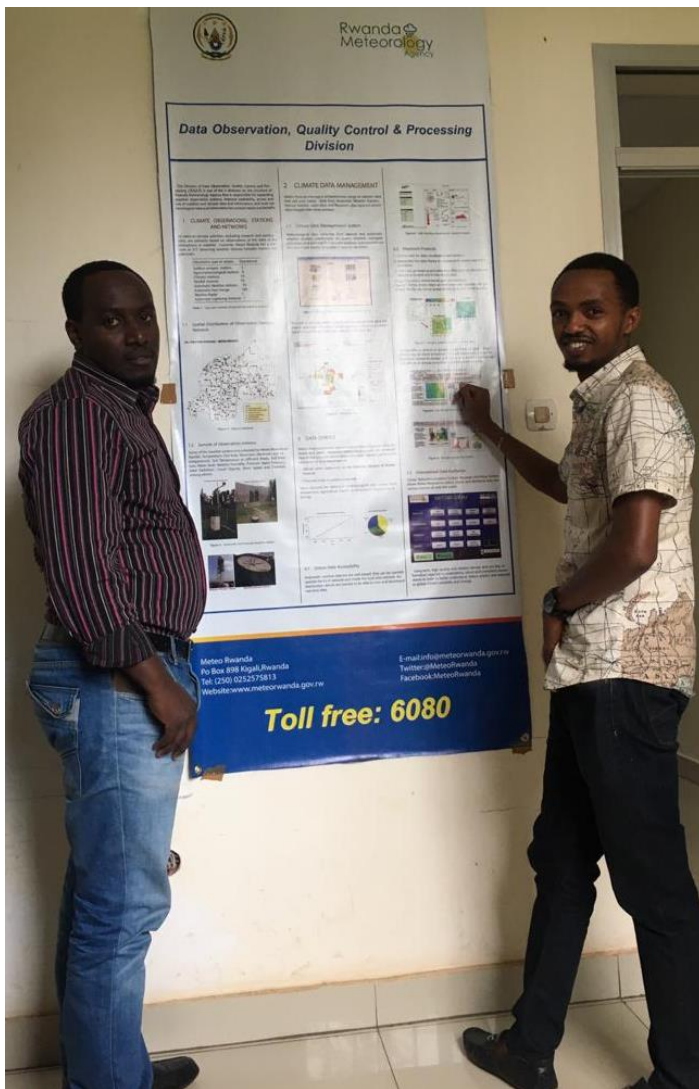


Climate Data Management System in Rwanda

Challenge

Previously, Meteo Rwanda had used CLICOM as its Climate Data Management System (CDMS). This system became obsolete and outdated with the improvement in technology and was no longer supported by developers. To fill this gap, Meteo Rwanda had to look for another fully integrated and supported Climate Data Management System that would ultimately help to deliver services to users on all timescales, and to better understand climate patterns, risk assessments and impacts on socio-economic scenarios, a system that meet World Meteorological Organization (WMO) guidelines, in support of the Global Framework for Climate Services (GFCs) capable of integrating observations from automatic and manual observing systems in the same database.



Félix Mucyo, Meteo Rwanda, explaining climate data flow.

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Solution

Meteo Rwanda and the UK Met Office worked in partnership with an expert consultant from Kenya Meteorological Department (KMD) to deliver an effective integrated Climate Data Management System called Climsoft. *"Using Climsoft has really transformed how we manage our observation data and the services we deliver to our users."* Said Felix Mucyo, the in charge of Climate Data Management section, Meteo Rwanda. Climsoft is being used to collect, manage and stores both automatic and manual weather observation data and generates tailored Climate products for users, It has been very helpful to us, he added.



Meteo Rwanda HQ Agrometeorological station and climate data archives.

We have managed to upgrade to the latest version of Climsoft (version 4) and migrate all our data in the new version, *" We are very happy with this new version since it is very easy and user friendly compared to previous versions"*, said Mucyo.

Observers at our agro-synoptic stations are now able to observe and share data with the Headquarter through Climsoft immediately after observations, this makes data to be available for forecasting and creating more timely services. Paper archives facility in Climsoft version 4 is enabling us now to scan, archive and retrieve images of data via Climsoft. It is now possible to compare digitised data values with the scanned paper without going into the physical archive, said Mucyo. It is now possible to link both Climsoft with R-Instat to produce varieties of climate summaries and reports (including wind rose, time series plots, trend analysis graphs, calculations of the start/ends of rain, length of the season, spell length (dry/wet), etc.).

Climate Data Management System in Rwanda



Joint Climsoft and R-Instat training, Meteo Rwanda HQ, Kigali, Dec 2019.

Benefits

Historical climate data from all stations managed and archived in Climsoft has been very helpful as input to produce the climate maproom website through Enhancing National Climate Services (ENACTS) approach, said Felix Mucyo, the in charge of Climate Data Management section, Meteo Rwanda. Under this initiative, Meteo-Rwanda has merged satellite data with its point station observations to fill gaps in both space and time and can now provide a range of high-resolution climate information products tailored to agricultural user needs through web-based "[maproom](#)".

Through the Participatory Integrated Climate Services PICSA approach, agricultural extension staff, development NGOs and other intermediaries were trained to integrate climate services into their ongoing work with farming communities across Rwanda's districts.



Smallholder's farmers are trying to understand the best time for planting using climate information (training workshop.)

Climate Data Management System in Rwanda

Provision of quality meteorological services is a crosscutting issue. It helps decision makers to better plan their daily activities as well as development strategy and framework in the sectors such as agriculture, fishery, water, aviation, tourism and health to name a few. The use of correct meteorological information would help those sectors to avoid losses. Said Mr. Twahirwa Anthony, the Division Manager of Weather/Climate Services and Application Division, Meteo Rwanda in a technical working group meeting with Meteo Rwanda stakeholders at Classic hotel in Kigali.

On behalf of Rwanda Agriculture Board(RAB), Mr. Ngoga Tenge Gislain, the Head of Climate Change, Agro meteorology and GIS Program in Rwanda Agriculture Board) highlighted that historical Climate data received from Meteo Rwanda helps them to process vital information for agriculture especially during the planting period, irrigation, harvesting and during the post harvesting period. It help us to analyse and determine the planting dates and associated risks. Climate information provides to us relevant information on dry spells conditions, on seasons using water balance model, analysing the conditions during the dry and rainy days, as well as predict the lengths of the seasons and risks of crop varieties in order to cope with the weather of an area. We then based on this information to advise farmers and insurance companies to plan and act accordingly, he added.

Mr. Jean Baptiste Nsengiyumva, the Director of Disaster Risk Reduction and Preparedness, MIDIMAR) stressed the use of weather and climate information in Disaster Risk Reduction and Preparedness during this meeting and said that weather and climate information received from Meteo Rwanda are used in disaster risk reduction and preparedness. He explained further on losses incurred from weather events and said that since 1980, risk of economic loss due to floods and landslides had increased by over 160 %. Mr. Nsengiyumva pointed out that information from Climate data help them to establish a comprehensive end-to-end early warning systems for hydro-meteorological hazards, inform the disaster risk management planning processes and to conduct comprehensive risk assessment such as formulation of the first ever Rwanda risk profile for hazard and risk maps. This information also feeds into communication systems for disaster monitoring, elaboration of disaster contingency planning for major disasters and preparedness and response plans such as El Nino and assists different end-users in awareness creation and education on disaster preparedness and readiness, he added.