabling generation of high-resolution scenarios of future climate for Rwanda and the wider region.



An Organisational Situational Assessment (OSA) was carried out by the Met Office College, assisted by the Met Office's Technical Coordinator. The OSA covered the wider organisation considering organisational structure, mandates, behaviours and training needs, focussing on the transition to a customer focused service delivery organisation and thinking of likely future changes to meteorological services.

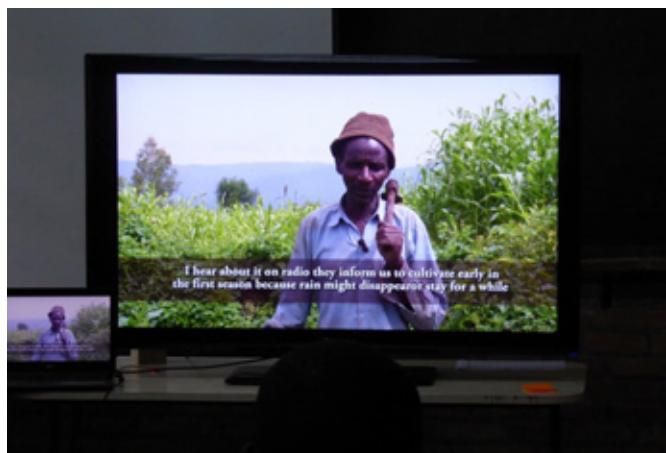
Benefits

As a result of our work, indirect benefits are expected for Meteo Rwanda's customers, including improved decision making regarding the production, dissemination and receipt of enhanced weather and climate products and services for different users.

The technical assistance package primarily delivered benefits directly to Meteo Rwanda, including the communications strategy, product development framework and product templates from communications activities, along with the CBA report, model and guidance.

Other deliverables included input into documents such as policy reviews, project management templates and guidance as well as the OSA, which included a series of recommendations for Meteo Rwanda to consider implementing. Furthermore, training provided by the Met Office College and Met Office Hadley Centre improved the knowledge and skill of operational staff on both weather and climate timescales, while training in user engagement gave Meteo Rwanda staff an enhanced awareness of users' needs and how these can be met.

Re-introducing forecasts onto national radio as a direct result of the communications consultancy is significant. This contributes to the project meeting its third objective "to increase access to weather and climate information to at least one million households through a range of communication channels".



¹ WMO-No. 1129: http://www.wmo.int/pages/prog/amp/pwsp/documents/WMO-SSD-1129_en.pdf

² As reported by Rwanda Utilities Regulatory Authority

Who we are

The Met Office is a global centre of excellence in weather and climate science, and the UK's national weather service. Founded in 1854, the Met Office pioneered weather forecasting. Ever since then we have been at the forefront of developments in weather and climate science.

The Met Office Hadley Centre Climate Programme delivers world-leading scientific evidence on climate variability and change to meet the needs of UK Government.

The Met Office College is world-renowned for excellence in training, providing a range of professional courses for meteorological service providers and tailored tuition for industry and the public sector.

Our international development work

We draw on our scientific and operational strengths to offer practical advice and specialist consultancies. Our wide range of skills and expertise enables us to support countries around the globe in developing and enhancing their weather and climate services.

What makes us different?

As an international organisation, we are exposed to many challenges and have a reputation of meeting and exceeding expectations. Our strong track record includes:

- experience of working in over 150 countries;
- a pool of internationally-experienced specialist staff;
- World Meteorological Organization (WMO) accredited training;
- a thorough understanding of how weather and climate are linked to development goals and policies;
- design of impact-based forecasting for WMO policy;
- supercomputing capacity for sophisticated modelling;
- developing one of the most accurate regional meteorological models in the world, now adopted by Australia, South Africa, South Korea and Thailand.

Supporting



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