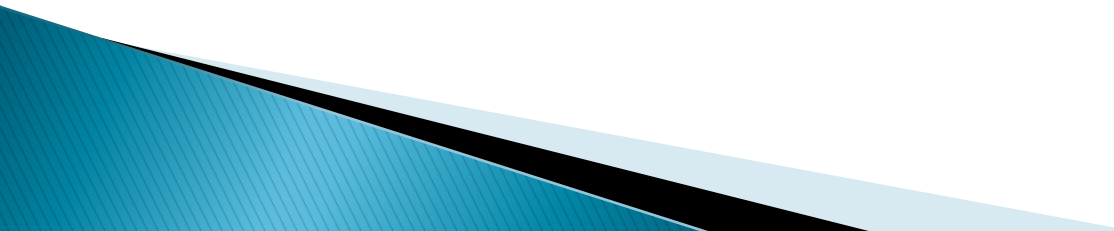# Summary of THE GEF FUNDED EARLY WARNING SYSTEMS PROJECT IN MALAWI

CIRDA WORKSHOP
LUSAKA, ZAMBIA
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Meteorological Services

Background

- Weather and climate information and early warning systems in Malawi not functioning optimally to effectively supporting adaptive capacity of local communities and key sectors.

- Disaster management focused on relief and rehabilitation in Malawi

- The communication and dissemination of weather and climate information and warnings is limited by inadequate protocols, agreements and thus coordination between leading institutions, namely the DODMA, DWR and DCCMS for communicating and issuing weather and climate information warnings;

- The generation of weather and climate data and accurate and timely forecasts in Malawi is limited by:

  I) obsolete and poorly maintained hydro-meteorological observation networks with geographic coverage biased to the western parts of the country;

  Ii) limited data and information management systems;

  Iii) limited technical forecasting capacity based on a range of meteorological, environmental and oceanographic data from various sources and in various formats;

  Iii) limited number of trained personnel to operate and maintain climate information and early warning system observation infrastructure; and

  V) poor regional agreements on information sharing with hydro-meteorological services in Mozambique.

Project Outcomes

- Enhanced capacity of the Department of Climate Change and Meteorological Services (DCCMS) and Department of Water Resources (DWR) to monitor and forecast extreme weather, hydrology and climate change.
- Efficient and effective use of hydro-meteorological and environmental information for making early warnings and long-term development plans.

Implementing Partners

- Department of Disaster management Affairs
- Department of Climate Change and Meteorological Services (DCCMS)
- Department of Water Resources (DWR)

Achievements: Enhanced capacity to monitor and forecast

- Procured and installed **10** automatic weather stations and Maintained **21** conventional and **15** automatic weather stations
- Procured various spare parts
- Procured and installed **10** hydrological monitoring stations and Rehabilitated 26 hydrological monitoring stations
- Installed and Configured CLIMSOFT database management system in DCCMS and Hydstra in DWR
- Procurement and installation of Numerical Modeling infrastructure–COSMO model is up and running are area specific area weather forecast
- Installation of data loggers in hydrological monitoring stations
- Procurement and installation **25** single side band radios for enhanced communication of weather and climate information

Infrastructure Installed/constructed

COSMO Server in DCCMS

DCP House

SSBs INSTALLATION

MAKOKA

Chitedze Mast

Mangochi Stn SSB

Efficient And Effective Use Of Information

- Downscaled and Supported dissemination of seasonal forecasts to local communities at disc annually
- Developed Zanyengo App running on Android and Apple Phones
- Linked DCCMS to community radios for easy dissemination of EW and climate information (Nyanthepa, Mzati and Chancoll Bembeke, Mudziwathu, Nkhotakota, Dinosour and Tutufye)
- Produced and printed and shared various information, communication and education materials
- Carried out a study of centralized and decentralized early warning systems
- Documentary of 2015/16 Floods in the Northern Malawi and EWS progress
- Enhanced WMO Alert Protocal (Weather Chaser WhatsApp group /Facebook)

Training of CPCs in Karonga

Seasonal forecast dissemination in Dedza
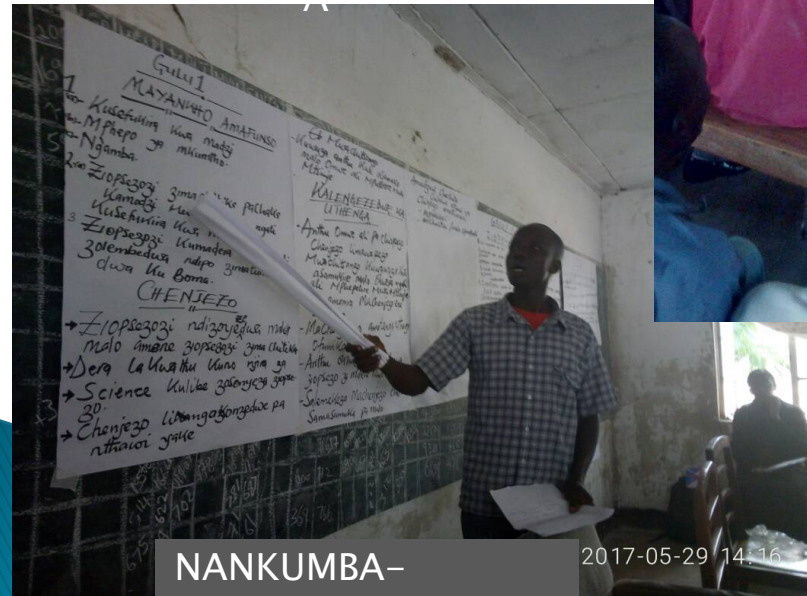
Civil Protection Committee s TRAININGS
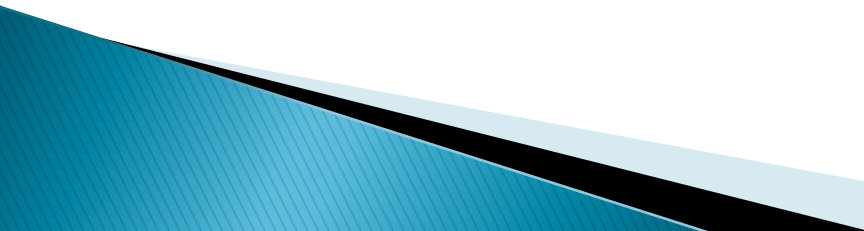

PHALOMBE

ZOMBA

NGOWE–

NANKUMBA–
MANGOCHI

KARONGA

Capacity Building Achievements

- Held a number of trainings for VCPC and ACPCs in use of weather and climate information in weather related disaster risk management
- Long term training in meteorology WMO Class II weather forecasting course (5 forecasters) and post graduate studies in Operational Hydrology at University of Kenya (1 senior hydrologist)
- Supported long-term training for Advanced Diploma in Electronics and Electrical Engineering at Malawi Polytechnic and short term System administration and networking
- Conducted refresher courses for 65 meteorological observers 120 Volunteer weather Observers
- Numerous short courses for DoDMA, DWR and DCCMS staff
- Held a number of tailor database management trainings on CLIMSOFT for DCCMS and Hydstra training for DWR
- Conducted three factory training of meteorological engineers as part of sustainability plan on maintenance of met equipment
- Train personnel from the Department of Surveys DoDMA, DCCMS and DWR in GIS and production of hazard, risk and vulnerability maps

Notable Changes

- Installation of AWS, repairing of conventional station has increased meteorological data coverage across the country
- COSMO model has led to improved accuracy of weather and climate forecasts- 80% accuracy
- Enhanced capacity for operations and maintenance of equipment for sustainability
- Enhanced capacity for forecasters in application and use of various tools in weather forecasting
- Real time hydrological monitoring which assists in issuing out of timely alerts
- Improved understanding and interpretation and use by local communities
- Real time flow of data through Community Radios, Zanyengo APP and other Social Media
- On risk knowledge–communities are more aware on interpretation and use of weather and climate information (various awareness and training sessions held)

Sustainability and Exit

- The project has strengthened capacity of Government officers (both operational and technicians) – ensuring ownership
- Minimal use of consultants: almost all activities were done by Government Officers(enhanced ownership)
- Capacity building of communities, including revamping and training of Civil Protection Committees
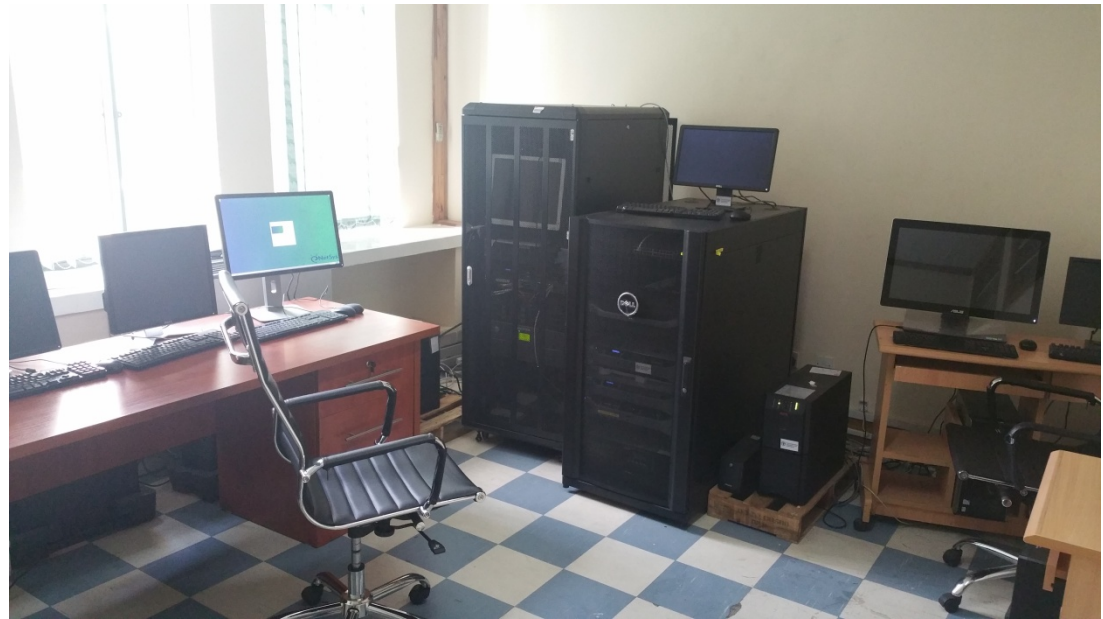- Malawi will Scale up with a 6-yr Green Climate Funded project, scaling up in space and scope

Areas of Potential

- Additional observation stations required to cover blind spots and dense network for more accurate forecasts
- Need for additional capacity building of communities on interpretation and use of weather and climate information
- Need to maximize the use of community radios and social media to reach out to majority of Malawians
- Need to produce tailor made weather information which can act as source of revenue for DCCMS
- There is potential gain in engaging in public-private- partnership on early warning information
- Need to improve in the way weather and climate information is packaged for the consumption of communities
- There is room for improvement in terms of coordination among institutions that issue out early warning information

Figure 3.2: COSMO-model running (left) and facilitator explaining the model run (right)

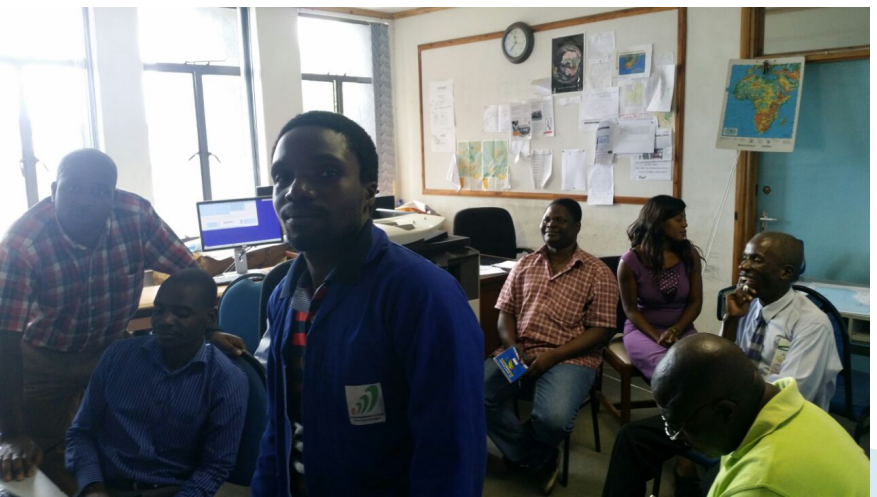# Initial Data Digitisation in Zomba
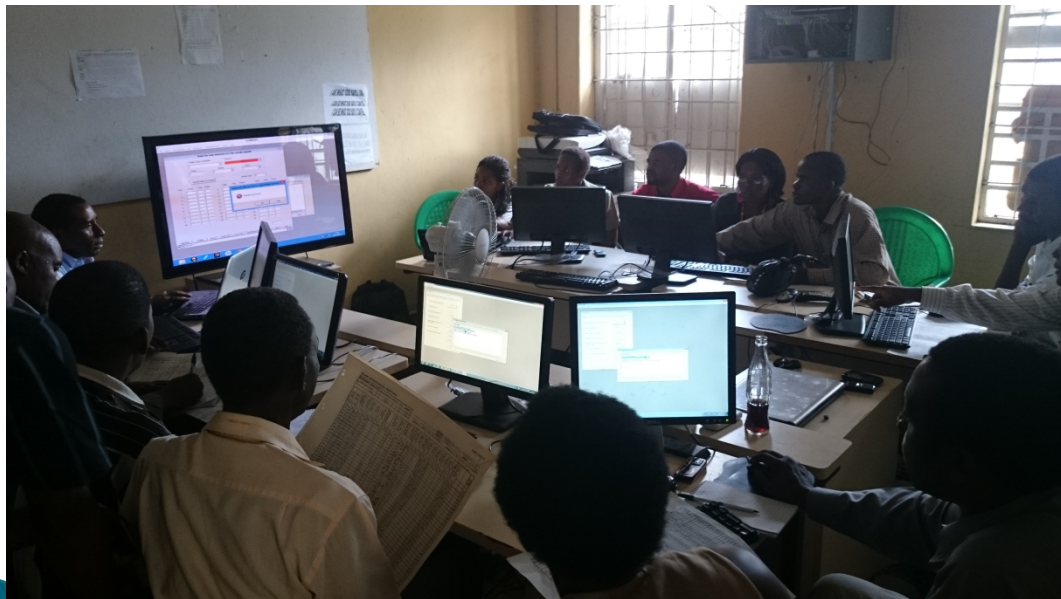
MODELING INFRASTURE

2016 wmo day commenration

Link to Community Radios and ZANYENGO APP

Thank You