INNOVATIVE APPROACHES ON FLOOD FORECASTING AND EARLY WARNING IN GHANA WHAT HAS WORKED WELL?

UNDERSTANDING RISK IN WEST AND CENTRAL AFRICA
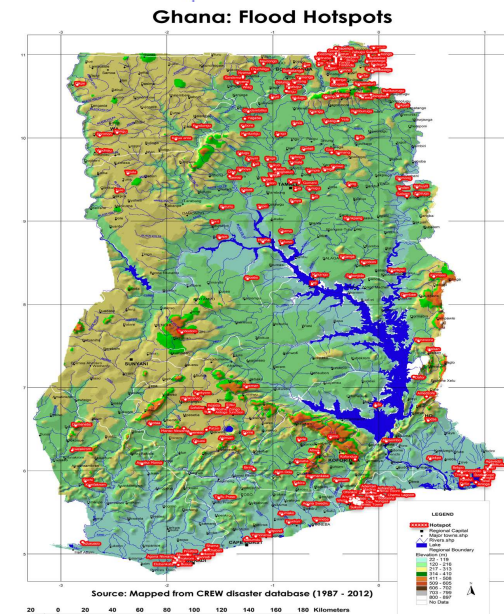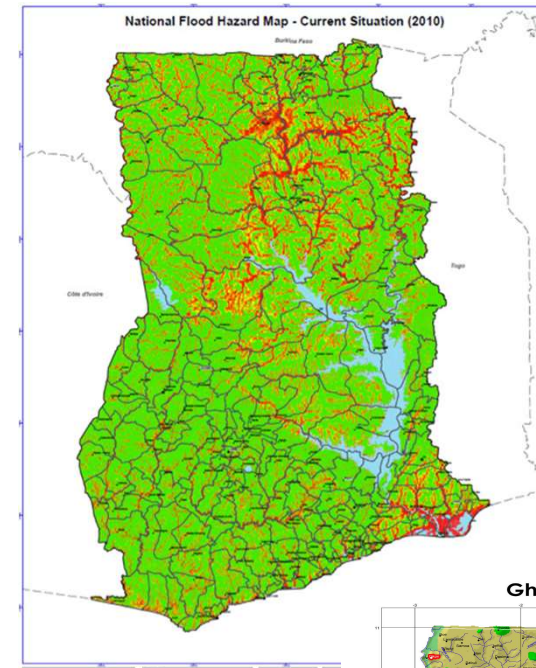20TH -22ND NOVEMBER 2019
ABIDJAN

CONTEXT: DISASTERS IN GHANA

Ghana is affected by multiple natural and man made disasters (floods, droughts, storm surge, fires and lightening, pests and insect infestation, diseases, geological hazards, petroleum related incidents) ;

Flooding is the most prevalent and destructive disaster in Ghana in the river systems (Volta) and in urban centers along the coast (Accra);

In the cities, unplanned settlements give rise to flooding whiles river floods affects the catchment areas;

Some measures in place to achieve this objective include flood risk assessment and mapping, flood forecasting and early warning;

National Flood Hazard Map - Current Situation (2010)

Ghana: Flood Hotspots

Source: Mapped from CREW disaster database (1987 - 2012)

ORGANIZATIONAL STRUCTURE

*The **National Disaster Management Organization** is mandated to manage disasters and similar emergencies and to develop the capacity of communities to respond to disasters and emergencies.*
NADMO Bill 2016

Structure:

NADMO has a formal structure, which is represented at the National, Regional and District/ Local levels, as well as zonal level.

There is also an informal structure which is the Disaster Volunteer Groups (DVG) who act as first line responders.

FORECASTS AND INFORMATION MANAGEMENT

Forecasts from HSD and GMet

GMET and HSD conduct weather forecasts (GMET) and River / hydrological forecasts (HSD);
Information aggregation at Emergency Operations Center (EOC) of NADMO;
Hydrological services give us water levels particularly for the White Volta basin and Oti basin which are major floods areas
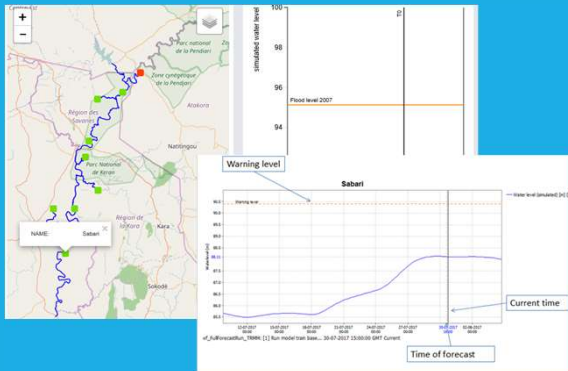
Other information sources

NADMO also receives weather forecast from web-based platforms like rainsat, rainwatch, flood alert
Other private and open source web based platforms also give indication of rainfall and these sources compliment GMet forecasts
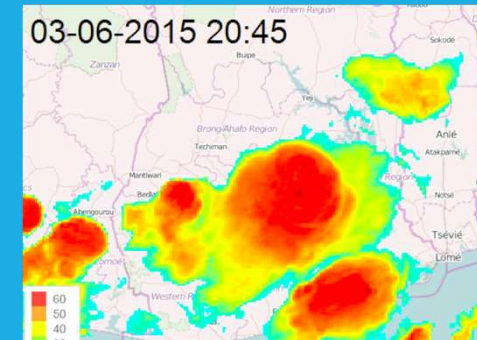
FORECASTS AND INFORMATION MANAGEMENT

Rivers (Volta)
Based on hydrological-hydraulic model for W. Volta and Oti
Satellite (TRMM, GPM), station data, FEWSs dashboard (EOC);
Provides forecast of water levels 3 day lead time

10 districts
Rainfall runoff model
Satellite (TRMM, GPM);
District level information on areas flooded;
FEWS dashboard (EOC)
Supported by Norway /CREW

Other sources
Rainsat
Floodwatch
Traditional knowledge

EARLY WARNING AND INFORMATION MANAGEMENT

Emergency Operations Center
Information is centralized at the Emergency Operations Center (EOC) in Accra and 21 regional and local EOC in the country (supported by Norwegian Funded Community Resilience through Early Warning (CREW) project);

(Tele) Communication
Forecast and early warning is disseminated through our Global Open Trunking Architecture (GOTA) to national, regional and district levels of NADMO;

Other disseminations
Additionally dissemination of information is through the media houses to the public (formal and informal) media
Vodacom Flood Alert App
Traditional early warning methods (durbars, town hall meeting)

EXPERIENCES AND CHALLENGES SO FAR

Forecasting

Some weather forecasts are not area specific; Limited coverage of forecasts;

Limited server capacity, ICT and internet access (to get satellite data);

Models require frequent updates, calibration and station data;

Limited institutional coordination and collaboration (June 3rd floods);

Early Warning and Dissemination

Some of the EOCs have not been active due to funding; Limited coverage (21 EOC)

Interrupted power supply hinders the operation of the EOC;

Limited coverage of the GOTA systems;

Simulation exercises are usually table top and not full blown ;

Limited technical know how;

OPPORTUNITIES AND WAY FORWARD

Ghana's NDCs has Early Warning and disaster prevention as a program of action and its also one of the seven priority areas.

The Greater Accra Resilient and Integrated Development (GARID)-taking holistic action-relevant institutions and agencies working together, each playing a key role to link up in the cycle of disaster risk reduction

Information technology increase- explosion of various sites and platforms for more web based knowledge and information

New accurate technology in terms of weather forecasting

Media being trained and engaged in disaster reporting i.e before, during and after disaster by UNDRR and ECOWAS

THANK YOU
FOR YOUR
ATTENTION