THE STATUS OF THE OBSERVATIONAL NETWORK IN KENYA

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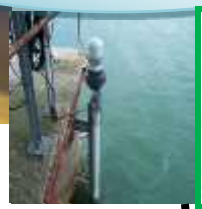
MANDATE - KENYA METEOROLOGICAL DEPARTMENT

The Kenya Meteorological Department (KMD) is issues weather forecasts, alerts, warnings and advisories on various time-scales **nationally** for purposes of: saving lives (communities, households as well as animals), protection of property and conservation of the natural environment.

The meteorological, hydrological and climatological observational systems and networks, including related environmental observations are one of the key infrastructure that enables KMD to achieve its mandate

METEOROLOGICAL INFRASTRUCTURE AND SERVICES




OBSERVATIONS

TELECOMMUNICATIONS

DATA MANAGEMENT & ARCHIVAL

NATIONAL METEOROLOGICAL CENTRE (NMC)

PRODUCT DISSEMINATION

DATA PROCESSING AND FORECASTING SYSTEMS

HUMAN RESOURCE DEVELOPMENT (EXPERTISE, SKILLS & COMPETENCE

USER INTERFACE

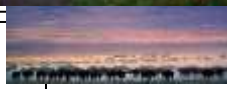
AGRICULTURE AND FOOD SECURITY

TRANSPORT (LAND, SEA AND AIR)

WATER RESOURCES

HEALTH

DISASTER RISK REDUCTION



TOURISM

CLIMATE RISK MANAGEMENT IN AGRI. (WEATHER INDEX INSURANCE)

CONFLICT EARLY WARNING

CC ADAPTATION & MITIGATION

KMD Stations Network

- Rainfall
- Climate
- Agromet
- Synoptic
- Global

The Current observational network is mostly historical rather than by design

- Need for redesign and optimisation
- Need to make it more relevant
- Need to mainstream it in the national development plan

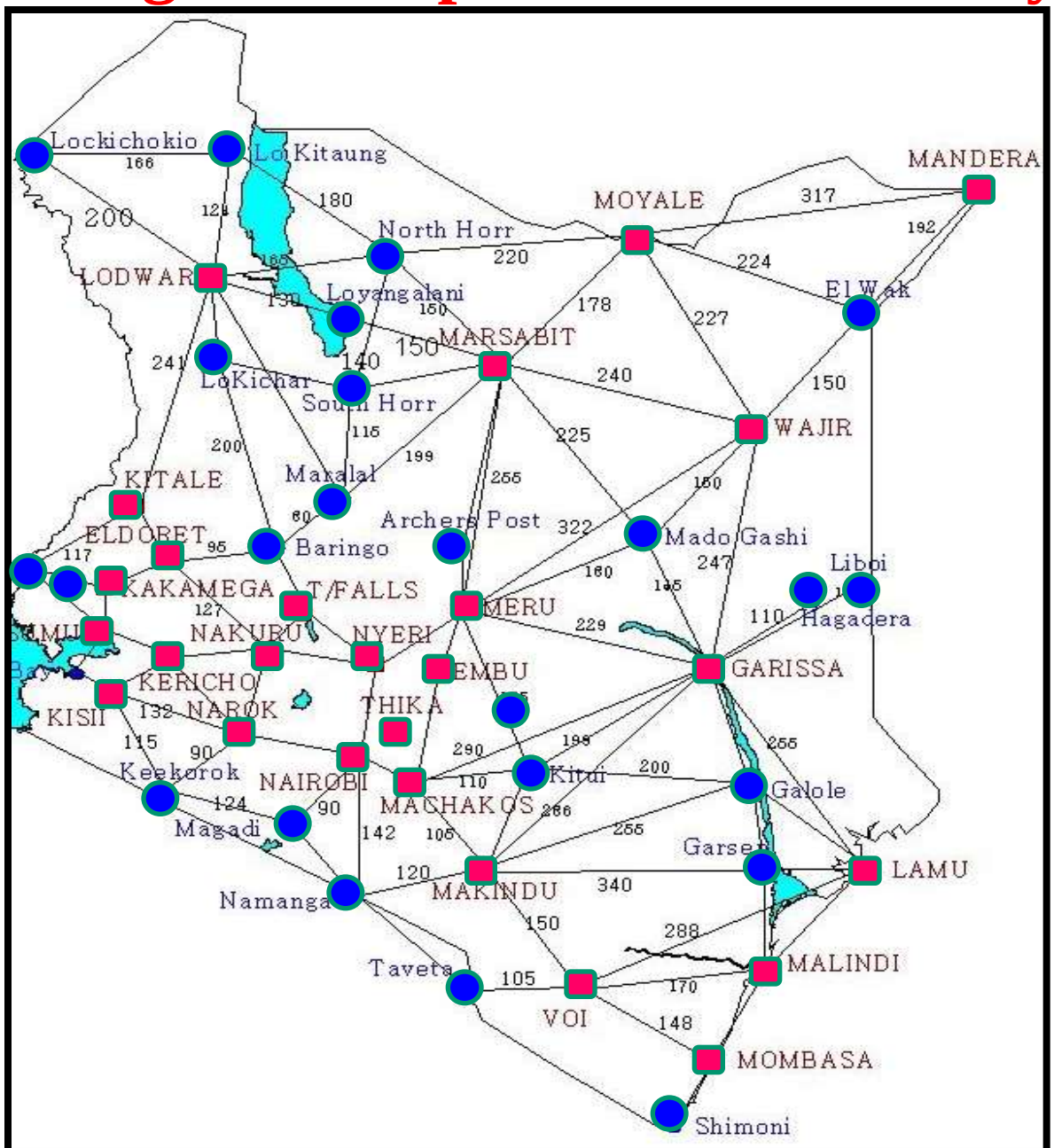
MANUAL SYNOPTIC STATIONS

39 manned 24-hr Synoptic Stations
&
14 Agro Met Stations

AUTOMATIC WEATHER STATION (AWS)

111 Automatic Weather Stations

Existing and Proposed Network of Synoptic Stations

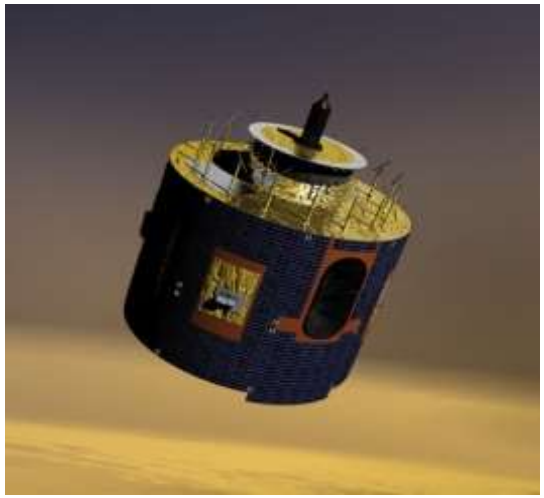


Existing Stations

Planned Stations

Volunteer Rainfall stations

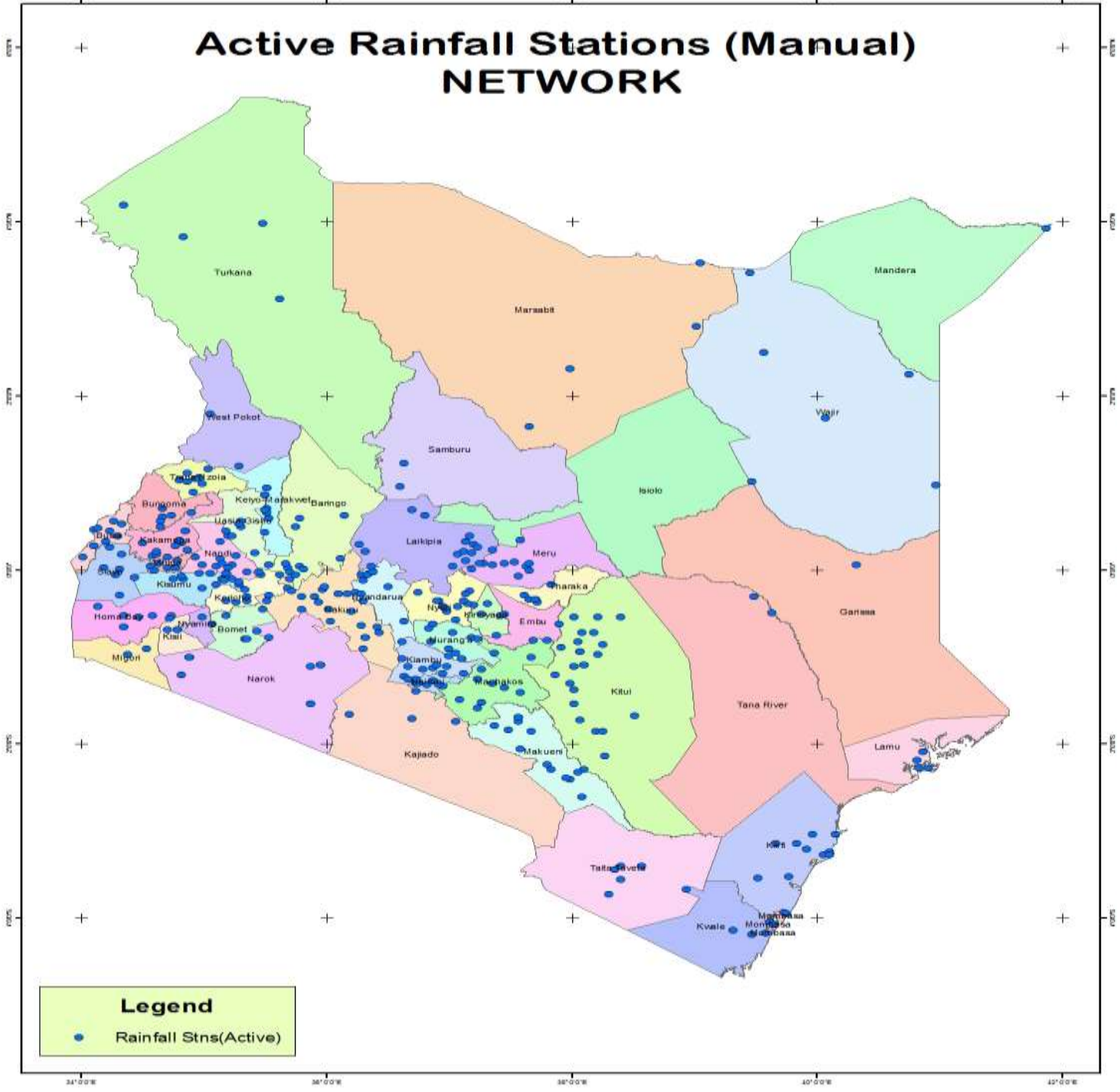
Over 1000 rainfall stations



3 MSG Receiving Stations

Upper Air Observations

3 Upper Air Stations at Dagoretti, Garissa and Lodwar. Dagorett is operational and the other two to be operationalized soon


Active Rainfall Stations (Manual)
NETWORK
Turkana
Marsabit
Mandera
West Pokot
Samburu
Wajir
Isiolo
Laikipia
Meru
Tharaka
Garissa
Embu
Kitui
Tana River
Lamu
Narok
Kajiado
Makueni
Kwale
Legend
Rainfall Stns(Active)

Hydromet AWS and AWOS

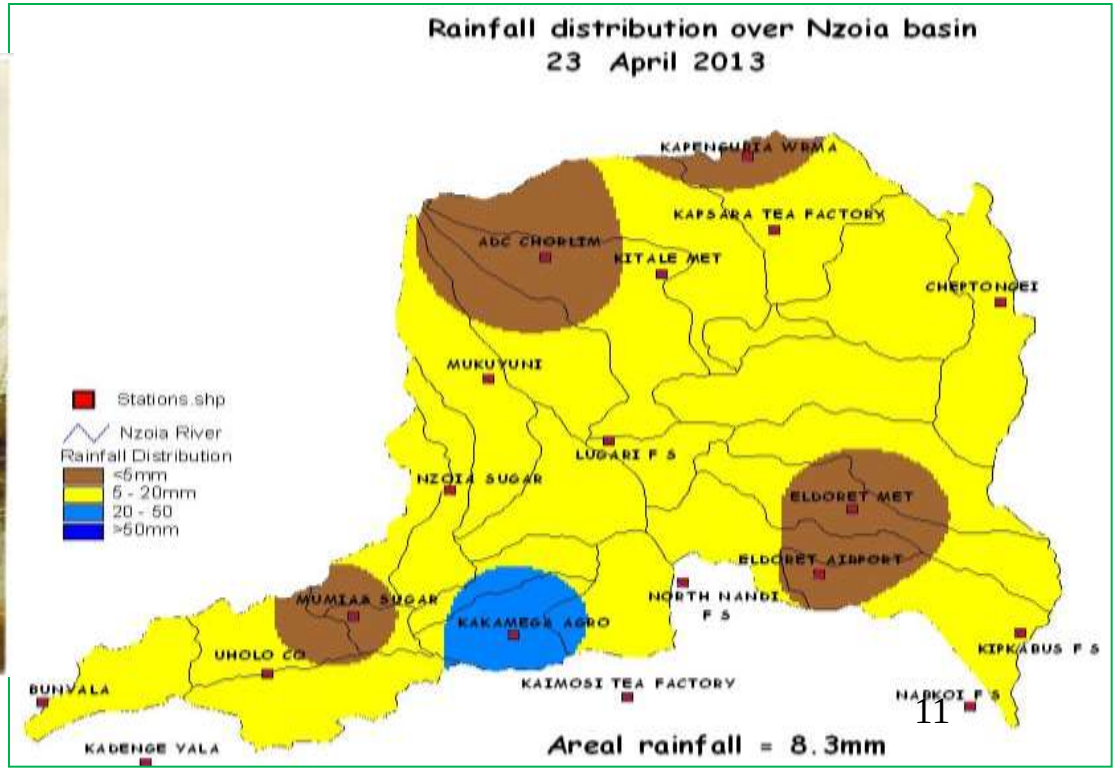
19 Hydromet Automatic Weather Stations: 17 in the River Nzoia Basin & 2 in Tana River;
Three River gauging stations also installed

Five (5) Airport Weather Observing Systems (AWOS) are operational at Jomo Kenyatta (Nairobi), Moi (Mombasa), Eldoret and Kisumu International Airports (JKIA), Moi International Airport (MIA) and Wilson Airport

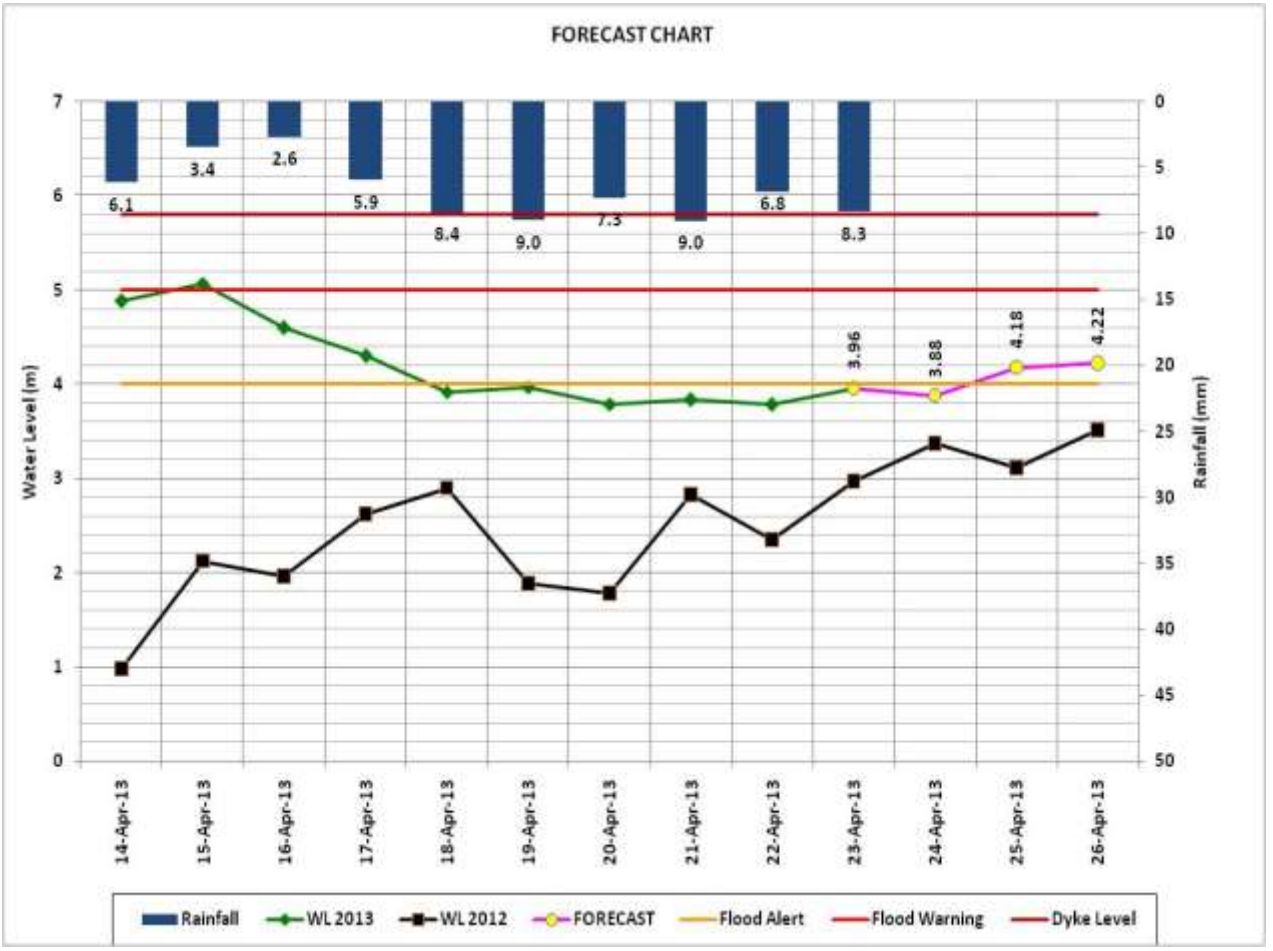
FLOOD FORECASTING FOR RIVER NZOIA BASIN

OFFICE OF THE PRESIDENT,
WESTERN KENYA COMMUNITY DRIVEN DEVELOPMENT AND FLOOD MITIGATION PROJECT

- **FLOOD DIAGNOSTICS AND FORECASTING CENTRE (FDFC)**



FLOOD FORECASTING FOR NZOIA BASIN



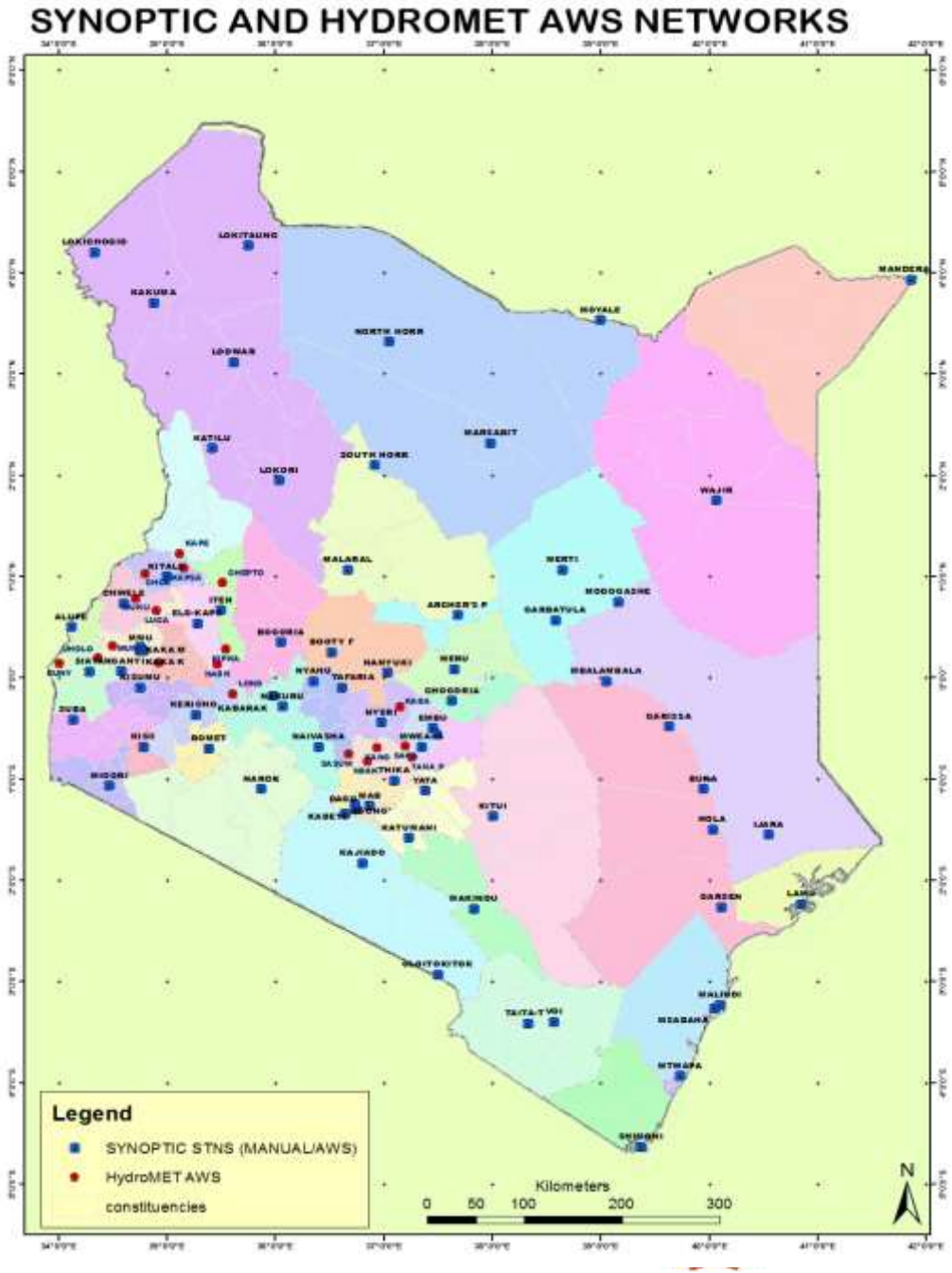
Current and Forecast Water Levels at Rwambwa Bridge RGS

Mooring Buoys

2 Fixed Mooring Buoys in Lake Victoria at Utajo in Winam Gulf and Rusinga Island in the Open Lake

Tidal Gauge

Four tidal gauge stations at *Lamu, Mailindi, Kilifi and Shimoni* for multi-hazard detection, ocean waves, sea level rise, salinity, sea surface temperature and water quality, including tsunami related at the Coast

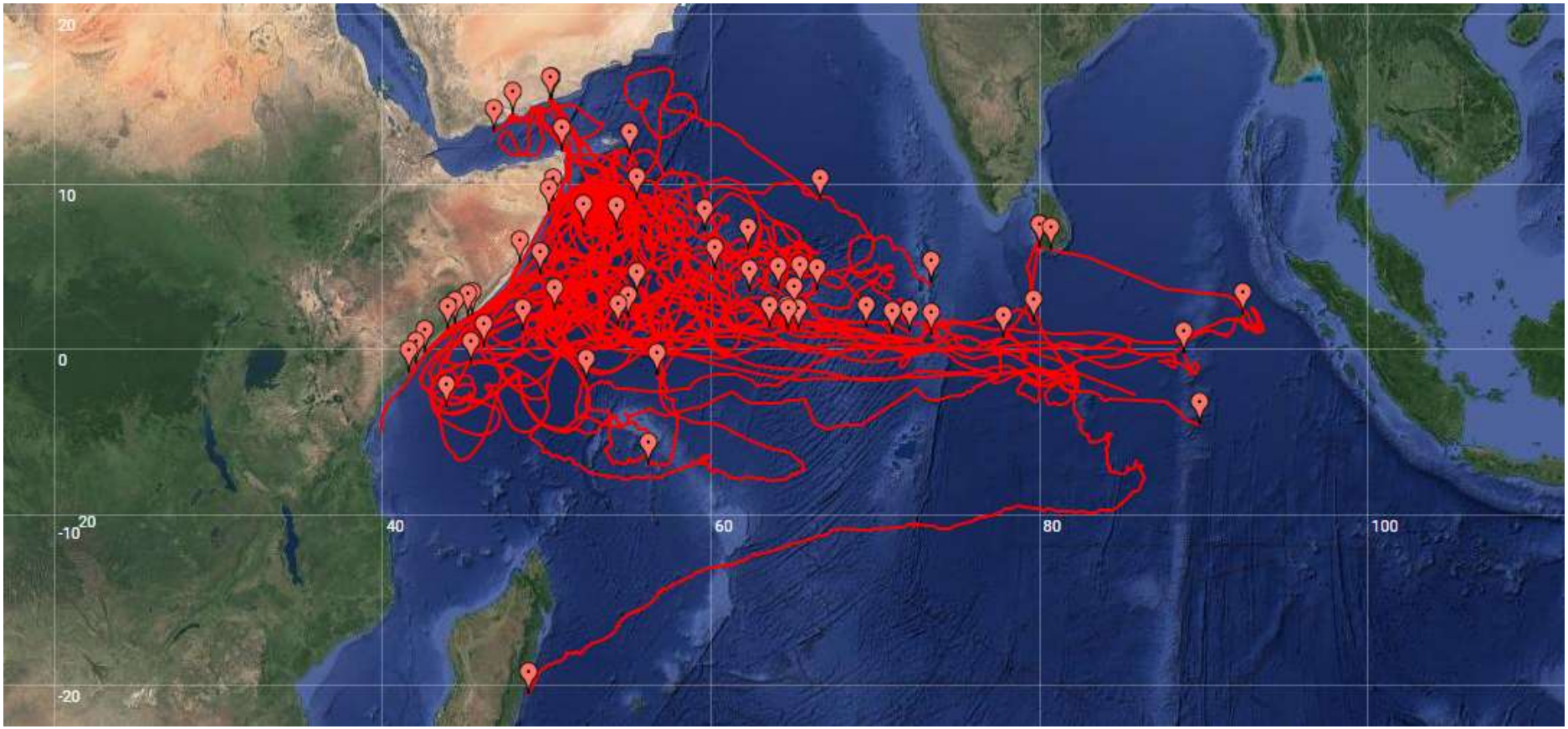


DISTRIBUTION OF 72 SYNOPTIC AWSs AND 19 HYDROMET AWSs (GOV SUPPORTED)

THE 72 AWSs HAVE BEEN ACHIEVED IN 4 PHASES

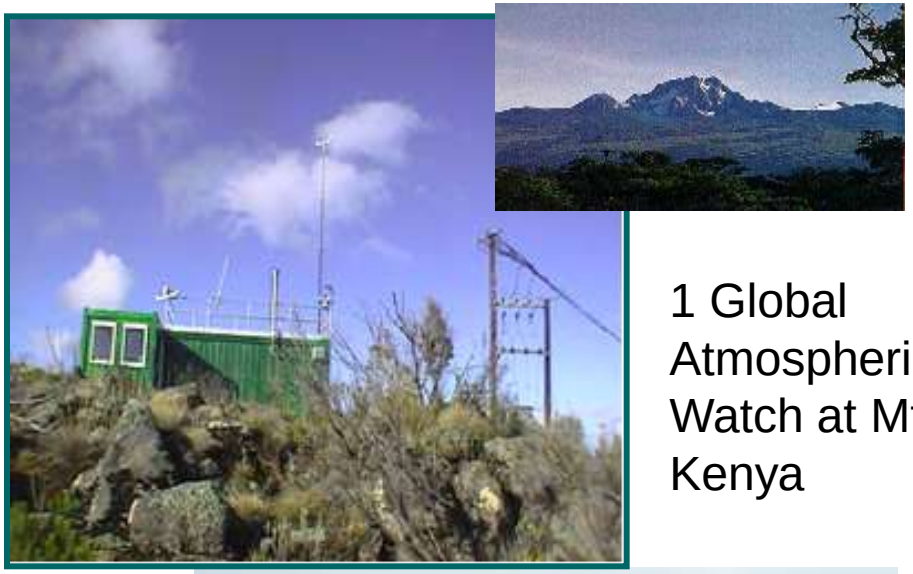
THESE EXCLUDE 39 FROM DEV. PARTNERS

Location of over 50 Drifting Buoys deployed by KMD in collaboration with Scripps Institute for Oceanography.



POLLUTION MONITORING

1 Ozone Profile measuring system in Nairobi



1 Global Atmospheric Watch at Mt Kenya

Mobile Air Pollution Monitoring Laboratory

2 urban pollution stations at Chiromo and JKIA

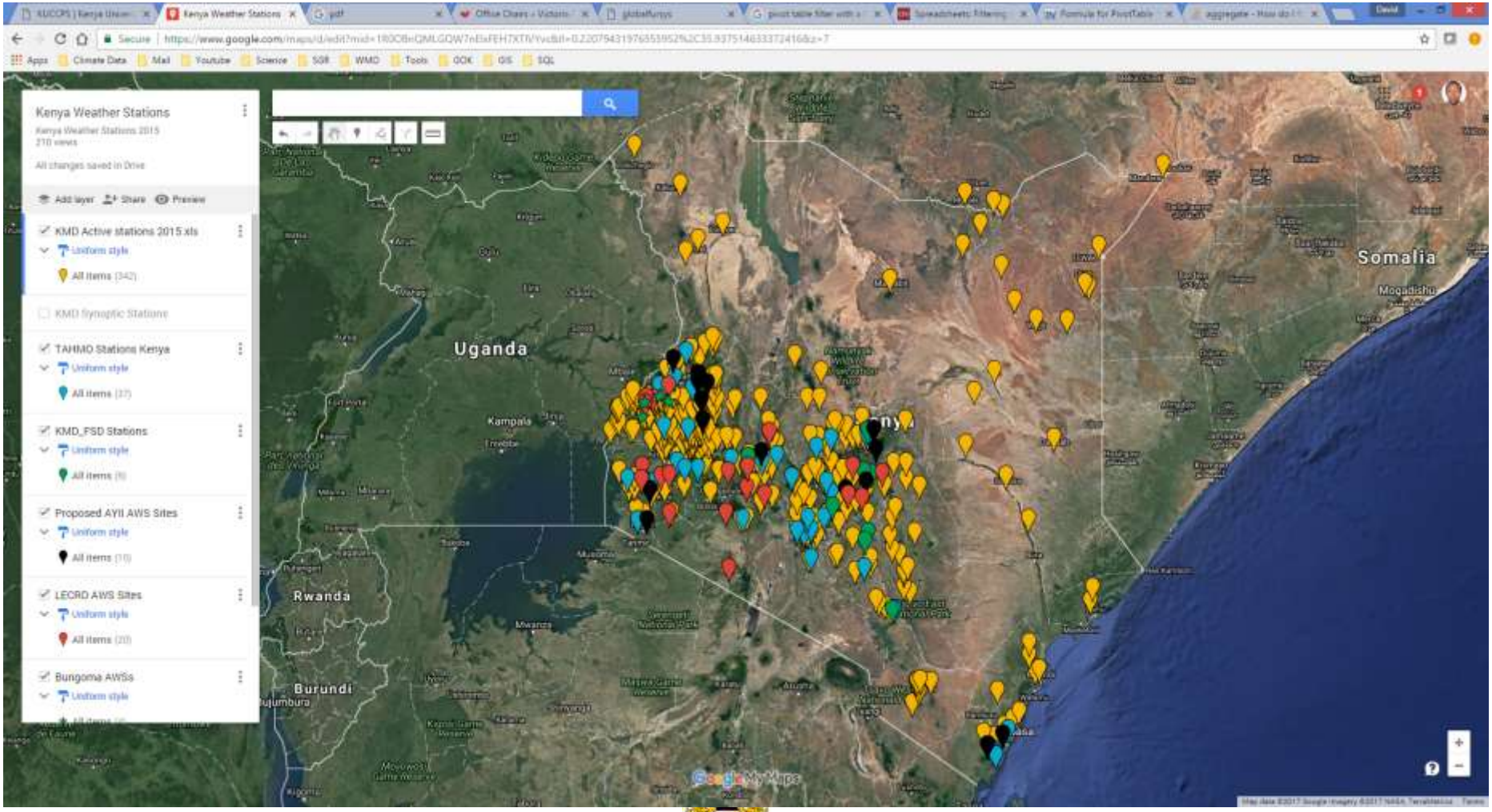
CHALLENGES

- High cost of Meteorological equipment, plants and instruments required for improved information, products and services.
- Inadequate funding for procuring, maintenance and renovation of instruments / equipment.
- Rapidly changing Technology means regular changes in observation systems
- A number of institutions engaging in making observations without involving the NMHS
- Lack of motivation for the Voluntary Observers

ONGOING INITIATIVES

- Gradually moving from purely Manual Observations (Hourly) to Man-Machine Mix (10 minutes);
- Revival of Silent Voluntary Observation (Rainfall) Stations and Recruitment of new ones to the current ~ 1000 stations
- Gradual increase in the Station network through various projects.
- Implementation of WIGOS to address standards
- Public Private Partnership in enhancing the networks

Stations Map



Data needs to support national climate services

- Many of the food insecure people are directly affected by climate disasters such as droughts, and floods – and climate change will make this worse.
- Provision of timely climate information reduces societies' vulnerability to climate-related hazards

Data needs to support national climate services

- The tailored weather and climate information designed to inform decision making across a number of different sectors like food security, agriculture, fisheries and disaster risk reduction etc.
- The communities and households receive climate information through for example, radio, cell phones (SMS), and extension workers.

Some of the activities undertaken

- County and sub-county agricultural extension workers were trained on how to access, interpret and communicate climate and weather information, so as to better advise vulnerable farmers and pastoralists on crop production, livestock migration and livelihoods options.
- Vulnerable communities and households will be targeted with community radio and/or SMS services on disaster risk, agro-climatic and livelihood information, to help people make more informed decisions..

Some of the activities undertaken

- Monitoring and evaluation was not undertaken, it could have been used to properly understand and identify community-level needs for climate services.
- Development of County Climate Information Services (CIS) plan which provides details on how the met. Office intends to provide weather and climate information service in consultation with the stakeholders.

Some of the activities undertaken

- We are trying to ensure that climate services are appropriately integrated into the County Governments development plans, policy and programmes, including the County Integrated Development Plan

Thank You

For

Your Kind Attention