



Innovative approaches
on flood forecasting
and early warning in
West and Central Africa

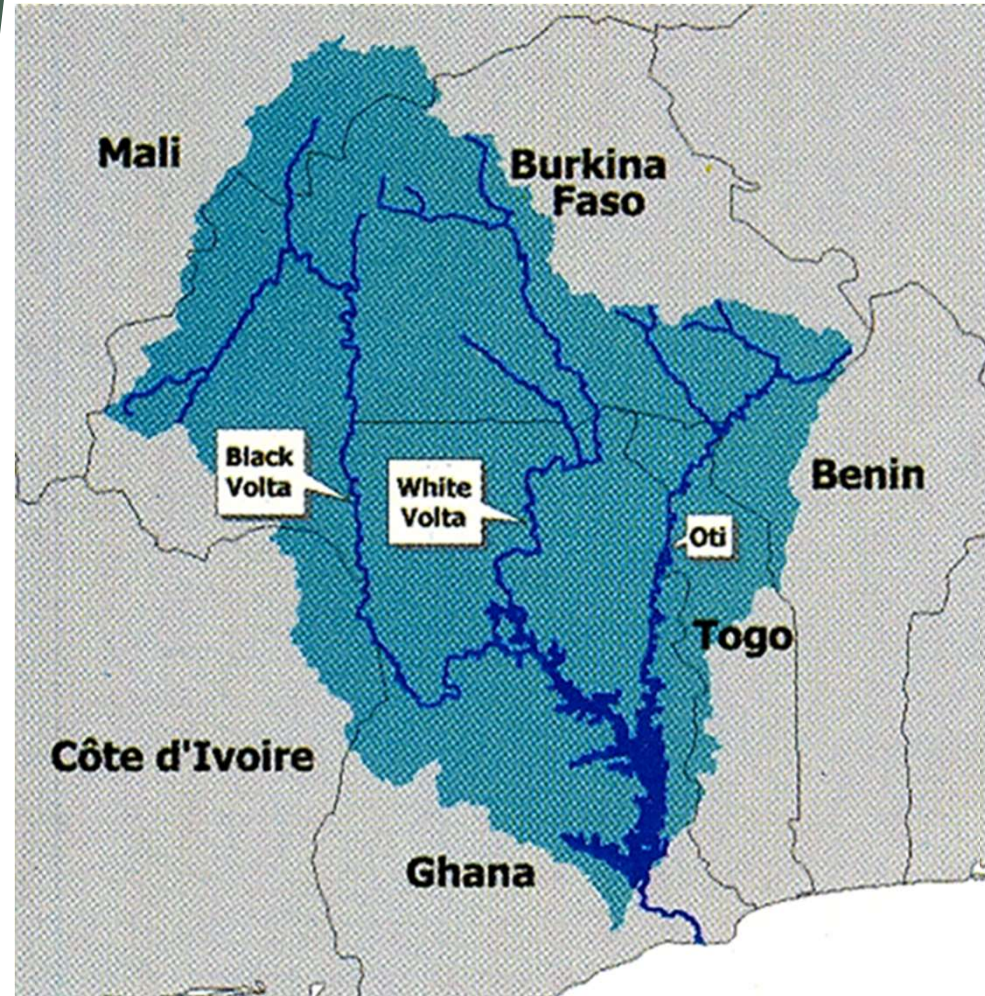
Examples for regional
collaboration on
flood forecasting in
the Volta Basin



Understanding Risk
West and Central Africa

Introduction

- ▶ **Volta Basin Authority**
- ▶ To promote permanente consultation tools for development among the parties of the basin
- ▶ Implementation of IWRM
- ▶ Develop joint projects
- ▶ **Volta Basin**
- ▶ Major river basin in West Africa
- ▶ 3 Sub-basins : Black Volta(Mouhoun), White Volta (Nakambe), Oti (ou Pendjari)



Challenges in coordinating transboundary flood forecasting

- ▶ **Transboundary Diagnostic Analysis of the Volta Basin, 2013**
- ▶ i. Changes in water quantity and seasonal flows;
- ▶ ii. Degradation of ecosystems;
 - ▶ Increased sedimentation of river courses
 - ▶ Loss of soil and vegetative cover
- ▶ iii. Insufficient development of the hydrometeorological monitoring network,
 - ▶ irregular maintenance of the hydrometeorological monitoring network,
 - ▶ plurality of gaps in the available data series

Challenges in coordinating transboundary flood forecasting

► Governance and Institutional Issues

- Continuing unilateral development of water resources by the Member States ;
- Clear definition of the roles and responsibilities of stakeholders involved in HydroMet services and early warning
- Clear definition of roles and responsibilities of stakeholders involved in flood risk assessment monitoring response
- Coordination and authority among relevant agencies including water authorities , disaster management agencies, local hydromet services and early warning
- Invisibility of VBA in Member States;
- Coordination and authority among relevant agencies including water authorities, disaster management agencies, local government for flood risk management (risk assessment , monitoring response,...)
- iii. Inadequate technical and financial resources

Example: Volta River Observatory

Water Ressource Information System WRIS Volta

CARTE 13: SYNTHÈSE DES RÉSEAUX NATIONAUX DE SUIVI DE LA QUALITÉ DES EAUX

CARTE 12: UNITÉS HYDROGÉOLOGIQUES PRINCIPALES ET RÉSEAU DE SUIVI DES EAUX SOUTERRAINES,

CARTE 11: EVOLUTION DE LA PLUVIOMETRIE MOYENNE ANNUELLE (1960-2000)

CARTE 07: LOCALISATION DES PRINCIPALES RETENUES D'EAU

CARTE 06: LOCALISATION DES STATIONS CLIMATOLOGIQUES ET HYDROMÉTRIQUES VOLTA HYCOS

CARTE 05: DISTRIBUTION ET TYPOLOGIE DES STATIONS HYDROMÉTRIQUES VOLTA HYCOS

CARTE 07: LOCALISATION DES PRINCIPALES RETENUES D'EAU

CARTE 05: DISTRIBUTION ET TYPOLOGIE DES STATIONS HYDROMÉTRIQUES VOLTA HYCOS

Example: Oti River

- ▶ **Objective: Test the flood forecasting in a collaborative and trans-boundary manner between Ghana and Togo.**
- Investigate the scale and severity of flood hazards in the basin,
- Assess the exposure to floods,
- Discuss potential structural and non-structural flood protection measures,
- Develop and test an operational Flood Early Warning System.
- Build capacity and discuss flood protection measures,

Example: Oti River Operationalization

ANALYSIS OF HISTORIC HYDRO-METEOROLOGICAL DATA, FIELD SURVEYS, SATELLITE INFORMATION (RAINFALL);

HYDROLOGICAL-HYDRAULIC MODEL (1D2D) DEVELOPED BASED ON SOBEK,

FLOOD-FORECASTING PLATFORM WAS DEVELOPED USING DELFT FEWS.

WATER LEVELS FOR DIFFERENT LOCATIONS IN THE BASIN,

COMMUNITY OF PRACTICE OF EXPERTS DOING FORECASTING IN THE RIVER

EXCHANGE OF DATA AND INFORMATION

INSTITUTIONNEL ARRANGEMENTS WITH RESPONSIBILITY AT NATIONAL LEVEL AND BACK UP AT REGIONAL LEVEL VBA

COMMON PROTOCOL FOR THE PRACTICAL FLOOD FORECASTING PROCEDURES



Capacity building (Kobe University, Kyoto University)

Example: Volta Flood and Drought Mgt. Project

Component 1 Risk prevention

- Risk maps
- Climate scenarios
- Ecosystem services
- Long-term risk management strategy

Component 2 Concrete adaptation and stakeholder engagement

- Early Warning System
- Pilot sites
- Nature-based solutions
- Gender mainstreaming

Component 3 Governance

- Strengthening resilience
- Capacity building of policy-makers
- Local collaboration

Experience and challenges

Approaches to implementing and reviewing the 2030 Agenda and encourage further reflection, learning and debate on shared challenges;

Strengthen synergy between policy initiatives at regional level (Regional Strategy for flood management, ECOWAS) and riparian country initiatives;

Strengthen harmonized policy data sharing, roles and responsibilities for flood forecasting;

Strengthen synergies between initiatives and projects in the basin

- Volta Flood and Drought Management Project (VFDM)
- Adaptation Funds
- REWarD-Volta-River PROJET
- Partners for Review (P4R)