Volta Flood and Drought Management

ADAPTATION FUND

Project: "Integrating flood and drought management and early warning for climate change adaptation in the Volta Basin"

(VFDM Project)

LOCAL WORKSHOP ON TOOLS, STRATEGIES AND OTHER ARRANGEMENTS FOR THE INTEGRATED MANAGEMENT OF FLOOD AND DROUGHT RISK TO STRENGTHENING RESILIENCE IN THE VOLTA BASIN

17 and 18 April 2024, Villa Cisneros Resort, Sogakope in the Volta Region, Akosombo Dam Downstream Area, Ghana

Deliverable 3A : Workshop Report

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WORLD METEOROLOGICAL ORGANIZATION

AUTORITE DU BASSIN DE LA VOLTA — VBA — VOLTA BASIN AUTHORITY

Global Water Partnership West Africa

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Volta Flood and Drought Management

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Acronyms and abbreviations

AAP	Annual Action Plan
ADDRO	Anglican Diocesan Development and Relief Organization
AF	Adaptation Fund
AU	African Union
CCA	Climate Change Adaptation
CRS	Catholic Relief Services
CSIR	Council for Scientific and Industrial Research
DA	District Assembly
DCE	District Chief Executive
DDMC	District Disaster Management Committee
DMTDP	District Medium Term Development Plan
DRM	Disaster Risk Management
DRR	Disaster Risk Reduction
DVG	District Volunteer Groups
EPA	Environmental Protection Agency
EPP	Emergency Preparedness Plan
EWS	Early Warning System
FAO	Food and Agriculture Organization
GES	Ghana Education Service
GHS	Ghana Health Service
GIZ	German Development Cooperation
GMet	Ghana Meteorological Agency
GWP-WA	Global Water Partnership in West Africa
HYDRO	Ghana Hydrological Authority
IMFDR	Integrated Management of Flood and Drought Risks
ISD	Information Service Department
IUCN	International Union for Conservation of Nature
LUSPA	Land Use and Spatial Planning Authority

MMDAs	Metropolitan Municipal and District Assemblies
MOFA	Ministry of Food and Agriculture
NADMO	National Disaster Management Organization
NCCE	National Commission on Civic Education
SARI	Savannah Agriculture Research Institute
UDS	University for Development Studies
UNHCR	United Nations High Commissioner for Refugees
UNICEF	United Nations International Children's Fund
USAID	United States Agency for International Development
VBA	Volta Basin Authority
VFDM	Volta Flood and Drought Management
VRA	Volta River Authority
WMO	World Meteorological Organization
WRC	Water Resources Commission

1. Introduction

A consortium of the World Meteorological Organization (WMO), Volta Basin Authority (VBA) and the Global Water Partnership - West Africa (GWP-WA), together with relevant national structures of the VBA Member States are implementing the Volta Flood and Drought Management (VFDM) project entitled “Integrating flood and drought management and early warning for climate change adaptation in the Volta Basin" from June 2019 to June 2024. The VFDM project, which is financed by the Adaptation Fund (AF), prioritizes the strengthening of the capacities of hydrometeorological service providers and disaster management organizations of the member states. In line with a series of activities to close the project, a National Consultant and investigators were recruited to conduct the “Mission to strengthen the political, institutional and organizational capacities for integrated management of flood and drought risks in the Volta basin” in Ghana.

This mission aims to (i) document experiences of local communities about the long-term flood and drought management strategies in the national portion of the VB; (ii) collect feedback from stakeholders for improvements on documented experiences of communities related to EWS including the VoltAlarm EWS, strategies for integrated management of flood and drought risks (IMFDR), disaster risk reduction (DRR) and climate change adaptation (CCA) arrangements, and; (iii) document best practices and opportunities for improving integrated flood and drought risk management and CCA measures in the VB.

To this end, the consulting team carried out field engagements in selected communities in six (6) districts downstream of the Akosombo Dam. The engagement was informed by literature and documentary reviews on floods and drought, considering policies, strategies, and plans in Ghana and the Volta Basin. This workshop introduced stakeholders to the mission deliverables, using tools and strategies on DRR and CCA arrangements for in-depth assessment.

2. Social management of the workshop

The workshop was marked by the opening ceremony that included welcome statements by the Ghana Country Water Partnership and Water Resources Commission. The Keynote Address was delivered by the District Coordinating Director, on behalf of the District Chief Executive.

2.1 Opening ceremony

Mr. Ben Y. B. AMPOMAH, Chairman of the Country Water Partnership – Ghana chaired the opening ceremony of the workshop. Mr. James AGGREY delivered the welcome speech on behalf

of Dr. Bob ALFA, the Ag. Executive Secretary of Water Resources Commission (WRC). He underscored the importance of the VFDM project, recognizing the devastating impacts of floods and drought on the livelihoods of communities. He called on participants to share their experiences regarding floods and droughts as they witness them year after year in their environs. This would provide added information necessary for targeted interventions toward minimizing the impacts of floods and drought.

Figure 1 Opening Ceremony during the Local Workshop at Sogakope, Akosombo Dam Downstream Area

The South Tongu District Coordinating Director, Mr. Setsoafia KPENU, delivered the keynote address on behalf of the District Chief Executive. He expressed interest in the project, given the impacts of floods and drought that plague the citizenry in communities and cities in Ghana. He noted that the floods in the downstream area of the Akosombo Dam, experienced in October through December 2023 were triggered by the spillage of the Akosombo Dam. He touched on the structural and non-structural measures that have been put in place by several governments and communities to address the issues of floods and drought. He said it was critical to incorporate the lessons learned from past disasters, using approaches for mitigating the impacts through collaboration and coordination to ensure the safety of the citizenry in anticipation of future hazards. He charged all participants to be active throughout the sessions towards a successful workshop. He then declared the two-day workshop on «Tools, Strategies and Other Arrangements for the Integrated Management of Floods and Drought Risks to Strengthen Resilience in the Volta Basin» duly opened.

Also present at the opening was the National Consulting team, led by Dr. Emmanuel Obeng BEKOE.

2.2 Presidium of the workshop

The workshop was chaired by Mr. Ben AMPOMAH and the rapporteurs were Messrs. Maxwell BOATENG-GYIMAH and James AGGREY.

2.3 Workshop participants

There were fifty-nine (59) participants at the workshop, drawn from the six districts and national agencies including the following:

- Ghana Meteorological Agency (National);
- Environmental Protection Agency (National);
- District Assemblies (Chief Executive, Coordinating Director, and Planning);
- Districts Departments of Agriculture (crop and livestock);
- National Disaster Management Organization in the Districts;
- Forest Services Division at Asuogyaman and Ada East Districts;
- Field Investigators from Disaster Management Offices and District Assembly Planning Unit who supported the administration of the survey instruments in selected communities;
- Civil Society Organizations within the Akosombo downstream area;
- Communities, represented by the assemblymen, women, and the youth.

The organizers were the WRC, Ghana Country Water Partnership (CWP-Ghana), and the National Consulting Team and facilitators. See the attendance list in Appendix 1.

Figure 2 Group photo of the Local Workshop Participants at Akosombo Dam Downstream Area

2.4 Adoption of the Workshop Agenda

The chairman for the workshop took participants through the proposed agenda, which was adopted by all present. The adopted agenda was structured into sessions as presented below:

- Session 0: Welcome and introductory remarks including keynote address;
- Session 1: Overview of the risk profile, EWS – VoltAlarm, the regional strategy for the IMFDR as well as arrangements of DRR and CCA of the Volta basin;
- Session 2: Comment and make suggestions to emerging issues from community engagements within the context of flood and drought risk profile, the EWS – VoltAlarm, the regional strategy for IMFDR as well as other DRR and CCA arrangements of the Volta Basin;
- Session 3: Actions to strengthen implementation of the regional strategy for IMFDR, deployment of EWS - VoltAlarm and other long-term DRR and CCA arrangements at the community level;
- Session 4: Best practices and opportunities for improving the IMFDR as well as CCA measures in the national part of the Volta basin in Ghana;
- Session 5: Ways to disseminate best practices identified and responsibilities of stakeholders across scales documented.

Mr. Maxwell BOATENG-GYIMAH spoke on the logistical arrangements of the workshop.

2.5 Communication language

Communication at the workshop was in English.

3. Progress of work and summary of discussions

The progress of activities for the successful conduct of the workshop is presented in this section.

3.1 Reminder of objectives and results

Participants were reminded of the workshop objectives through a presentation by the lead of the national consulting team, Dr. Emmanuel Obeng BEKOE. He stated that there were three project sites in Ghana with two (2) located in the Upper East Region of the White Volta Basin and the other, in the downstream area of Akosombo and Kpong dams in the Lower Volta Basin.

The expectation from the meeting was that participants' knowledge of drought and flood is built, comments and suggestions for improvement are received based on community experience and the process of disseminating flood and drought information to all stakeholders is identified and improved.

3.2 Methodological approach

The methodological approach involved preparation, implementation, and reporting.

The preparatory stage concerned the mobilization of participants and logistical arrangements for the workshop. The implementation stage included the development of materials for sessional presentation, discussion, and group works for plenary feedback. The local workshop was facilitated by the National Consulting team in collaboration with the Country Water Partnership-Ghana and the Water Resources Commission (Coordinator of the National Focal Structure (NFS) of VBA in Ghana). The facilitation techniques used at the workshop included brainstorming, experience sharing, presentations of group works, and discussion at plenary and allowed for active participation.

3.3 Implementation of Workshop Sessions

The facilitators took turns in the respective sessions on the workshop agenda as presented below:

Session 1: Overview of the risk profile, the VoltAlarm EWS, the regional strategy for the reduction and the IMFDR as well as other DRR and CCA arrangements of the Volta Basin

This session was marked by a series of presentations including:

- the flood risk profile of the Volta Basin;
- Early warning systems particularly the VoltAlarm and their benefits for both floods and drought impact mitigation.
- the Regional Strategy Document for Integrated Management of Floods and Drought in the Volta Basin; and
- other DRR and CCA arrangements in the Volta Basin

- ***Flood Risk Profile of the Volta Basin***

In his presentation, Mr. BOATENG-GYIMAH explained the risk profile of multi-hazards in the Volta Basin, particularly floods and drought. As a result, socioeconomic developments have been derailed, impacting lives and property. The available data on the impacts of floods and drought in the Volta Basin were highlighted, affecting infrastructure and critical facilities including roads, water schemes, farmlands, livestock, and the environment. It was noted further that about 50% of the destruction caused by floods in the Volta Basin occurs in Ghana. Some flood risk maps for the Volta Basin were presented, indicating areas likely to be impacted.

With the projected increase in temperature and corresponding rainfall by 2050 and 2080, the occurrence of floods and drought is likely to increase for which early warning is key to ameliorate the impacts.

Some comments and questions posed for clarification by participants included the following:

- Why is Ghana the most affected in the Volta Basin?

  Answer: Ghana has the second largest land area within the VB but the most populated (over 34,682,371 million people; 2024 Ghana population census) within the basin as well. With it being the most downstream country, it is natural that it is affected most within the VB.

- How does the earmarking of Ramsar sites for development help the cause of DRR and CCA in Ghana?

  Answer: The Ramsar designation makes it possible to promote certain aspects of the territory: economic: international recognition, attractiveness, sustainable economic development, social economic development: maintenance of the quality of life, notoriety, and ownership by the inhabitants. Designating them as such helps to promote the natural ecosystem, retaining water which otherwise might cause flooding. Retaining water helps with disasters that might be associated with flooding and also improves drought resilience.

- ***The Early Warning System – VoltAlarm***

Mr. Samuel Owusu ANSAH from the Ghana Meteorological Agency (GMet) gave a presentation on the VOLTALARM, a system developed as part of the VFDM project for impact-based forecasting for the Volta Basin. According to Mr. ANSAH, the system assesses the risk of the hazard and potential impacts, taking into account the exposure, vulnerability and coping capacity of livelihood systems. He presented the relevance of an early warning system (EWS) including;

- preparedness actions;
- deployment of emergency response in good time;
- improvement in control operations; and the
- minimization of losses and property damage.

As a result, bulletins of flood and drought are produced, using colour codes to indicate the level of severity of the impact. This information informs the decision-making of individuals and the community.

A participant wanted to know if the VoltAlarm was in operation.

Answer: No. As of the workshop date, VoltAlarm was not known to participants except the GMet, NADMO, and WRC staff who are piloting the VoltAlarm for demonstration and possible uptake by all.

- ***Regional Strategy on Integrated Management of Flood and Drought Risks***

Mr. BOATENG-GYIMAH presented the key areas of the Regional Strategy document on Integrated Management of Flood and Drought Risks (IMFDR) in the Volta Basin. He observed the vision statement of the strategy document, the objective, and the four (4) strategic focus areas. With each strategic focus area are tasks and associated key action points defined for implementation. The document is to help improve a common understanding of floods and drought at the basin scale, strengthen governance and institutions for integrated management of drought and flood risks in the basin, and develop flood and drought risk reduction measures and integration at the basin scale in a transboundary manner.

Some comments/questions that were duly answered are as follows:

- How can a bottom-up approach help in mitigating the impacts of floods and drought?
  Answer: The coping strategies of communities to the impacts of floods and drought equally help to inform policy and strategy formulation across scales.
- How can we get the regional strategy into the national discussion?
  Answer: The regional strategy on floods and drought risks in the Volta Basin will be duly validated by the riparian countries of the VBA to inform country processes on DRR and CCA.
- Which local knowledge can be integrated into the regional strategy document?
  Answer: Indigenous knowledge of DRR and CCA varies from location to location. It is important to bring to the fore what works in your domain, and consequently take them into account in the planning and implementation of interventions to enhance the gains.
- How do we incorporate the regional strategies into district plans?
  Answer: This can be done through the adaption or adoption of the strategic focus areas and associated key points/tasks.
- What are the indicators and monitoring mechanisms?
  Answer: The indicators and monitoring mechanisms are relevant for implementation. They are tools to be developed to guide activities implementation.

- ***DRR, CCA and Other Arrangements of Floods and Drought in the Volta Basin***

Dr. Portia Adade WILLIAMS gave an overview of the documentary and literature review of policy, strategy, and plans related to floods and drought in the Volta Basin. She observed that Ghana was party to various international frameworks including the SDGs, Sendai Framework, Paris Climate Agreement, and the AU Agenda 2063. In Ghana, several documents on flood and drought related-disasters were reviewed while taking note of the identified gaps as follows:

- Inadequate funding;
- ineffective collaboration and coordination,
- outdated policy frameworks; and the
- increasing challenges in flood and drought management.

She noted that stakeholder capacity and funding, incentives and subsidies, regulatory framework, and research and development support were key components in the implementation of existing frameworks in Ghana and the Volta Basin.

Some comments/questions of participants include;

- How does information get to the vulnerable in communities?

  Answer: This question was one of the reasons for this workshop. The consultants and partners are interested in and would like to understand how information on early warning or alert messages is transmitted to and in your communities.
- How sustainable are the plans we produce – channeling flood waters

  Answer: Plan preparation goes through a cycle in Ghana. It evolves by adding on tasks year after year, especially when the task has been implemented. Thus a plan is deemed to be sustainable if it captures the essence of issues including channeling of flood waters for budgetary allocation, and the disbursement for implementation.

Session 2: Comment and suggestions on emerging issues from community engagements considering the experiences of communities to the flood and drought risk profile, EWS-VoltAlarm, the regional strategy for IMFDR as well as DRR and CCA arrangements in the Volta basin

The lead consultant, Dr. Emmanuel Obeng BEKOE presented the findings of the field engagement at the community level involving the demographics of the two hundred and forty-four (244) respondents drawn from the six districts located below the Akosombo Dam comprised of males (56%) and females (44%).

The findings bothered on the following thematic areas:

- livelihoods and related strategies –
  - agriculture sector (50%), civil or public service (6%), the private sector (34%), and the unemployed (10%);
  - other income-generating activities of respondents – Yes (22%) and No (78%);
  - mode of transport to and from communities of which motorbike (50%); canoe (25%); vehicles (24%); walking (1%);
  - house-made material – largely mud except in the South Tongu and North Tongu districts where cement makes up about 60% and 50%, respectively;
- personal experiences with floods and drought;
  - floods - Yes (99%) and No (1%)
    - with attending impacts on housing, farms and occupational lands, and road infrastructure;
  - drought – Yes (65%) and No (35%)
    - with attending impacts of crop failure, and high cost of food by the end of the cropping period
- knowledge of CCA and communication of early warning

The presentation afforded participants knowledge of the individual responses as they pertain to their respective jurisdictions while taking note of the points of convergence, divergence, and the associated gaps.

To bridge the gaps, group works were conducted on a district basis as the consultants took turns in the groups to clarify emerging issues.

The responses to the set of questions considered during the group work have been harmonized and presented in Table 1.

Table 1 Knowledge of existing Early Warning Systems on Floods and Drought, and associated plans and services in the Akosombo Dam downstream area

Question	Response
Qu1. Are you aware of any regional, national, and local planning for integrated flood and drought risk management strategies including EWS VoltAlarm and other guidance documents on DRR and CCA? If yes, list them.	Yes Volta River Authority Emergency Preparedness Plan

Qu2. What are some of the mechanisms with EWS in your districts (alert management, alert channels, response)?	- Information center/vans - Emergency meetings to discuss warning/alert message - Radio broadcast - Phone calls - Feedback from assembly members - Community engagement
Q3. How functional and effective are the EWS/alert?	- The EWS/alert is functional but the effectiveness varies from district to district. Whereas Asuogyaman district (dam location) described the system as effective, Ada East described it as ineffective
Qu4. What are some of the weaknesses/difficulties with EWS/alerts in your district?	- Inadequate funds - Unreliability of alert/warning at community level - Inadequate logistical support - Insufficient awareness creation - Inadequate community engagement
Qu5. What are the other types of interventions for flood and drought management in your district in the reduction and management of flood and drought risks?	<u>Pre-disaster</u> - Dredging of river channel - Simulation exercises of EWS - Sensitization/public education in early warning - Creation of safe havens - Creation of volunteer groups <u>Post-disaster</u> - Conduct assessment of affected areas - Evacuation of disaster victims to safe havens - Relief items management - Implement recovery interventions - Continuously monitor the progress of populations
Qu6. Which local authorities coordinate these other flood and drought management interventions and what are their responsibilities? (E.g. The State, Community practices, NGOs, Associations, Foundations)?	- National Disaster Management Organization (NADMO) - Volta River Authority (VRA) - Ambulance Service - The Police Service - The Army - Non-Governmental Organizations (E.g. Send Ghana, etc.)
Qu7. What are some of the weaknesses/difficulties with the other flood and drought management interventions in your district?	- Inadequate funds - Unreliability of alert/warning at community level - Inadequate logistical support - Insufficient awareness creation - Inadequate community engagement
Q8. What are some of the strengths and opportunities with the other flood and drought management interventions in your district?	<u>Strengths</u>

	- Availability of human resources (e.g. District Disaster Management Committees etc.) - Periodic stakeholder engagement <u>Opportunity</u> - Harvesting of flood waters for productive uses - Avenues for employment during the reconstruction phase - Identify gaps in disaster preparedness and response - Improve construction methods and material use

Session 3: Actions to strengthen implementation of the regional strategy for IMFDR, deployment of EWS - VoltAlarm and other long-term DRR and CCA arrangements at the community level in the national part of the Volta basin in Ghana

Following the first group work on the gaps identified in their responses on EWS/alert, another group work to propose actions to strengthen the implementation of the regional strategy on IMFDR was conducted. A summary of the groups' responses to some questions is provided in Table 2.

Table 2 Suggested actions/strategies for improving implementation of the Regional Strategy for Integrated Management of Floods and Drought in the Volta Basin

Question	Response
What are some suggestions for better EWS Implementation?	- Improve resource allocation and disbursement to NADMO - Undertake dredging in the lower reaches of the river channel - Promote inter-agency collaboration - Intensify awareness creation
What are some suggestions for improving the implementation of other flood and drought management interventions?	- Provide logistics and financial support - Increase funding for NCCE and Information Service Department - Establishment of EWS at the local level (district Assembly) - Build the capacity of technical staff at the local level (including DAs)
How can EWS be sustained in your district?	- Undertake timely monitoring - Release funds promptly - Provide incentives for EWS actors - Retool equipment of the relevant institutions - Install bill boards displaying flood and drought warning symbols

How can the other flood and drought management interventions be sustained in your district?	- <u>Drought</u>
	  o Construct boreholes for irrigation purposes
	  o Resource NADMO
	  o Build partnerships with local NGOs, The Media and CSOs

Session 4: Best practices and opportunities for improving the IMFDR as well as CCA measures in the national part of the Volta basin in Ghana;

Dr. Portia A. WILLIAMS led participants in a plenary session to elicit best practices and opportunities for floods and drought management in the Lower Volta basin. The best practices are reflected in the daily experiences, particularly the wet and dry seasons and the signals leading to them, commonly referred to as indigenous knowledge. The opportunities are the avenues by which communities would be better prepared to withstand the impacts of floods and drought on their livelihoods. The exercise was undertaken within the context of the four dimensions of disaster risk reduction, notably (i) disaster prevention and mitigation; (ii) disaster preparedness; (iii) disaster response; and (iv) disaster rehabilitation and recovery, as summarized in Table 3.

Table 3 Best practices and opportunities for improving Integrated Management of Floods and Drought in the Volta Basin

Best practices and opportunities for improving IMFDR and CCA measures in the national part of the Volta basin in Ghana are highlighted.	
Focus Area	**Best practice and opportunity**
Disaster prevention and mitigation	• Undertake education and sensitization • Provide early warning • Undertake regular simulation exercises • Regularly undertake monitoring and evaluation of DRR schemes
Disaster preparedness	• Provide early warning systems • Establish evacuation plans and identification of safe havens • Undertake regular simulation exercise • Procure logistics and communication instruments • Map out your Risk profile for DRR activities • Provide education and sensitization • Formulate and enhance the capacity of emergency operation centers • Undertake regular dredging
Disaster response	• Assess the extent of disaster • Activate emergency operation programme • Evacuate vulnerable groups to safe havens • Construct disaster shelters • Distribute relief items
	• Undertake cleaning up and removing debris • Resettle and construct temporal structures • Repair and restoration of infrastructure • Find alternative livelihood support activities (specific to the economic comparative advantage venture)

Disaster rehabilitation and recovery	• Undertake recovery support programmes • Establish and find emergency support funds • Undertake education and sensitization

Session 5: Ways to disseminate best practices identified and responsibilities of stakeholders across scales documented.

Dr. Portia A. WILLIAMS, at a plenary session, led participants to identify actions to improve the means of disseminating information on best practices of early warning in the communities, as well as assigning roles to the relevant agencies. The identified actions are presented in Table 4.

Table 4 Ways of improving dissemination of best practices and stakeholder responsibilities in the Volta Basin in Ghana

Ways of disseminating best practices	
• Compose jingles • Show disaster movies at Cinemas and stage plays to visualize DRR effects • Announcements and education at religious gatherings • Disseminate information using the NCCE and information services department • Distribution of leaflets, banners • Use digital platforms (social media, telco, voice mail) to project DRR news	
Institution	**Perceived Role in Flood and Drought Management**
Government Ministries, Agencies, and Departments	
NADMO	Coordinates disaster response and management; provides relief and rehabilitation services.
District Assembly	Local governance and infrastructure development; facilitates community-based disaster risk reduction.
District Department of Agriculture	Implements agricultural policies and practices to mitigate impacts on farming; promotes drought-resistant crops.
Forestry Commission	Manages forest resources; implements reforestation programs to prevent soil erosion and flooding.
Environmental Protection Agency (EPA)	Regulates and monitors environmental activities; ensures compliance with environmental standards.
Water Resources Commission	Manages and regulates water resources; ensures sustainable water supply.
Security Service – Fire, Police, Army, Ambulance	Provide security and emergency response services; assist in evacuations and rescue operations.
Ghana Education Service	Ensures education continuity during disasters; integrates disaster risk reduction into school curricula.
Ghana Health Service	Ensures public health during and after disasters; provides medical assistance and disease control.
NCCE	Educates and engages communities on civic responsibilities and disaster preparedness.
Information Service Department	Disseminates information and awareness campaigns on disaster preparedness and response.

Research/Academia	
University of Ghana	Conducts research on climate change impacts and disaster management strategies.
CSIR (WRI and SARI)	Engages in water resource and agricultural research to develop resilience strategies.
KNUST	Provides research and expertise in engineering solutions for flood and drought management.
CK Tedam University of Technology and Applied Sciences	Focuses on applied research and technological innovations for disaster resilience.
UDS	Conducts community-based research on sustainable development and disaster management.
Development Partners	
World Bank	Provides financial and technical support for infrastructure and disaster resilience projects.
World Food Program	Offers food aid and support for food security during and after disasters.
UNICEF	Focuses on child protection and welfare; provides emergency relief and support for affected children.
World Health Organization	Provides health-related disaster response and disease control support.
FAO	Supports agricultural resilience and food security initiatives.
IUCN	Engages in conservation and sustainable land use practices to mitigate flood and drought impacts.
USAID	Offers financial and technical support for disaster management and resilience programs.
UNHCR	Provides support and protection for refugees and displaced persons during disasters.
GIZ	Implements development projects focused on disaster risk reduction and sustainable resource management.
NGOs/Civil Society Organizations (CSOs) / Faith-Based Organizations	
CRS – Catholic Relief Service	Provides humanitarian aid and supports community resilience projects.
World Vision	Implements community development programs focused on disaster resilience and recovery.
Red Cross	Provides emergency response, first aid, and disaster relief services.
Global Communities	Supports sustainable community development and resilience building.
Action AID	Advocates for vulnerable communities; implements disaster risk reduction and resilience-building initiatives.
ADDRO – Anglican Diocesan Development and Relief Organization	Provides community-based health and agricultural services to enhance resilience.
FONAR – Forum for Natural Regeneration	Promotes natural regeneration and sustainable land management practices.
CARE International	Implements programs focused on disaster risk reduction and community resilience.
Widows and Orphans Movement	Provides support and advocacy for widows and orphans affected by disasters.
Gender and Vulnerable Groups	

Women	Actively participate in community decision-making and resilience-building activities.
Youth	Engage in community mobilization and support disaster risk reduction activities.
People with Disabilities	Need specific accommodations and support for effective disaster response and recovery.
Aged	Require targeted support and assistance during disasters due to increased vulnerability.
Children	Require protection and support during disasters; focus on education continuity.
Widows/Widowers	Need social and economic support during and after disasters.
Orphans	Require protection and support during disasters; focus on education and welfare.
Private Sector	
Transport Unions	Ensure transportation services during emergencies; assist in evacuations and delivery of relief supplies.
Farmer based organizations	Promote sustainable agricultural practices and resilience among farmers.
Mining Companies – Earl International, Cardinal Nandemi	Invest in infrastructure and support disaster resilience initiatives in mining communities Donate relief items to the communities during climate related disasters; Invest in infrastructure, technology, and services to support disaster management and resilience efforts.
Quarry – Upper Quarry, Mawums, Logistics, Nasara	Provide resources and support for infrastructure development and disaster resilience projects.
Zoomlion	Engages in waste management and sanitation services to prevent health crises during floods and droughts.
Traditional Authorities	
Chiefs	Lead local governance and community mobilization for disaster preparedness and response.
Queen mothers	Represent women in community decision-making; advocate for women's roles in resilience-building.
Tindanas (land owners)	Manage land resources and support sustainable land use practices.
Elders	Provide wisdom and leadership in community disaster management efforts.
Women leaders (Magagia)	Advocate for women's participation in disaster risk reduction and community resilience activities.
The Media	
National (TV3, GBC, UTV)	Disseminate information, early warnings, and educational programs on disaster preparedness and response.
Community Radios (A1 Radio, Dreams FM, Word FM, YEM Radio, Bongo Radio, Sunshine, Max Empire Radio)	Provide local information and updates on disaster-related issues and response

4. Closing of Workshop

In his closing remarks, Mr. AMPOMAH expressed his profound gratitude to the participants for the interest generated in the 2-day workshop. He was full of praise at the level of participation, given

the short notice. He prayed for continued support even as the project drew to a close, and hoped to engage further in future activities on floods and drought in the Volta Basin.

Figure 3 The High Table at the Closing Ceremony of the Local Workshop at Sogakope

The District Chief Executive of South Tongu District Assembly, Hon. Innocent Lynford K. Tetteh lauded the workshop organizers and partners for selecting the district to host the workshop. He remarked on the strong participation of stakeholders at the workshop. He noted that the experiences of life were moments of learning and encouraged participants to take their experience into account towards preparedness and preventive actions to minimize the risks of disasters. He was hopeful that the results obtained from the group work when incorporated into the local plans and implemented would improve floods and drought risk management in the Lower Volta area of the Volta Basin in Ghana, and declared closure of the workshop.

Appendices

Volta Flood and Drought Management

Appendix 1 List of workshop participants

No	Surname & Other Names	Contact	Designation	Institution / Community
1	TEYE-NARTEY Ebenezer	ebentnart@gmail.com/0249306916	Director	NADMO, Ada East District
2	AKLIE Gabriel Tetteh	0550556490	Assemblyman	Ada East District
3	APENKWAH Ernest	apenkwah899@gmail.com/0546838159	District Manager	Forestry Commission
4	WAYO Ransford	0249601454	Operations Officer/Investigator	NADMO, Ada East District
5	ABAGNA Prince	0267347862	Development Planning Officer	Ada East Disstrict Assembly
6	GADUGAH Arnold	0244156310	Assemblyman	Ada East Disstrict
7	GADUGAH K. Veronica	0245510362	Women Representative	Ada East District
8	ADJEI Richmond	0546120994	Human Resource Manager	Forestry Commission
9	THOMPSOM Shola Jnr.	0241908293	Youth Representative	Ada East District
10	SOSU David	0244456260	District Director	NADMO, Asuogyaman District
11	DUSI Jonas	0244698009	Youth Representative	Community, Asuogyaman District
12	DEBRAH Peter	debrahpeter@gmail.com/0545219876	Operations Officer/Investigator	NADMO, Asuogyaman District
13	BILALI Yakubu	yakububilal@yahoo.com/0200219759	Development Planning Officer	Asuoogyaman District Assembly
14	AGYARKWAH Ebenezer	ebenezeragyarkwa081@gmail.com	District Manager	Forestry Commission, Asuogyaman District
15	GYEKYE Isaac	saberike56@gmail.com/0243106424	Range Manager	Forestry Commission, Asuogyaman District
16	TAMAKLOE David	davidtamakloe@gmail.com/0240305552	Assemblyman	Asuogyaman District
17	DEDZI Mavis	0245353036	Women Representative	Asuogyaman District
18	AMEVOR Godwin	0245126118	Agric Officer	Asuogyaman District
19	AMOATEY Prince	0242809687	Development Planning Officer	Central Tongu District
20	AMUZU Bright Sedem	0200545749	District Director/Investigator	NADMO, Central Tongu District

21	ATSEM Francisca Dzidedi	0546635290	Women Representative	Central Tongu District
22	NYAMEDI Isaac Selorm	0245209923	Youth Representative	Central Tongu District
23	KUMASHIE Simon	055768898	Assembly Member	Central Tongu District
24	GOKA Emmanuel	0556309980	Agric. Officer	Department of Agriculture, Central Tongu District
25	FEKANORVI Delase	0552756937	Youth Representative	Contral Tongu District
26	TSATEY XORLALI	0246765254		Civil Society Organization, Central Tongu District
27	TORVIKE Patricia Lebene	0556765886	Women Representative	North Tongu District
28	NUNEKPEKU Jacob	0246543115	Development Planning Officer	North Tongu District
29	KUGAH Derick	0248015517	Youth Representative	North Tongu District
30	AHORSU Amos Borlor	0246204893	Assembly Member	North Tongu District
31	TODJO Mac-Anthony	0559744179	NADMO Officer	North Tongu District
32	BADASU David	0543364178	Agric Officcer	North Tongu District
33	DOH Dormenyo	0559560553	Assistant Development Planning Officer/Investigator	North Tongu District
34	ANIMLEY Israel	0557558148	Assemblyman	Tokpo community, Shai Osudoku District
35	AHORTOR Comfort	0256606138	Women Representative	Tokpo Camp, Shai Osudoku District
36	BOAPO Eric	0544867499	Youth Representative	NADMO, Shai Osudoku District
37	AMOADZAH T. Gideon	0547871669	Investigator	Djorkpo community, Shai Osudoku District
38	ACQUAH A. Dorothy	0244832224	Development Planning Officer	Shai Osudoku District Assembly
39	WORMENOR Elizabeth	0249335296	Agric Officer	Department of Agriculture, Shai Osudoku District
40	BOATENG Nana Asante	0244775724	District Director	NADMO, Shai Osudoku District
41	SEDEWODZI Evelyn	0245223302	Women Representative	South Tongu District

42	AKAKPO A. Shine	shineafi2013@gmail.com/0246747603	Agric Director	Department of Agriculture, South Tongu District
43	KUSITOR John Atsu	atsukusitor@gmail.com/0249417453	Investigator/ NADMO Operations	South Tongu District
44	VORYEHOR K. Christian	0242707597		
45	AVORNU Collins	collinsavornu99@gmail.com/0242121046	District Director	NADMO, South Tongu District
46	MOHAMMED Abu shiraz	abushirazm@gmail.com/0245706898	Development Planning Officer	South Tongu District
47	ADARKWAH A. Wendy	0202481586	Deputy Director	South Tongu District
48	DICKAH Edmond Fingero	0247163741	Assemblyman	South Tongu District
49	KPENU Setsoafia	0244884476	District Coordinating Director	South Tongu District
50	TETTEH Innocent Lynford K.	024 326 6937	District Chief Executive	South Tongu District
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56	WILLIAMS Portia Adade	adadeposh@gmail.com	Consultant	Consultant
57	AMPOMAH Ben Y. B.	byampomah@yahoo.com	Chair	CWP-Ghana
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59	LAMPTEY Mary	0243135630	Admin. Assistant	CWP-Ghana, Accra

Volta Flood and Drought Management

Appendix 2: Workshop Agenda and Concept Note

A.2.1 Workshop Agenda

Time	Activity	Methodology	Facilitator
Day 1			
08:30 – 09:00	**Registration of participants**		▪ CWP/WRC-WVBS
09:00 – 10:00	**Session 0: Welcome and introduction**		
	Opening ceremony ▪ Remarks from partners ▪ Keynote Speech		▪ WRC ▪ DCE – South Tongu
	▪ Introduction of participants	Participant self-introduction	▪ Participants ▪ CWP ▪ National Consultant
	▪ The workshop objectives ▪ The workshop agenda and adoption	Communication and exchanges	
	▪ The logistical aspects of the workshop		
	▪ Setting up the workshop presidium		
10:00 – 10:15	**COFFEE BREAK**		
Session 1: Overview of the risk profile, the VoltAlarm EWS, the regional strategy for the reduction and the IMFDR as well as other DRR and CCA arrangements of the Volta Basin			
10:15 – 11:30	**Session 1.1**: The Volta Basin risk profile	Communication Q&A	▪ National consultant ▪ WRC ▪ National consultant ▪ Participants
	Session 1.2: The VoltAlarm EWS in the Volta Basin	Communication Q&A	
	Session 1.3: The Regional strategy for the reduction and the IMFDR in the Volta basin	Communication Q&A	
	Session 1.4: Other DRR and CCA arrangements in the Volta Basin	Communication Q&A	
Session 2: Comment and suggestions for improvement, based on the experiences of communities, to the flood and drought risk profile, EWS – VoltAlarm, the regional strategy for IMFDR as well DRR and CCA arrangements in the Volta basin			
11:30 – 13:00	▪ First findings from the study	Communication and discussion	▪ National consultant
	▪ Instructions for the Group work 1	Group work 1	▪ Participants
13:00 – 14:00	**LUNCH BREAK**		
14:00 – 15:30	▪ Group work 1 (continuation) ▪ Reporting back of the results of group work 1	Communication and discussion Group work 1	▪ National consultant ▪ Participants
Session 3: Actions to strengthen implementation of the regional strategy for IMFDR, deployment of EWS - VoltAlarm and other long-term DRR and CCA arrangements at community level in the national part of the Volta basin in Ghana			
15:30 – 17:00	▪ First findings from the study	Communication and discussion	▪ National consultant

Time	Activity	Methodology	Facilitator
	▪ Instructions for the Group work 2 ▪ Group work 2 ▪ Reporting back of the results of group work 2	Group work 2	▪ Participants
17:00	**Coffee break and Closing of the 1st day**	Plenary	▪ National consultant ▪ Participants
Day 2			
Session 4: Best practices and opportunities for improving the IMFDR as well as CCA measures in the national part of the Volta basin in Ghana			
08:30 – 10:30	▪ First findings from the study ▪ Instructions for the Group work 3 ▪ Group work 3	Communication and discussion Group work 3	▪ National consultant ▪ Participants
10:30 – 10:45	**COFFEE BREAK**		
10:45 – 11:45	▪ Group work 3 (continuation) ▪ Reporting back of the results of group work 3	Group work 3	▪ Participants
Session 5: Ways of dissemination of the best practices and responsibilities of actors from the local level to the transboundary scale identified and documented			
11:45 – 13:30	▪ First findings from the study ▪ Instructions for the Group work 4 ▪ Group work 4 ▪ Reporting back of the results of group work 4	Communication and discussion Group work 4	▪ National consultant ▪ Participants
13:30 – 14:00	▪ **Wrap up of the workshop recommendations** ▪ **Closing ceremony**	Closing Remarks/ Speech	▪ National consultant ▪ WRC ▪ DCE
14:00	**LUNCH BREAK – DEPARTURE**		

Volta Flood and Drought Management

A.2.2 Concept Note

ADAPTATION FUND

Project: "Integrating flood and drought management and early warning for climate change adaptation in the Volta Basin"

(VFDM Project)

LOCAL WORKSHOP ON TOOLS, STRATEGIES AND OTHER ARRANGEMENTS FOR THE INTEGRATED MANAGEMENT OF FLOOD AND DROUGHT RISK TO STRENGTHENING RESILIENCE IN THE VOLTA BASIN

17th - 18th April 2024, Sogakope, Volta Region in the Akosombo Dam Downstream Area, Ghana

Implementation partners

April 2024

WORLD METEOROLOGICAL ORGANIZATION

Global Water Partnership West Africa

Introduction

A consortium of the World Meteorological Organization (WMO), Volta Basin Authority (VBA) and the Global Water Partnership in West Africa (GWP-WA), together with relevant national structures of the VBA Member States are implementing the Volta Flood and Drought Management (VFDM) project entitled "Integrating flood and drought management and early warning for climate change adaptation in the Volta Basin" from June 2019 to June 2024. The VFDM project, financed by the Adaptation Fund (AF), prioritizes the strengthening of the capacities of hydrometeorological service providers and disaster management organizations of the member states.

In line with a series of activities to close the project implementation process, a National Consultant and investigators were recruited to conduct the "***Mission to strengthen the political, institutional and organizational capacities for integrated management of flood and drought risks in the Volta basin***" in Ghana.

This mission aims to:

- Document experiences of local communities about the long-term flood and drought management strategies in the national portion of the VB;
- Collect feedback from stakeholders for improvements on documented experiences of communities related to EWS including the VoltAlarm EWS, strategies for integrated management of flood and drought risks (IMFDR), disaster risk reduction (DRR) and climate change adaptation (CCA) arrangements, and;
- Document best practices and opportunities for improving integrated flood and drought risk management and CCA measures in the VB.

To this end, the consulting team has carried out field engagements in selected communities in Bawku West District. The engagement was informed by literature and documentary review on floods and droughts, considering policies, strategies, and plans in Ghana and the Volta Basin. This workshop introduces stakeholders to the mission deliverables, using tools and strategies on DRR and CCA arrangements for in-depth assessment.

Objectives and expected results of the workshop

Workshop objectives

The objective of this workshop is to strengthen CC resilience through improved engagement and participation of stakeholders including communities and relevant technical services in the adoption and implementation of policies, strategies, plans and tools for long-term IMFDR decision support in the Volta basin.

The specific objectives of the workshop are as follows:

- discuss with participants the flood and drought risk profile, EWS – VoltAlarm, regional strategy for the reduction and IMFDR as well as other DRR and CCA arrangements in the Volta Basin;

- examine responses from communities' engagement within the context of flood and drought risk profile, the EWS – VoltAlarm, the regional strategy for IMFDR as well as other DRR and CCA arrangements of the Volta Basin;
- propose actions to strengthen the implementation of the regional strategy for reduction and IMFDR, the deployment of EWS - VoltAlarm and other long-term DRR and CCA arrangements in Ghana;
- deepen and complement best practices and opportunities for improving IMFDR as well as CCA measures in Ghana;
- discuss ways to disseminate best practices identified and documented with a focus on the roles and responsibilities of stakeholders from the community level to the transboundary scale for the overall improvement of IMFDR and CCA measures in Ghana as well as the Volta basin.

Expected results of the workshop

At the end of the local workshop, the following results are expected:

- Participants' knowledge of flood and drought risk profile, EWS – VoltAlarm, regional strategy for reduction and IMFDR, as well as DRR and CCA arrangements in the Volta Basin, are enhanced;
- Comments and suggestions for improvement, based on the experiences of communities, to the flood and drought risk profile, EWS – VoltAlarm, the regional strategy for IMFDR as well DRR and CCA arrangements in the basin are highlighted;
- Actions to strengthen the implementation of the regional strategy for IMFDR, the deployment of EWS - VoltAlarm and other long-term DRR and CCA arrangements in the national part of the Volta basin in Ghana are proposed;
- Best practices and opportunities for improving IMFDR and CCA measures in the national part of the Volta basin in Ghana are highlighted and validated;
- Ways to disseminate best practices, for the improvement of IMFDR and CCA measures in the national part of the Volta basin in Ghana, identified and documented while highlighting the roles and responsibilities of stakeholders across scale are proposed.

Workshop Methodology

The methodological approach involves preparation, implementation and reporting.

- **The preparatory stage** concerns the mobilization of participants and arrangements of logistics for the workshop.
- **The implementation stage** involves the development of materials for sessional communication, discussion and defining group work themes for plenary feedback.
- **The reporting stage** looks at the synthesis and analysis of all the products from the workshop on the one hand, and preparation of the workshop report, on the other hand.

Workshop facilitation

Local workshop content

The sessions of the 2-day workshop are structured as below:

- Session 0: Welcome and introductory remarks including keynote address;
- Session 1: Overview of the risk profile, EWS – VoltAlarm, the regional strategy for the IMFDR as well as arrangements of DRR and CCA of the Volta basin;
- Session 2: Emerging issues from communities' engagement within the context of flood and drought risk profile, the EWS – VoltAlarm, the regional strategy for IMFDR as well as other DRR and CCA arrangements of the Volta Basin;
- Session 3: Actions to strengthen implementation of the regional strategy for IMFDR, deployment of EWS - VoltAlarm and other long-term DRR and CCA arrangements at the community level;
- Session 4: Best practices and opportunities for improving the IMFDR as well as CCA measures in the national part of the Volta basin in Ghana;
- Session 5: Ways to disseminate best practices identified and responsibilities of stakeholders across scales documented.

Workshop participants

Participants are drawn from communities of districts (and regions) Asuogyaman (Eastern), Ada East and Shai Osudoku (Greater Accra), North Tongu, Central Tongu, and South Tongu (Volta) in the area downstream of the Akosombo Dam. It includes representatives of decentralized administration and allied technical structures such as the Department of Agriculture, Forestry and National Disaster Management Organisation (NADMO). The technical and financial partners will join the opening and closing sessions of the workshop.

Table 5 List of Institutions and Participation

No.	Stakeholders	# of Participants
A	**NATIONAL LEVEL**	**3**
1	Environmental Protection Agency (EPA)	1
2	Ghana Hydrological Authority	1
3	Ghana Meteorological Agency	1
B	**DISTRICT LEVEL**	**28**
4	District Chief Executive – South Tongu Districts	1

5	District Coordinating Director – South Tongu District	1
6	Asuogyaman District Development Planning Officer	1
7	North Tongu District Development Planning Officer	1
8	South Tongu District Development Planning Officer	1
9	Central Tongu District Development Planning Officer	1
10	Ada East District Development Planning Officer	1
11	Shai Osudoku District Development Planning Officer	1
12	Asuogyaman District Department of Agriculture (crops)	1
13	South Tongu District Department of Agriculture (livestock)	1
14	North Tongu District Department of Agriculture (livestock)	1
15	Central Tongu District Department of Agriculture (livestock)	1
16	Shai Osudoku District Department of Agriculture (crops)	1
17	Ada East District services of Agriculture (crops)	1
18	Forest Services Division - Ada Forest Area	1
19	Forest Services Division – Asuogyaman	1
20	NADMO - Asuogyaman District	1
21	NADMO - North Tongu District	1
22	NADMO - South Tongu District	1
23	NADMO - Central Tongu District	1
24	NADMO - Ada East District	1
25	NADMO - Shai Osudoku District	1
26	Investigators	6
C	**CIVIL SOCIETY ORGANIZATIONS IN THE DISTRICTS**	**4**
27	NGOs involved in DRM / CCA Projects -1	1
28	NGOs involved in DRM / CCA Projects -2	1
29	Women and youth organizations -1	1
30	Women and youth organizations -2	1
D	**COMMUNITY LEVEL**	**18**
31	Asuogyaman Community (Assemblyman, Woman, Youth)	3
32	Ada East Community - (Assemblyman, Woman, Youth)	3
33	North Tongu Community - (3 - Assemblyman, Woman, Youth)	3

34	South Tongu Community - (3 - Assemblyman, Woman, Youth)	3
35	Central Tongu Community - (3 - Assemblyman, Woman, Youth)	3
36	Shai Osudoku Community - (3 - Assemblyman, Woman, Youth)	3
E	**TECHNICAL & FINANCIAL PARTNERS**	**3**
	Partner 1	1
	Partner 2	1
	Partner 3	1
	ORGANISERS	**7**
	CWP-Ghana Chair	1
	CWP-Ghana Executive Secretary	1
	CWP-Ghana Admin. Assistant	1
	Water Resources Commission – Accra	2
	Consultants	2

About fifty-six (56) participants are expected at the workshop.

Dates and venue of the local workshop

The workshop will be held at Sogakope, the capital of South Tongu District in the Volta Region of Ghana from 17th to 18th April 2024.

Volta Flood and Drought Management

Appendix 3: Results of Group Work

A.3.1 Group Work 1: Comments and suggestions for improvement on floods and drought based on experiences of communities

District					
Ada East	**Asuogyaman**	**Central Tongu**	**North Tongu**	**Shai Osudoku**	**South Tongu**
Are you aware of any regional, national, and local planning for integrated flood and drought risk management strategies including EWS VoltAlarm and other guidance documents on DRR and CCA? If yes, list them.					
Yes • VRA Emergency Management Plan – simulation exercise before flooding	Yes • Emergency preparedness plan (EPP) by Assembly • VRA • NADMO	• Community engagements • Announcements at funerals and at churches • Radio Announcements • School engagements through teachers	Yes • VRA Emergency Preparedness Plan (EPP) • Alert Management	Yes. • Annual Action plan • EWS for communities in the local dialect • District Disaster Response Action Plan	Yes. • National Development Policy Framework (Establish National Hydrology Authority to develop long-term solutions to flooding • Protection of inland and sea coastlines • VRA Flood Disaster Preparedness Plan • Disaster Management Preparedness Action Plan for south Tongu District Assembly
What are some of the mechanisms with EWS in your districts (alert management, alert channels, response)?					
• Meeting with Assembly members • Radio broadcast • Village Announcement Network and phone calls	• Alert management: VRA→ District Assembly→ NADMO→ Assembly Members→ Community. • Alert Channels: Information centers, public education by NADMO through radio,	• Assembly members • women groups • youth groups • opinion leaders	With an alert the following sequence is activated • VRA > DCE > NADMO > NADMO > DDMC > stakeholders > • Depending on severity of the emergency, response measures will be activated	• Information center • Having an emergency meeting after an alert	• Through VRA Early Warning System • Through Disaster Volunteer Groups • Through District Assembly members • Through Community Information Centers

	community engagement via church • Response: Feedback for Assembly members (via verbal communication)				
How functional and effective are the EWS/alerts?					
• Reduction in vulnerability in the district • Reduce panic and preparedness before events happen	• Very effective i.e. It has a functional channel so each level accounts.	• Not regular because of inadequate logistics	• Average	Not functional because of lack of funds	• VRA EWS is very effective • In terms of local system not all DVGs are effective • Also, the EWS at the District level Is functional and effective (NADMO etc.)
What are some of the weaknesses/difficulties with EWS/alerts in your district?					
• Financial and logistical • Non-compliance with the warnings issues	• Sometimes assembly members fail to disseminate information to community members due to power outages, accessibility	• Inadequate equipment • Inadequate logistics • Communities take information for granted • Community members are adamant to any relocation	• Inadequate awareness creation • Inadequate community engagement and involvement	• Lack of funds (inadequate) • Logistical support to key institutional stakeholders • Community don't take us serious	• Financial constraints • Logistical constraints • Lack of needed technology at local level • Attitudinal change towards EWS and disaster management strategies from the community members
What are the other types of interventions for flood and drought management in your district in the reduction and management of flood and drought risks?					
<u>Pre-disaster measures</u> • Community engagement • Sensitization <u>Post-disaster measures</u> • Relief items	<u>Pre-disaster measures</u> • Public education • creation of safe havens • establishment of disaster volunteer groups • establishment of disaster fire volunteers	<u>Pre-disaster measures</u> • Timely delivery of information • Provision of safe havens • Evacuation plans <u>Post-disaster measures</u>	<u>Pre-disaster measures</u> • Community Education and Sensitization on disaster • Simulation Exercises • Identification of Safe Havens <u>Post-disaster measures</u> • Distribution of Relief Items to victims	<u>Pre-disaster measures</u> • Sensitization • Dredging (not priorities) • EWS • Simulation ex. <u>Post-disaster measures</u> • Assessment	<u>Pre-disaster measures</u> • Regular/periodic sensitization • Functional DVGs • Extension service delivery to farmers on drought, flood through Agric extension officers <u>Post-disaster measures</u>

• Clearing of the environment and structural assessment	• community radio station <u>Post-disaster measures</u> • Relief management • Field assessment • Evacuation of victims to safe havens and shelter	• Evaluation of farms and properties destroyed • Provision of life-jackets • Livelihood support	• Provision of Health Services • Temporary Shelters/ Safe Havens • Water and sanitation Items e.g. Mobile Toilet, Polytanks	• Identifying the types of disaster • Distribution of relief items • Monitoring	• Making provision of relief items and reconstruction items to affected persons and communities • Scale-up education on water, health and sanitation related diseases related to flood disaster
Which local authorities coordinate these other flood and drought management interventions and what are their responsibilities? (E.g. The State, Community practices, NGOs, Associations, Foundations)?					
State through NADMO	• Ambulance • All relevant government and institutions e.g.: District police	• District Assembly	• NADMO • VRA • NGOs/CSOs • Social Groups e.g. religious organizations • Traditional Authority	• Members of the disaster management team • SEND Ghana (NGO)	• District Assembly Departments • Plan International Ghana (supply of relief items to their adopted communities • Churches • FM stations (education, soliciting support for flood victims, etc.
What are some of the weaknesses/difficulties with the other flood and drought management interventions in your district?					
• Policy deficiency • building in waterways	• Lack of logistics • Lack of financial support • Inaccessibility • Community loses trust in the state agency (NADMO) • Difficulty in moving some of the flood-prone communities	• Difficulties in gathering reliefs • Ineffective coordination of relief	• Inadequate Funds • Inadequate/Ineffective community and stakeholder engagement • Inadequate personnel / staff	• Lack of funds (inadequate) • Logistical support to key institutional stakeholders • Community don't take us serious	• Logistical constraints • Financial constraints • Lack of needed technology for management of flood /drought related disasters • Attitudinal change by community members towards EWS • Publicization of government policies

					• Limited capacity by DA staff on flood/drought strategies
What are some of the strengths and opportunities with the other flood and drought management interventions in your district?					
Strength • District Disaster Management Committees Opportunity	Strength • Opportunity • Excess water during flooding can be channeled and stored for proper use during the drought	Strength • It improves clear and easy movements on the river. This is due to the aquatic weeds being cleared on the river. Opportunities • There are new species of fishes in the area. • It improves soil fertility	Strengths • Availability of an EWS (VRA-EPP) and District Disaster Management Plan • Periodic Stakeholder Engagement Opportunities • Provision of Scholarships for affected Students • Employment Opportunities as a result of rebuilding efforts • Improved Construction Methods & material use • Opportunities to identify gaps in disaster response and address them	Strength • Strong human capital Opportunity	Strengths • Presence of Das departments for information dissemination • Availability of disaster management and preparedness action plan Opportunities • Availability of NGOs in the District • Media • Philanthropists • Churches

A.3.2 Group Work 2: Actions to strengthen implementation of the regional strategy for IMFDR, deployment of EWS - VoltAlarm and other long-term DRR and CCA arrangements at the community level in the national part of the Volta basin in Ghana

District					
Ada East	**Asuogyaman**	**Central Tongu**	**North Tongu**	**Shai Osudoku**	**South Tongu**
What are some suggestions for better EWS Implementation?					
• Dredging of tributaries • Inter-agency collaboration	• Intensify awareness creation • Provision of funds for the programme	• Information is to be well received ahead of schedule • It should be included in the school curriculum • Radio advertisement/ jingle	• Effective community engagement and education of flood risks • Effective monitoring of climate	• Resource NADMO • Resource District Volunteer Groups	• Creation of information centres flood prone communities • Frequent update on disaster pro communities on EWS
What are some suggestions for improving the implementation of other flood and drought management interventions?					
	• Government should resource the NCCE • Resource information service Department to pick up some of these issues			Logistic and Financial support	• Establishment of flood and drou EWS at the local level • Adequate provision of logistics institutions in charge of EV dissemination at the local level • Build capacity of technical staff at local level (DA) in flood and drou EWS
How can EWS be sustained in your district?					
• Provide adequate resources • Protection of Ramsar sites • Afforestation • Building of dams • Enforce bylaws	• Finance and resource • Motivation of various groups and stakeholders • Equipment maintenance and provision of state-of-the-art equipment for groups to work with	• To be included in school curricula • There should be workshops/ trainings	• Commitment to operate EWS • Increased public education • Streamline information flow	• Timely Monitoring • Timely Release of funds for the implementation of the convection	• Ensure deliberate strategies are place at the district level • Establishment of DVGs in flo prone communities • Installation of billboards display flood/drought warning
How can the other flood and drought management interventions be sustained in your district?					

-	• Maintenance culture of equipment	• It should be guided with a policy framework and heads charged with the mandate to lead • It should be documented and as well included in school programs • There should periodic workshops/ training programs	-	<u>DROUGHT</u> • Construction of dams, boreholes, and irrigation dug-out • Climate-smart agriculture	• Retooling NADMO Department a other Departments directly involve in flood/drought management • Build partnerships / collaborate wi local NGOs, Media, and CSOs. to support the dissemination of information related to flood/droug management

A.3.3 Group Work 3 – Plenary Session: Identify best practices concerning Early Warning Systems for Floods and Drought in the Akosombo Dam Downstream Area

What features characterize a safe haven and who identifies it?
Identified through the collaboration of VRA, NADMO, District Planner, and Community
What is the difference between the VRA plan and the community's action plan?
The VRA Disaster Preparedness plan is for Volta Lake and the local plans are specific to the assembly
Why is the message sent first to the DCE before it is disseminated?
The DCE has control of all resources. She/He is the head of security in the district

Best practices associated with the principal focus areas of the Sendai Framework

Priority Area	Best practice
Disaster prevention and mitigation	Education and sensitization
	Early warning
	Simulation exercise
	Monitoring and evaluation
Disaster preparedness	Early warning systems
	Evacuation plan and identification of safe havens
	Simulation exercise
	Procurement of logistics and communication instruments
	Risk profile
	Education and sensitization
	Formation and enhancing the capacity of emergency operation centers
	Dredging
Disaster response	Assessment or extent of disaster
	Activation of emergency operation
	Evacuation of vulnerable groups to safe havens
	Construction of disaster shelters
	Distribution of relief items
Disaster rehabilitation and recovery	Cleaning up and removing debris
	Resettlement and construction of temporal structures
	Repair and restoration of infrastructure
	Alternative livelihood support activities (specific to the economic comparative advantage venture)
	Recovery support programme
	Emergency support fund
	Education and sensitization

A.3.4 Group Work 4 – Plenary Session: Ways to disseminate best practices, for the improvement of IMFDR and CCA measures in the national part of the Volta basin in Ghana, identified and documented while highlighting the roles and responsibilities of stakeholders across scale are proposed

Ways of disseminating best practices	
• Compose jingles • Show disaster movies at Cinemas and stage plays to visualize DRR effects • Announcements and education at religious gatherings • Disseminate information using the NCCE and information services department • Distribution of leaflets, banners • Use digital platforms (social media, telco, voice mail) to project DRR news)	
Institution	**Perceived Role in Flood and Drought Management**
Government Ministries, Agencies, and Departments	
NADMO	Coordinates disaster response and management; provides relief and rehabilitation services.
District Assembly	Local governance and infrastructure development; facilitates community-based disaster risk reduction.
District Department of Agriculture	Implements agricultural policies and practices to mitigate impacts on farming; promotes drought-resistant crops.
Forestry Commission	Manages forest resources; implements reforestation programs to prevent soil erosion and flooding.
EPA	Regulates and monitors environmental activities; ensures compliance with environmental standards.
Water Resources Commission	Manages and regulates water resources; ensures sustainable water supply.
Security Service – Fire, Police, Army, Ambulance	Provide security and emergency response services; assist in evacuations and rescue operations.
Ghana Education Service	Ensures education continuity during disasters; integrates disaster risk reduction into school curricula.
Ghana Health Service	Ensures public health during and after disasters; provides medical assistance and disease control.
NCCE	Educates and engages communities on civic responsibilities and disaster preparedness.
Information Service	Disseminates information and awareness campaigns on disaster preparedness and response.
Research/Academia	
University of Ghana	Conducts research on climate change impacts and disaster management strategies.
CSIR (WRI and SARI)	Engages in water resource and agricultural research to develop resilience strategies.
KNUST	Provides research and expertise in engineering solutions for flood and drought management.
CK Tedam University of Technology and Applied Sciences	Focuses on applied research and technological innovations for disaster resilience.
UDS	Conducts community-based research on sustainable development and disaster management.

Development Partners	
World Bank	Provides financial and technical support for infrastructure and disaster resilience projects.
World Food Program	Offers food aid and support for food security during and after disasters.
UNICEF	Focuses on child protection and welfare; provides emergency relief and support for affected children.
World Health Organization	Provides health-related disaster response and disease control support.
FAO	Supports agricultural resilience and food security initiatives.
IUCN	Engages in conservation and sustainable land use practices to mitigate flood and drought impacts.
USAID	Offers financial and technical support for disaster management and resilience programs.
UNHCR	Provides support and protection for refugees and displaced persons during disasters.
GIZ	Implements development projects focused on disaster risk reduction and sustainable resource management.
NGOs/Civil Society Organizations (CSOs) / Faith-Based Organizations	
CRS – Catholic Relief Service	Provides humanitarian aid and supports community resilience projects.
World Vision	Implements community development programs focused on disaster resilience and recovery.
Red Cross	Provides emergency response, first aid, and disaster relief services.
Global Communities	Supports sustainable community development and resilience building.
Action AID	Advocates for vulnerable communities; implements disaster risk reduction and resilience-building initiatives.
ADDRO – Anglican Diocesan Development and Relief Organization	Provides community-based health and agricultural services to enhance resilience.
FONAR – Forum for Natural Regeneration	Promotes natural regeneration and sustainable land management practices.
CARE International	Implements programs focused on disaster risk reduction and community resilience.
Widows and Orphans Movement	Provides support and advocacy for widows and orphans affected by disasters.
Gender and Vulnerable Groups	
Women	Actively participate in community decision-making and resilience-building activities.
Youth	Engage in community mobilization and support disaster risk reduction activities.
People with Disabilities	Need specific accommodations and support for effective disaster response and recovery.
Aged	Require targeted support and assistance during disasters due to increased vulnerability.

Children	Require protection and support during disasters; focus on education continuity.
Widows/Widowers	Need social and economic support during and after disasters.
Orphans	Require protection and support during disasters; focus on education and welfare.
Private Sector	
Transport Unions	Ensure transportation services during emergencies; assist in evacuations and delivery of relief supplies.
Farmer based organizations	Promote sustainable agricultural practices and resilience among farmers.
Mining Companies – Earl International, Cardinal Nandemi	Invest in infrastructure and support disaster resilience initiatives in mining communities Donate relief items to the communities during climate related disasters; Invest in infrastructure, technology, and services to support disaster management and resilience efforts.
Quarry – Upper Quarry, Mawums, Logistics, Nasara	Provide resources and support for infrastructure development and disaster resilience projects.
Zoomlion	Engages in waste management and sanitation services to prevent health crises during floods and droughts.
Traditional Authorities	
Chiefs	Lead local governance and community mobilization for disaster preparedness and response.
Queen mothers	Represent women in community decision-making; advocate for women's roles in resilience-building.
Tindanas (land owners)	Manage land resources and support sustainable land use practices.
Elders	Provide wisdom and leadership in community disaster management efforts.
Women leaders (Magagia)	Advocate for women's participation in disaster risk reduction and community resilience activities.
The Media	
National (TV3, GBC, UTV)	Disseminate information, early warnings, and educational programs on disaster preparedness and response.
Community Radios (A1 Radio, Dreams FM, Word FM, YEM Radio, Bongo Radio, Sunshine, Max Empire Radio)	Provide local information and updates on disaster-related issues and response

Volta Flood and Drought Management

Appendix 4 Photo Gallery of Presentation and Group Works sessions at the local workshop in Sogakope