Volta Flood and Drought Management

ADAPTATION FUND

Framework for action for Effective Community Involvement in Integrated Flood and Drought Risks Management in the Volta Basin

June 2024

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Foreword

The Volta Basin is a transboundary region shared by six countries: Benin, Burkina Faso, Côte d'Ivoire, Ghana, Mali and Togo. The Volta Basin Authority (VBA) was created on 19 January 2007 by the Heads of State and Government of the six (6) countries, with a view to "Promoting permanent consultation and sustainable development for an equitable sharing of benefits with a view to poverty reduction and better socio-economic integration" at the basin level.

The Volta Basin is facing many environmental problems mainly due to the continuous degradation of land, ecosystems, and water pollution. These phenomena are aggravated by droughts and floods that affect the entire basin, affecting the economy and livelihoods of the populations, especially the most vulnerable ones.

The Volta Basin Authority with the support of the World Meteorological Organization (WMO) and the Global Water Partnership - West Africa (GWP-WA), implemented the VFDM project funded by the Adaptation Fund (AF). This project made it possible to develop a flood and drought forecasting and warning platform (VoltAlarm), and a strategy for reducing and managing flood and drought risks at the basin level. At the end of the project, feedback on disaster risk reduction was documented at the basin level as well as at the national and regional levels. This has made it possible to develop the framework of action for effective involvement of local communities in disaster risk reduction and adaptation to climate change.

I hope that all local, national and international stakeholders will work in a synergistic and coordinated manner for the implementation of the actions proposed in the Framework for Action to improve the resilience of our various communities.

I renew my deep gratitude to the Adaptation Fund and to our technical and financial partners for their support in the process that led to the development of this framework of actions and invite them and other partners to support its implementation.

DESSOUASSI Yaovi Robert

Executive Director of the Volta Basin Authority (VBA)

Acknowledgement

The VBA Executive Management would like to thank the Adaptation Fund for financing the VFDM project. It also thanks:

- WMO, implementing and executing partner of the VFDM project; for its support through its technical orientations;
- GWP-WA, the executing partner of the VFDM project, for the design, technical support, guidance, coordination and facilitation of the mission that led to the development of this document;
- the Regional and National Consultants for their technical support at various stages of the process of developing this framework for action;
- Mr. Gabriele QUINTI of Knowledge & Innovation, for his orientations, contributions, amendments during the development of the Action Framework;
- the Coordination and Technical Team of the VFDM project for its technical support through the technical guidance and amendment of the draft report;
- the National Consultants for their technical support through the collection, analysis and suggestions that contributed to the preparation of this document;
- local governments/town halls for their facilitation and participation in the development of the Action Framework;
- the National Technical Directorates and the decentralised structures in charge of water, civil protection, climate and the environment for their technical, logistical and organisational support to the national and regional consultants;
- the Country Water Partnerships (CWPs) of Benin, Burkina Faso, Côte d'Ivoire, Ghana, Mali and Togo as well as the NGO YVE Togo for their technical and organizational support to the national consultations that have made it possible to document the achievements and constraints of flood and drought management, and to formulate suggestions for better community involvement;
- NGOs involved in the implementation of pilot disaster risk reduction initiatives for their facilitation and contributions.

Table of contents

List of figures

List of tables

List of acronyms

AAL	:	Average Annual Losses
ACMAD	:	African Centre for Meteorological Applications for Development
AF	:	Adaptation Fund
AGRHYMET	:	Regional Climate Centre for West Africa and the Sahel
AMESD	:	African Monitoring of Environment for Sustainable Development
ANCB	:	National Association of Municipalities of Benin
ARC	:	African Risk Capacity
ASECNA	:	Agency for Aerial Navigation Safety in Africa and Madagascar
CC	:	Climate Change
CCA	:	Climate Change Adaptation
CCR-AOS	:	Regional Climate Centre for West Africa and the Sahel
CEWERS	:	Community Early Warning and Emergency Response System
CFDMC	:	Community Flood and Drought Management Committees
CILSS	:	Permanent Inter-State Committee for Drought Control in the Sahel
CODESUR	:	District/Departmental Emergency Relief and Rehabilitation Committee
CONASUR	:	National Council for Emergency Relief and Rehabilitation
CRT	:	Culturally Responsive Teaching
CSO	:	Civil Society Organization
CSOs	:	Civil Society Organizations
CTGEN	:	Transboundary Water Resources Management Committee of the Nakambé »
CTGS	:	Transboundary Committee for Integrated Water Resources Management of the Nineteenth Basin. Sourou
CWP	:	Country Water Partnership
DR	:	Disaster risks
DRE	:	Water Resources Department
DRR	:	Disaster Risk Reduction
DSS	:	Decentralised State Service
E2E-EWS-FF	:	End-to-End Early Warning Systems for Flood Forecasting
ECOWAS	:	Economic Community of West African States
EERT	:	Event Emergency Response Team
EIA	:	Environmental Impact Assessments
EIG	:	Economic Interest Grouping
EWS	:	Early warning system
FAO	:	Food and Agriculture Organization
FBOs	:	Farmer-Based Organizations
FDR	:	Flood and Drought Risks

FDRM		Flood and Drought Risk Management
GCF	:	Green Climate Fund
GDC	:	Grassroots Development Committees
GIS	:	Geographic Information System
GWP	:	Global Water Partnership
GWP-WA	:	Global Water Partnership in West Africa
ICRC	:	International Committee of the Red Cross
IEC	:	Information, Education, Communication
IFDRM	:	Integrated Flood and Drought Risk Management
IWRM	:	Integrated Water Resources Management
JTC-IWRM	:	Joint Technical Committee on Integrated Water Resources Management
LC-DRR	:	Local Committees - Disaster Risk Reduction
LMAG	:	Local Meteorological Assistance Group
LWC	:	Local Water Committees
LWP	:	Local Water Partnership
MCP	:	Municipal Contingency Plan
MDAMAs	:	Municipal District Assemblies/Metropolitan Assemblies
MOLOA	:	West African Coastal Observation Mission
MP / DRR-CCA	:	Municipal Platform for Disaster Risk Reduction and Climate Change Adaptation
NACP	:	National Agency for Civil Protection
NADMO	:	National Disaster Management Organization
~~NAP~~	~~:~~	~~National Adaptation Plan~~
~~NC~~	~~:~~	~~National Consultants~~
NDC	:	Nationally Determined Contribution
NGO	:	Non-Governmental Organization
OCHA	:	Office for the Coordination of Humanitarian Affairs
ORLOA	:	West African Regional Coastal Observatory
ORSEC	:	Organisation of the Civil Security Response
PDNA	:	Post-disaster needs assessment
PNRRC-ACC	:	National Platform for Disaster Risk Reduction and Climate Change Adaptation
~~RC~~	~~:~~	~~Regional Consultants~~
RETEX	:	Feedback
RSMC	:	Regional Specialized Meteorological Center
SAGE	:	Plan for Water Development and Management
SAGE	:	Water Development and Management Plan
SAP	:	Strategic Action Programme
SAP-VBA	:	Strategic Action Plan for the Volta Basin Authority
SDAGE	:	Master Plan for Water Development and Management

SLM	:	Sustainable Land Management
SMTDP	:	Global Data Processing and Forecasting System
SODEXAM	:	Airport, Aeronautics and Meteorological Operating and Development Company
SSO	:	Sahara and Sahel Observatory
TDA	:	Transboundary Diagnostic Analysis
TFP	:	Technical and Financial Partner
UNDP	:	United Nations Development Programme
UNEP-GEF	:	United Nations Environment Program-Global Environment Facility
UNESCO	:	United Nations Educational, Scientific and Cultural Organization
UNHCR	:	United Nations High Commissioner for Refugees
UNICEF	:	United Nations Children's Fund
UNISDR	:	United Nations International Strategy for Disaster Reduction
VB	:	Volta Basin
VBA	:	Volta Basin Authority
VFDM	:	Integrating flood and drought management and early warning for climate change adaptation in the Volta Basin
~~VRMC~~	~~:~~	~~Village Risk Management Committees~~
WACA	:	West African Coastal Management Programme
WASCAL	:	West African Scientific Service Centre on Climate Change and Adaptive Use of the Lands
WFP	:	World Food Programme
WHO	:	World Health Organization
WMO	:	World Meteorological Organization

Executive Summary

Floods and Droughts are becoming more and more recurrent in the Volta Basin (VB) and in the entire West African sub-region with the intensification of climate change. This reality has led the World Meteorological Organization (WMO), the Volta Basin Authority (VBA), the Global Water Partnership for West Africa (GWP-WA) and the relevant national structures of the VBA Member States to initiate and implement the project entitled "«*Volta Flood and Drought Management (VFDM)* » "Integrate Flood and Drought Management, and Early Warning for Climate Change Adaptation in the Volta Basin" from June 2019 to the end of June 2024. The VFDM project is funded by the Adaptation Fund (AF). It focuses on capacity building of actors and the development of an Early Warning System (EWS) for adaptation to climate change in the six (06) countries bordering the VB.

Among other achievements, the VFDM project has contributed to the development of a flood and drought forecasting and warning platform (VoltAlarm), with flood and drought forecasting and warning bulletins that are produced by the VBA and the national structures in charge of hydrology, meteorology, civil protection and agriculture of the VB. He also contributed to the development with all stakeholders of a regional strategy for Integrated Flood and Drought Risk Management (IFDRM) in the VB. The final phase of the project was devoted to the review of the political, strategic, institutional and operational frameworks with a view to strengthening them, with a particular emphasis on the effective involvement of local communities, for an effective IFDRM.

This ''Framework for Action for Effective Community Involvement in IFDRM in the Volta Basin'' addresses this particular concern. It is the final result of the implementation of the "Technical Support Mission for the Strengthening of the Policy, Institutional and Organizational Capacities of IFDRM in the Volta Basin" by a team of Regional Consultants with the collaboration of the National Consultants of the six (06) VB countries, with the technical and organizational support of the VFDM Consortium of Implementing Partners. The ultimate objective of the mission is to put in place a Safeguarding Framework for Community Involvement in Long-Term disaster risk reduction (DRR) and climate change adaptation (CCA), including action plans for the dissemination of good practices and opportunities for the improvement of flood and drought risk management measures as well as CCA.

The Framework for Action for Effective Community Involvement in Integrated Flood and Drought Risk Management in the Volta Basin is the result of a participatory approach that brought together international, regional and national experts, all VB stakeholders and VFDM implementing partners.

As a first step, the Regional Consultants worked with national Consultants, who relied on the input of VB stakeholders to review and update newly developed or revised policies, plans and guidelines, and to formulate proposals for improvements, based on: (i) suggestions and recommendations from the documentation of local communities' experiences; (ii) the IFDRM strategy in the basin and the EWS-VoltAlarm set up under the VFDM project, and other updated or newly developed guidance documents and CC Adaptation Plans (NAP, NDC), and iii) policies and guidelines on the exchange of data and information on DRR issues.

In a second phase, the main basic components of the Framework for Action were developed, with the actors during the national and regional workshops, with an emphasis on the roles and responsibilities of stakeholders. This phase took into account the suggestions and recommendations from the documentation of the local communities' experiences in the VB, the results of surveys and field observations at the community level in the national portions of the VB, good practices and community opportunities in terms of IFDRM and CCA measures in the sub-region, in Africa and globally, political and strategic arrangements at the subnational, national and sub-regional levels and suggestions and opinions of resource persons on potential actions involving target communities.

The documentation of local community experiences in key long-term flood and drought management strategies is done through the national missions that have been conducted in the six countries. The good practices and opportunities, at the national and transboundary levels, of IFDRM and CCA in the VB were also documented and analysed according to the different pillars of IWRM, namely, their relevance on the

dimensions of the enabling environment, the institutional and participatory framework, management instruments as well as innovative and sustainable financing. The analysis of good practices made it possible to prioritize them for scaling up. Gaps in the provisions of policies, strategies, plans and guidelines at the local, national and subregional levels were identified and institutional collaboration mechanisms for their implementation were analysed with a view to strengthening the effective implementation of IFDRM and CCA. Approaches to address the identified constraints have been identified for updating policies, plans and directives.

The community involvement strategy is developed from the diagnosis of the difficulties and constraints identified, their prioritization, and the proposed solutions formulated in a concerted manner by the stakeholders through local (around the VFDM project pilot sites), national and regional workshops.

It has emerged that there are countless problems and constraints that hinder the effectiveness of DRR and CCA at the community level. These problems and constraints, which are of a regulatory, institutional and operational nature, pose three (03) major challenges related to the involvement of communities in DRR and CCA, namely: (i) the lack of locally adapted knowledge to boost community engagement for effective DRR, (ii) the weak institutional and strategic development for effective management of flood and drought risks (FDR) and CCA at the local level and (iii) the lack of appropriate technical capacities of communities on forecasting and preparing for CRs.

To address the challenges related to community involvement for effective DRR and CCA, three priority areas of action have been identified as follows:

- Axis 1: Strengthening the knowledge of communities and actors on FDR for effective DRR and CCA at the community level;
- Axis 2: Promotion of community/local institutions for effective management of FDR and CCA;
- Axis 3: Empowerment of communities and management actors for effective preparedness, response and recovery of communities facing FDR and other disasters.

The framework for action evolved from participatory down-top processes of consultations from the pilot sites to the municipal, national and regional levels. Along these processes, the suggested actions were proposed, refined, completed and prioritised .

At the community level, the actions adopted include the strengthening of specific community institutions to address the FDR with the necessary accompanying measures to ensure sustainable DRR and CCA. At the local level, this includes strengthening local legislation through the issuance of decrees for the benefit of DRR and CCA, and the appropriation of DRR and CCA provisions. At the national level, actions aim to support the local level through institutional capacity building and preparedness, response and recovery, and the effective involvement of communities in regulatory processes and the mobilization of funding for DRR and CCA, as well as gender inclusion. At the regional level, the actions aim in particular at capacity building and support to countries for the effective implementation of the community involvement action plan for effective DRR and CCA.

A governance and funding mobilization strategy has been developed to support the implementation of actions at all levels. The strategy includes the development of projects/programmes at the regional, national and local levels to put the planned actions on track as well as the conduct of advocacy and awareness-raising for the mobilization of long-term financing.

The entire process will be supported by a monitoring and evaluation system at the different territorial scales (local, national and regional) and over time. The projects/programmes will be equipped with a monitoring and evaluation mechanism timed to their end, while the monitoring and evaluation mechanism of the VBA and the countries will ensure long-term monitoring and evaluation.

The Framework for Action is a tool that carries great hope for the development of sustainable community resilience to the FDR and CCA. It deserves to be implemented as soon as possible to ensure its effectiveness for integrated and sustainable flood and drought management.

Context

The project ''Integrating Flood and Drought Management and Early Warning for Climate Change Adaptation in the Volta Basin'' or *Volta Flood and Drought Management*[1] *(VFDM),* started in June 2019 and scheduled to end in June 2024, is implemented by the World Meteorological Organization (WMO) and executed by the Consortium of Partners including the Volta Basin Authority (VBA), the Global Water Partnership for West Africa (GWP-WA) and WMO. It mainly aimed at promoting Integrated Flood and Drought Management (IFDRM) and Early Warning Systems (EWS) for Climate Change Adaptation (CCA) in the Volta Basin (BV).

The VFDM project has contributed, among other things, to the development of a VoltAlarm flood and drought forecasting and warning platform as well as to the development and validation by all stakeholders of a regional IFDRM strategy for the Volta Basin. Flood and drought forecast and warning bulletins are also produced by the VBA and the national structures in charge of hydrology, meteorology, civil protection and agriculture of the VB.

This ''Framework of Action for Effective Community Involvement in Integrated Flood and Drought Risk Management in the Volta Basin'' is the result of the conduct of the ''Technical Support Mission for the Strengthening of IFDRM' Policy, Institutional and Organizational Capacities in the Volta Basin'' by a team of Regional Consultants recruited by GWP-WA on behalf of the VFDM Consortium of Implementing Partners. The ultimate objective of the mission was to put in place a Safeguarding Framework for Community Involvement in Long-Term DRR and CCA Measures, including action plans for the dissemination of good practices and opportunities for the improvement of flood and drought risk management as well as CCA. The aim is to strengthen the capacities for long-term integrated Flood and Drought Risk Management (FDR) within the basin, with the involvement of the communities themselves for greater effectiveness.

To achieve this, policies, strategies, plans and guidelines as well as Flood and Drought Risk Management (FDRM) practices and VFDM pilot interventions were reviewed with the various stakeholders including communities at the local, national, transboundary and regional levels of the basin. Good practices and potential opportunities for IFDRM were selected in a participatory manner and avenues for dissemination were proposed.

The following lines report on the process of developing the framework of safeguarding actions for the involvement of communities in the development of long-term DRR and CCA measures, the diagnosis of community involvement needs, the proposals for actions, and the planning of the proposed actions.

[1] Flood and drought management in the Volta Basin

1. Participatory approach to the development of the Framework for Action

The Framework for Action for Effective Community Involvement in Integrated Flood and Drought Risk Management in the Volta Basin is the result of the deployment of a participatory approach that brought together, from March to the end of June 2024, international, regional and national experts, all VB stakeholders and VFDM implementing partners.

As a first step, the Regional Consultants worked with national Consultants, who relied on the input of VB stakeholders to review and update existing or newly developed policies, plans and guidelines, and to formulate proposals for improvements, based on: (i) suggestions and recommendations from the documentation of local communities' experiences regarding key long-term flood and drought management strategies in the national portions of the basin; (ii) the IFDRM strategy in the basin and the SAP-VoltAlarm set up under the VFDM project, and other updated or newly developed guidance documents and CC Adaptation Plans (NAP, NDC), and iii) policies and guidelines on the exchange of data and information on disaster risk reduction (DRR) issues. This was followed by the development, with stakeholders at the national and regional workshops held between April and May, of the main basic components of the Framework for Action, highlighting the roles and responsibilities of stakeholders by capitalizing:

- suggestions and recommendations from documenting the experiences of local communities in the VB on key strategies for long-term flood and drought management in the national portions of the basin;
- the results of surveys and field observations of communities living in the national portions of the basin;
- good practices and community opportunities for IFDRM and CCA measures in the sub-region, Africa and globally;
- provisions for policies, strategies, plans and guidelines at the subnational, national and subregional levels;
- suggestions and opinions from resource persons on potential actions involving the target communities.

The documentation of local community experiences on key long-term flood and drought management strategies is done through national missions that were conducted in the six countries between March and May 2024. It is done through the following activities: (i) identification of community experiences on flood and drought management, including good practices and community opportunities in integrated flood and drought risk management measures and CCA; (ii) description of the implementation of the experiments listed; and (iii) analysis of the data and information collected.

The good practices and opportunities, at the national and transboundary levels, of IFDRM and CCA in the BV were also documented and analysed according to the different pillars of IWRM, namely, their relevance to the enabling environment, the institutional and participatory framework, the management instruments as well as the innovative and sustainable financing. The analysis of good practices made it possible to prioritize them for scale- up.

The gaps in policies, strategies, plans, and guidelines at local, national, and sub-regional levels have been identified, and the mechanisms for institutional collaboration in their implementation have been analyzed to strengthen the effective implementation of IFDRM and CCA. Solution approaches to the identified constraints have been defined with a view to updating policies, plans, and guidelines.

To strengthen the involvement of communities in the implementation of long-term DRR and CCA measures, the participatory projects conducted by the national missions took into account the following questions:

- dissemination of best practices in Flood and Drought Risk Management (FDRM);
- opportunities for the improvement of FDRM measurements;

- institutional and organizational support;
- capacity building of stakeholders.

The community involvement strategy is developed from the diagnosis of the difficulties and constraints identified, their prioritization, and the proposals for solutions formulated in a concerted manner by the stakeholders through local, national and regional workshops.

The proposed solutions have been translated into a Framework for Action to be implemented for effective community involvement for improved management of FDR and CCA, with a particular focus on capacity building for actors, including local actors and communities. Figure 1 illustrates the orientation for the involvement of actors in this perspective.

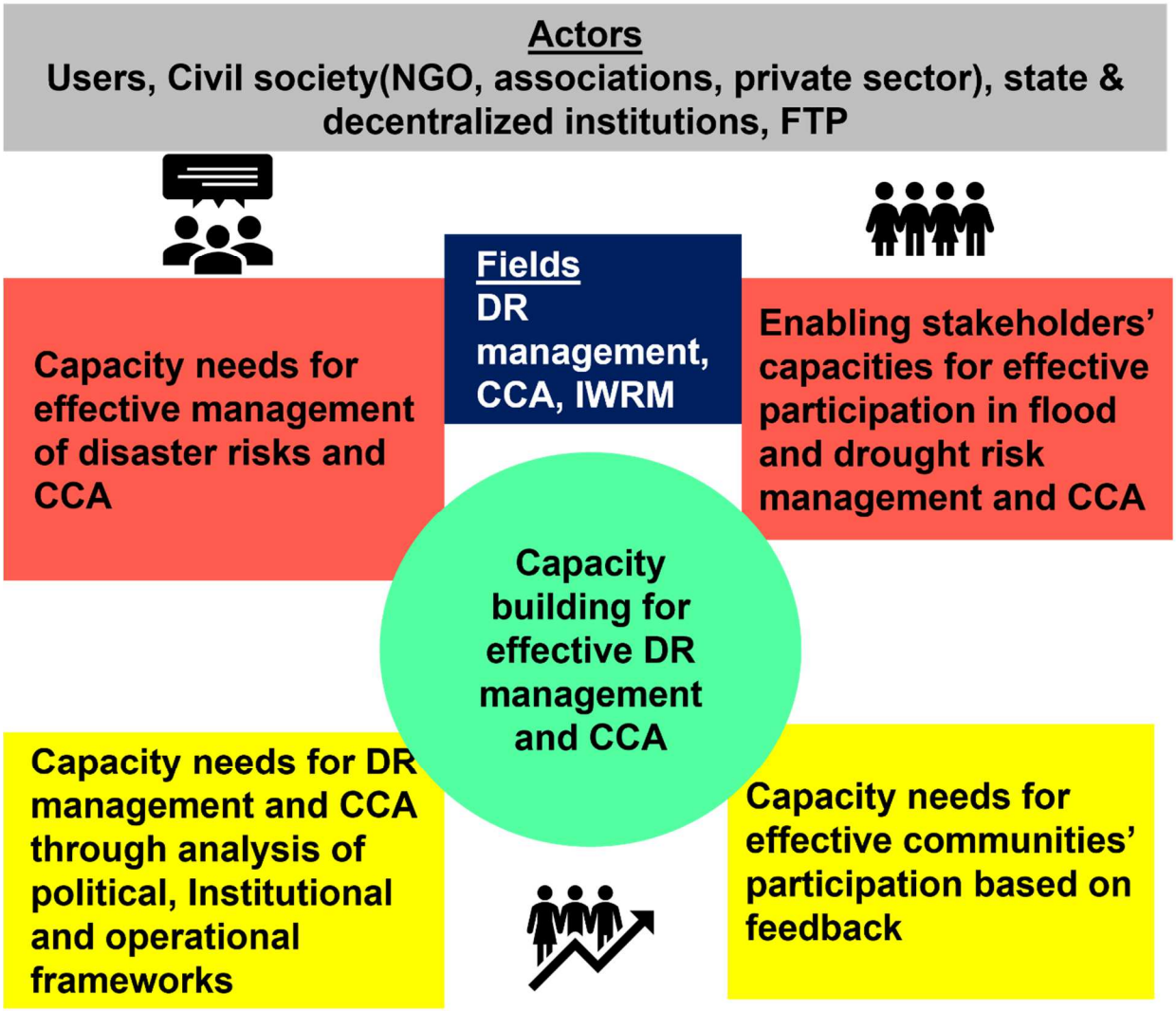

Figure 1 : Capacity needs for disaster risk (DR) management and climate change adaptation (CCA)

2. Review of climate risk and disaster management in the VB

2.1. Climate risks and disasters in the VB

The Transboundary Diagnostic Analysis (TDA) carried out in 2013 revealed environmental degradation as well as water quantity and quality as the major problems (drought, floods, storms, high winds, coastal erosion, etc.) of the VB, with climate change as a factor aggravating these problems. This TDA led to the development of the Strategic Action Program (SAP, 2014) whose components A1 and A6 are dedicated to climate change issues, in particular the management of the VB's flood and drought risks. The disaster risks associated with floods and drought in the VB are worsening and compromising the life and development of the riverside communities. The VBA, through the VFDM project, has established the DR profiles of floods and droughts for the six countries and the basin[2]. The DR profiles for floods and drought, a summary of which is presented in Annexes 1 & 2, are based on observations from the period 1979 – 2016 for the current situation and projections to 2100 for flood and drought predictions, with the exception of the indicators of agricultural yield and loss of agricultural production for which the reference situations are 1981-2016 and 2010-2016 respectively.

2.2. Political-Legal and Policy Framework for DRR and VAC in the VB

The management of the Volta Basin has been part of DRR and CCA policy and planning since the VBA Convention entered into force in 2007. Through the Convention, the countries of the basin have committed themselves to managing the resources of the basin sustainably, equitably and in consultation. As a result, they have worked to develop regional policies, plans and strategies at the basin level to assert their commitment, which are part of sub-regional, African and international commitments (Annex 3).

The analysis of the political-legal and strategic framework revealed several shortcomings related to the integration and alignment of the relevant texts in place (Annex 4). These shortcomings are mainly linked to the low perception of local elected officials of the importance of IFDRM, the low intersectoral integration of the provisions, the lack of knowledge of documents at the local level, the low vertical integration with the local level of the political-legal and strategic documents of IFDRM and CCA.

2.3. Institutional Framework for DRR and CCA in the VB

The establishment of the VBA has made it possible to establish specific institutions for the sustainable development of the basin's resources, specifically including DRR and CCA, as well as the mobilization and strengthening of actions/interventions of country and sub-regional institutions for the benefit of the BV. In this report, a summary of regional and national institutions that are specifically involved in DRR and CCA is provided. It highlights the actors involved and the roles they play or are likely to play in the deployment of DRR and CCA at the regional and national levels (Annex 5).

Beyond the actors taken in isolation, collaborative mechanisms play a decisive role in the development of synergies for effective DRR and CCA. Institutional coordination and collaboration mechanisms for DRR management identified by participants include the DRR and CCA platforms (Annex 6).

The analysis of the institutional framework revealed, among other things, the low participation of communities, the low capacity to mobilize financial resources, the lack of monitoring of achievements by beneficiaries, the lack of capitalization of DRR and CCA achievements, and the lack of synergy between interventions/projects in the national portion of the VB.

[2] Volta Basin Disaster Risk Profile (VBA, 2022)

2.4. Operationalization of DRR and CCA in the VB: Achievements, Challenges and General Suggestions

The achievements of DRR and CCA in the VB were documented through feedback from the implementation of VFDM pilot initiatives and other experiences gained in countries, at local, regional, national and cross-border levels, as well as through the holding of local and national workshops. This documentation made it possible to select, with the opinion of grassroots communities and actors in general, the best practices and opportunities most relevant to FDRM in the BV. This selection, first made at the local level, was then synthesized and refined at the national level in each of the six VB countries, and finally at the regional level. These good practices and opportunities are presented in the following lines. DRR and CCA actions and interventions, including VFDM pilot initiatives, were also analysed by stakeholders at workshops held at local and transboundary levels; which made it possible to identify the difficulties and constraints related to IFDRM.

The following sub-chapters present the important achievements, the major difficulties and constraints as well as the suggestions for improving the overall framework for the operationalization of DRR and CCA in the VB.

2.4.1. Achievements of DRR and CCA in the Volta Basin

The best practices selected are varied and multiple. They reflect the diversity of contexts and applications of FDRM in the VB. They relate to the four dimensions of the Sendai Framework for Disaster Risk Reduction 2015-2030: (i) understanding disaster risk, (ii) strengthening governance, (iii) investing in DRR and (iv) improving preparedness and reconstruction. The consultation of DRR and CCA stakeholders in countries and at the regional level has made it possible to identify good practices for each of the 4 dimensions.

Good practices include the deployment of SAP at the local level through, adapted communication, Sustainable Land Management (SLM), the consideration of endogenous knowledge, and the strengthening of local governance on DR management. They also take into account the development of local materials, the capacity building of stakeholders, the establishment of strategic flood and drought management structures, and technical tools for monitoring DRs.

In terms of opportunities for the scaling up of good practices, they concern the capitalization of good practices such as the directory of good SLM practices, the strengthening of the contribution of local actors (including the media), the integration of endogenous knowledge and local actors, the cross-border mechanisms of the VB such as the Ghana-Burkina Faso CTGS, the CTGEN, the IWRM-CTCs, early warning systems, social networks and local radio stations in full expansion, the interest of TFPs and NGOs in the management of DRs and the growing potential for public-private partnerships.

Particular attention was paid to the promotion of local consultation frameworks, the use of endogenous knowledge, and SLM practices. The VB's FDRM community plans were recalled as an opportunity to be taken into account in the mechanisms for community involvement for an improved FDRM. It was recommended that avenues of research be initiated on endogenous knowledge in relation to scientific knowledge for its integrated and effective use. SLM practices that are based on human-nature relationships "reasoned practice at the plot" allowing reasoned choices for the management of plots; "reasoned land clearing", "reasoned ploughing", use of stabilised land as a bund and not stony soil; use of geotextile bags, were highlighted as good practices to be promoted and disseminated in the VB. In this regard, countries' good SLM practices deserve to be widely promoted in the VB.

2.4.2. Difficulties, constraints and suggestions for improvement of the IFDRM

The challenges and constraints of implementing IFDRM are inherent in all DRR implementation components. They concern both the development of knowledge and the understanding of CBs, the governance of DRR, investments, and preparation against DRs. Regulatory, institutional and operational weaknesses hinder effective implementation of DRR and CCA.

The difficulties and constraints of the implementation of IFDRM and the proposed solutions are summarized in Table 1.

While weaknesses in DR management are observed at the level of all components of the Sendai Framework for Action, it became clear that the weakest link in the implementation of FDRM is at the community/local level where governance is still very weak.

Table 1 : General Challenges and Constraints in the Implementation of IFDRM and Proposals for DRR Solutions in the Volta Basin

	Difficulties/constraints	**Suggestions**
Political, legal and strategic aspects	- Lack of knowledge of the main orientations of the texts - Poor popularization of texts - Weak integration of environmental and health policies and strategies at the national level in relation to infrastructure construction, irrigation, land, communal alerting, water, sanitation and hygiene - Non-existence of a Sustainable Land Management policy at the BV level - No management plan for the Master Plan for water drainage in the basin - Lack of a regional rescue and response organisation (ORSEC) plan - Low gender mainstreaming in policies, strategies and interventions	- Making DRR-CCA texts accessible - Popularize policies, strategies/plans, guidelines and implementing texts (including land and river plans e.g. SDGAE, SAGE) to ensure their ownership by all actors involved in DRR and CCA - Ensure the integration of DRR and CCA into grassroots documents and strategies - Provide the basin with a water drainage management plan in the basin/ Water drainage master plan - Develop a regional ORSEC plan and update national and municipal ORSEC plans - Develop national DRR policies - Ensure gender mainstreaming in policies and strategies/plans
Institutional and operational aspects	- Weak institutional development at the local and community levels for DRR/CCA - Lack of synergy of action between the projects involved in the VB; - Lack of synergy in climate information exchange - Low capacity to mobilize financial resources - Slow reporting of alerts - Administrative burden in the mobilization/disbursement of emergency funds and the management of DRs - Low capitalization of the achievements of DRR interventions - Poor sharing of experiences among DRR actors - National and regional political insecurity - Resurgence of terrorism	- Ensure institutional development at the local and community levels - Develop synergies around the use of satellite data; - Establish a mechanism to monitor the implementation of DRR-CCA texts in the VB - Strengthen the mobilization of financial resources for the effective implementation of IFDRM - Capitalize, promote and share achievements and good practices - Develop synergies for effective implementation of DRR and CCA - Strengthen alert protocols for efficient and timely transmission of alerts - Ensure a good anchoring of EWS institutions conducive to the mobilization of emergency funds and DR management - Strengthen gender mainstreaming in the implementation of DRR and CCA;

	Difficulties/constraints	Suggestions
		- Strengthen advocacy with the executive, legislature and decision-makers in general for specific solutions to national/regional problems of terrorism and insecurity.

3. Community Involvement in DRR and CCA

The role of communities is crucial in DRR and CCA. They are the victims and the basic architects of disaster risk prevention and management, particularly in the context of floods and droughts. Good strategic and operational planning and a good prevention and early warning system alone would not be enough to effectively and sustainably reduce the risks of climate disasters without the commitment of the communities concerned. This assertion is all the more obvious as climate risks are at varying temporal and spatial scales as well as intensities, as are their perception by the various actors. Risk intensities are only perceived from a threshold and differently for actors as a whole, whereas communities experience them directly when they are not even perceptible by others, with also strong differences in perception among actors within communities.

Effective prevention and warning can therefore only be ensured with the communities themselves, hence the need for their effective involvement in all phases of DRR and CCA, especially for flood and drought risks.

For an improvement of DRR and CCA in the Volta basin, it is therefore important to analyze the current involvement of communities with the related constraints and difficulties in order to highlight the challenges that arise for the planning of consequent actions with sustainable impacts.

3.1. Current situation of community involvement in DRR and CCA

Communities manage disaster risks, particularly at the individual and community levels. Their involvement in the DR and CCA management at supra-community levels is supposed to be done through community institutions that are likely to carry their voice and defend their interests.

From the review of community institutions at the local level, the pilot initiatives of the VFDM project which cover ten BV sites, as well as the results of the national and regional workshops, a directory of these community institutions has been produced, considering the territorial levels closest to the communities, in this case those that constitute the local authorities. In the countries of the Volta basin, reference is made in particular to territorial entities from the communal/sub-prefectural level to the village level. These territorial entities vary within the countries of the basin. However, according to the territorial divisions adopted by each country, we could consider communes, sub-prefectures, districts, cantons, and villages. Table 2 shows the territorial divisions by country in the Volta River Basin. For the sake of facilitation, the communal level and the village level are considered respectively as the higher territorial entity and the lower territorial entity in the consideration of the local level.

Table 2 : Consideration of the local level according to the territorial division of the VB countries

Country	Regional level	Local level
Benin	Departments	Municipalities, districts, villages
Burkina Faso	Regions, provinces	Municipalities, villages
Côte d'Ivoire	Districts, regions, departments	Sub-prefecture, municipalities, villages
Ghana	Regions	Districts, villages
Mali	Regions, circles, districts	Municipalities, villages
Togo	Regions, prefectures	Municipalities, cantons, villages

It appears from this study that the existing local community institutions take the following forms such as Grassroots Development Committees, Village Risk Management Committees, Village Councils, Community Leaders, Traditional Chiefdoms, Religious Leaders, LMAG (Local Meteorological Assistance Group), CEWERS(Community Early Warning and Emergency Response System), District Councils, Local

DRR Committees/ CODESUR, Local Water Committees (LWC), Communal Councils, Town Halls, Local Water Partnerships (LWP) and Communal Platforms (CP / DRR-CCA).

The Community institutions and their specific names as they exist in the countries are presented in Table 3 in order to reflect the realities of each of the countries in the basin.

Table 3 : Community institutions identified through feedback from the VFDM pilot initiatives

Country	Sub/Communal Level	Village/City District Level
Benin	Municipal DRR and CCA Platform Local Water Committee (LWC) District Council Municipal Council Town hall Local Water Partnership (LWP)	Village Council Traditional chiefdom Grassroots Development Committees Village Risk Management Committee Local Meteorological Assistance Group (LMAG) Community Emergency Early Warning and Response System (CEWERS)
Burkina Faso	Municipal DRR and AC/CODESUR Platform Municipal Council Town hall	Village Council Village Development Committees Community relay LWC
Côte d'Ivoire	ORSEC Plan (departmental)	Village Risk Management Committee LWC
Ghana	Metropolitan/Municipal District Assemblies (MMDAs)	Civil Society Organizations (CSOs) Traditional chiefdom (Chiefs, Queen mothers, Assembly persons/unit committee members) Farmer-based Organisations (FBOs)
Mali	Local socio-professional associations LWC	Local Meteorological Assistance Group (LMAG) Village authorities Economic interest group (GIE) Water Management Committees Community Leaders
Togo	Women's, Youth and Disabled People's Organizations Town council Town hall	Community and religious leaders Women's cooperatives

Feedback from the VDFM pilot sites, enriched with the holding of local, national and regional workshops, made it possible to assess the degrees of community involvement in DRR and CCA at all scales. Community involvement was qualitatively assessed according to a four-level grid of none, low, medium or effective involvement, taking into account the four dimensions of the Sendai Framework for Action on DRR, namely: (i) understanding of DRs, (ii) strengthening DR governance, (iii) investing in DRR and (iv) strengthening disaster preparedness.

The results of the community involvement assessment are presented in Figure 4 and Table 4. The overall assessment shows that community involvement ranges from low to medium. This trend is observed in all dimensions of the Sendai Framework for Action, except for the one on investment in DRR and CCA, where the level of community involvement remains low on all aspects considered. Involvement is not yet effective in any of the DRR and CCA areas. However, it should also be noted that there is a desire for community involvement, at least at all levels.

The involvement of communities at the local level is even less brilliant, marked by many weaknesses. Apart from the communication of information on the management of DRs, the operationalization of local structures and the development of planning documents that have a degree of community involvement qualified as medium, the other six components that were considered by the actors for the local level have a low degree of community involvement.

Figure 2 : Community involvement in DRR and CCA in the VB according to the dimensions of the Sendai Framework for Action

Table 4 : Key actors in DRR implementation and degree of community involvement according to the four dimensions of the Sendai Framework for Action

Dimensions of the Sendai Framework for Action	**Elements of Sendai dimensions**	**Key institutional players leading the action**	**Current level of community involvement (none, low, medium, effective)**
Understanding Disaster Risk	- Actors	- Civil protection Agency - RED CROSS - Ministries in charge of water, environment and social affairs - Regional Climate Centres (AGRHYMET, ACMAD, etc.) - Universities and Research Centers	- Medium
	- Valorization of endogenous knowledge	- Civil protection Agency - RED CROSS - Local authorities - Universities and Research Centers	- Weak
	- Communication	- CSOs - RED CROSS Social Welfare Agency - Local authorities - Press, TV, radio	- Medium
Strengthening FDR and CCA Reduction	- Actors	- Ministries in charge of water and the environment - Regional institutions (GWP-WA, VBA, etc.)	- Weak

Dimensions of the Sendai Framework for Action	Elements of Sendai dimensions	Key institutional players leading the action	Current level of community involvement (none, low, medium, effective)
Governance		- Universities and Research Centers	
	- Operationalization of local IFDRM and CCA structures	- Civil protection Agency - Grassroots Development Committees - Mayor/Local authorities - CSOs	- Medium
	- Strengthening collaboration between IFDRM and CCA stakeholders	- VBA, VB countries, ministries, NGOs, Red Cross	- Weak
Investing in DRR for resilience	- Financial mobilization	- Ministries in charge of water, environment, finance - Regional institutions (GWP-WA, VBA, ...) - Humanitarian institutions - NWP and Civil Society - Local authorities - Local and decentralized/decentralised authorities - NGOs and Associations	- Weak
	- IEC	- Ministries in charge of water, environment, primary, secondary, and higher education, and social affairs - Civil protection Agency - CSOs	- Weak
	- Building Resilient Infrastructure	- State - Local communities - TFP	- Weak
Strengthening disaster preparedness	- Feedback (RETEX)	- Idem	- Weak
	- Communication/Awareness raising on risk culture	- Local and decentralized/decentralised authorities; - NGOs and associations	- Weak
	- Preparation of planning documents	- Civil protection Agency - Local authorities - Grassroots Development Committees - CSOs - Defence and Security Forces - SDE-decentralised services of the administration - State, platform - NGO - TFP	- Medium
	- Capacity building of state and non-state technical structures on DRR and CCA	- Ministry in charge of water, environment, social action, national meteorology - Civil protection Agency - CSOs	- Medium

Dimensions of the Sendai Framework for Action	Elements of Sendai dimensions	Key institutional players leading the action	Current level of community involvement (none, low, medium, effective)
	- Disaster Emergency Response Preparedness	- Civil protection Agency - Local authorities - Grassroots Development Committees - CSOs - Defence and Security Forces - SDE-decentralised services of the administration	- Weak

3.2. Constraints and challenges of community involvement

The significant difficulties and constraints related to the involvement of communities in the implementation of IFDRM and CCA were highlighted in a participatory manner through feedback and during local, national and regional workshops. They come from the different levels of FDRM implementation from the grassroots local level to the national and regional/cross-border levels. These difficulties and constraints are determined in relation to the dimensions of the Sendai Framework for Action, the specific elements of which are identified by the various actors for the implementation of DRR and CCA in the Volta Basin have been.

The difficulties and constraints agreed by the actors are related to:

- local regulations;
- sectoral management marked by the lack of synergy of actions in the management of DR and climate change;
- funding for the implementation of FDRM and CCA activities;
- information, education and communication (IEC) on DRR and CCA;
- the capacity and effective willingness of communities to engage;
- disaster response preparedness;
- the lack of capacity to manage DRs;
- the capitalization of DRR and CCA achievements;
- the development of the institutional framework.

The weakness of local regulations was highlighted for two important aspects, the lack of regulatory decrees to frame IFDRM measures at the local level and the absence or weak operationalization of local DRR and CCA platforms in some countries.

Sectoral management which refers to the lack of synergies in the implementation of DRR and CCA. Indeed, in most countries, the management of CRs is under the supervision of the public security and/or civil protection sector, while the management of climate change is under the supervision of a different sector, usually by the environment and climate sector. It was noted that interventions through CCA and DRR projects/programmes are not subject to the development of synergy, whereas in the case of FDRs, in particular, it is a question of extreme climatic phenomena.

Funding is an important driver for the implementation of DRR and CCA actions, measures and interventions. However, it remains a weak link in the operationalization of the plans and strategies put in place at all levels. Specifically, the lack of financial resources is highlighted, as well as the weak capacity to mobilize financial resources, particularly at the local level.

Information, education and awareness-raising are a key link in the commitment and involvement of communities. It is a perennial link in risk management and its low effectiveness is an obstacle to effective DRR and CCA. This is an essential lever to substantially activate as soon as possible for an effective improvement of IFDRM and the CCA. It is also necessary to take into account the lack of environmental impact assessments (EIAs) in certain interventions that are supposed to boost community interest and commitment through information and exchange hearings that take more account of their aspirations and opinions.

Poor response preparedness is a key issue in disaster prevention and relief. It lies in the low resilience of communities to carry out actions to mitigate the effects of disasters through measures to anticipate and protect people, property and socio-economic activities. This requires information and early warning on risks, knowledge and practice of SLM measures, investment in appropriate infrastructure, and skills in emergency relief measures in the event of disasters. Communities in the basin and in the sub-region generally have little capacity to prepare for disaster response, including emergency measures and prescriptions in the event of disasters, especially simulation exercises, which are crucial for effective and sustainable DRR. Also, the response capacity generally takes little account of gender-related specificities for vulnerable people (women, people with disabilities, the elderly, etc.).

The lack of capacity of actors is one of the major difficulties/constraints for effective DRR as it is so evident in the causes of poor disaster response preparedness. Capacity building needs include risk information and early warning, knowledge and practice of SLM measures, and skills in emergency disaster relief measures. Capacity building of actors will effectively support the DRR and CCA implementation chain.

Capitalization of knowledge and learning is a cornerstone of building resilience and can well contribute to the achievement of community capacity needs for effective DRR and CCA. Two aspects of capitalization were selected by the actors: the capitalization of endogenous knowledge and the capitalization of feedback. The VB is characterized from the grassroots to the regional level by a significant wealth of endogenous knowledge in DRR and CCA. Hence the importance of capitalizing them for the benefit of IFDRM, DRR and CCA.

Beyond all the above-mentioned constraints, weaknesses in institutional frameworks are a bottleneck for the effectiveness of improving DRR and CCA. Two major concerns emerged from the various exchanges of the actors: 1) the absence or poor functioning of local DR platforms and 2) the weak functional capacities of community DR management committees when they exist. Some countries have not yet deployed their DR management platform at the local level; which further limits community involvement and community resilience. As for the community DR management committees, they are not formalized and generally function with difficulty. While some community management committees for VFDM pilot initiatives operate until the end of the initiative, ongoing monitoring is required to ensure their long-term operation. The formalization of community management committees and the strengthening of their capacities may well enable them to play a leading role in DRR and CCA.

Difficulties and constraints pose challenges for community involvement for effective DRR and CCA. The main challenges to be addressed are presented in Table 5. A synthesis of the challenges by dimension of the Sendai Framework for Action is illustrated in Figure 3.

The challenges of understanding DR are related to capacity building, capitalization and information, education and communication of communities, and actors for community support. They take into account community capacity building on community-based risk assessment techniques, risk assessment and associated relief measures, and existing resilient practices. These capacity-building needs call for another important challenge, which is that of information, awareness-raising and education.

The challenges related to governance revolve around a good knowledge of legal, political and strategic texts by local actors, the strengthening of regulations at the local level, the development/strengthening of the capacities of platforms, particularly at the local level, the formalization of community-based management structures for FDR and CCA, and the development of operational synergies. Synergies between legislators and local decision-makers as well as between operational actors are recommended.

These challenges are based on strengthening the capacities of actors for the development of these synergies.

For investments in DRR and CCA, the challenges related to community involvement identified relate to advocacy for the mobilization of resources for DRR and CCA, capacity building of local actors in planning and mobilization of financing, environmental education in schools and within communities, and the conduct of environmental impact assessments (EIAs) in infrastructure development. Investment challenges remain first and foremost financial challenges that are transversal; which led the actors to recommend the involvement of communities at all stages of the planning and operationalization processes of investments for DRR and CCA.

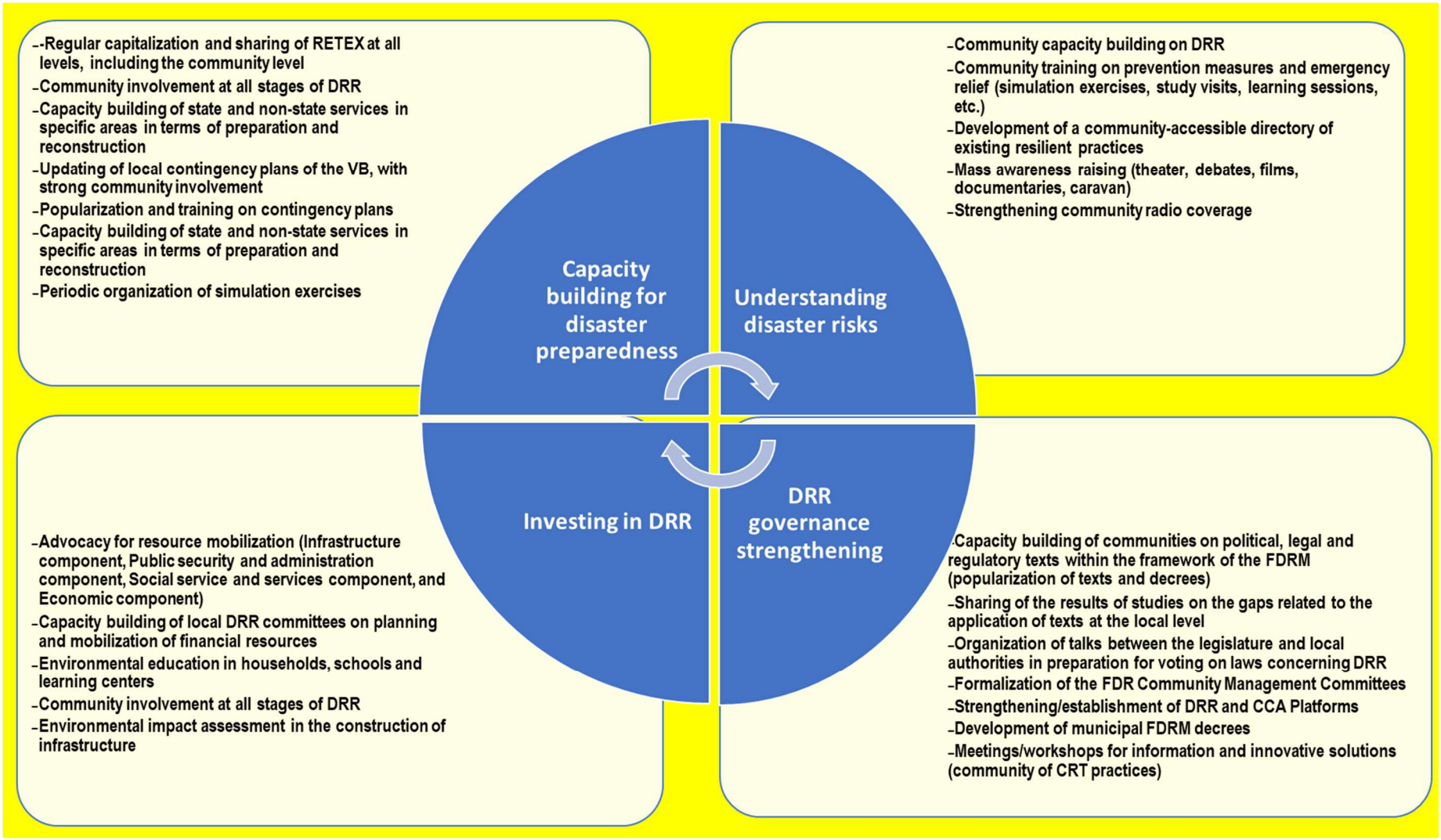

Figure 3: Synthesis of Challenges for Effective Community Engagement for Effective DRR and CCA by Dimension of the Sendai Framework for Action

Table 5 : Key Difficulties and Challenges in Engaging Communities in Improving the Implementation of DRR and CCA Policies and Plans

Dimensions of the Sendai Framework for Action	Elements of the dimension	Difficulties in involving communities	Challenges related to community involvement
Understanding Disaster Risk	- Actors	- Lack of DRR capacity	- Community Capacity Building on DRR - Community training on prevention measures and emergency relief (simulation exercises, study visits, learning sessions, etc.)
	- Valorization of endogenous knowledge	- Weak capitalization of endogenous knowledge	- Development of a community-accessible directory of existing resilient practices
	- Communication	- Lack of information, awareness and education	- Mass awareness (theatre, debates, films, documentaries, caravan) - Strengthening community radio coverage
Strengthening the governance of FDR and the CCA	- Actors	- Low knowledge of GRIS political, legal and regulatory texts	- Capacity building of local authorities on political, legal and regulatory texts within the framework of the GRIS (popularization of texts and decrees) - Sharing of the results of studies on gaps in local implementation - Holding talks between the legislature and local governments in the run-up to the adoption of DRR laws
	- Operationalization of the local structures of IFDRM and CCA	- Absence/low operationalization of DRR and CCA platforms - Non-formalization of the FDR Community Management Committee - Weak local regulations	- Formalization of the FDR Community Management Committee - Strengthening/Implementing DRR and CCA Platforms - Drafting of municipal FDRM decrees
	- Strengthening collaboration between IFDRM and CCA actors	- Lack of trust between actors - Sector management	- Meetings for exchange and search for solutions (CRT community of practice)
Investing in DRR for resilience	- Financial mobilization	- Limited funding for DRR and CCA - Low financial mobilization at the level of FDRM structures at the local level	- Advocacy for resource mobilization (Infrastructure Component, Public Security and Administration Component, Social Service and Services Component, and Economic Component) - Capacity building of local DRR committees on planning and mobilization of financial resources
	- IEC	- Lack of information, awareness and communication	- Environmental education in households, schools and learning centres - Community involvement at all stages of DRR
	- Building Resilient Infrastructure	- Failure to take into account environmental and social impact assessments	- Environmental impact studies in the construction of infrastructures

Dimensions of the Sendai Framework for Action	Elements of the dimension	Difficulties in involving communities	Challenges related to community involvement
Strengthening disaster preparedness	- Capitalization of experiences (Feedback - RETEX)	- Failure of the RETEX to withstand after the management of each shock	- Regular capitalization and sharing of RETEX at all levels, including the community level
	- Risk Culture Communication/ Awareness	- Lack of community engagement - Low appropriation by communities	- Community involvement at all stages of DRR - Capacity building of state and non-state services in specific areas in terms of preparedness and reconstruction
	- Preparation of planning documents	- Delayed/not updated contingency plans	- Updating the VB's local contingency plans, with strong community involvement - Contingency Plan Extension and Training
	- Capacity building of state and non-state technical serices on DRR and CCA	- Lack of capacity of state and non-state services in disaster preparedness	- Capacity building of state and non-state services in specific areas in terms of preparedness and reconstruction
	- Disaster Emergency Response Preparedness	- Insufficient disaster preparedness of relief units and communities	- Periodic organization of simulation exercises

3.3. Prospects for improving community involvement

In view of the difficulties and constraints related to the management of DRs and the CCA, perspectives of solutions to address these challenges are formulated. The following lines present these solutions through three sub-chapters as follows: (i) challenges of stakeholder engagement, (ii) assets (successes and good practices) for effective community involvement and (iii) opportunities to boost community involvement.

3.3.1. Stakeholder engagement challenges

These challenges require the commitment of the various local actors and particularly the communities that are directly concerned. It is therefore necessary to target and address the challenges within the local/community actors who constitute the stakeholders for an effective and sustainable IFDRM at the local level. These stakeholders (local actors and communities) are directly or indirectly affected by FDRs, as they have a potentially positive or negative influence on the community, and vice versa. It is therefore important to analyse their interests and their influence/power on the management of these FDRs.

To do this, the influence/power-interest matrix of stakeholder analysis is a suitable tool.

Power is the ability to influence the thinking and behaviour of individuals in a community. It can be formal or informal. A significant part of the influence comes from informal power, often driven by ambitions and self-interests that holders will often try to use to tailor processes and/or outcomes to their interests. These motivations can help or hinder the project.

Interest is an attraction to a personal or community need, a specific problem or a desired outcome. People often try to put forth or even impose their interests by exercising their influence/power.

Community actors at the local level are made up of diverse social strata with varying importance and interests. The diagram in Figure 4 represents these community institutions according to the influence/power-interest matrix with the prospects of their engagement.

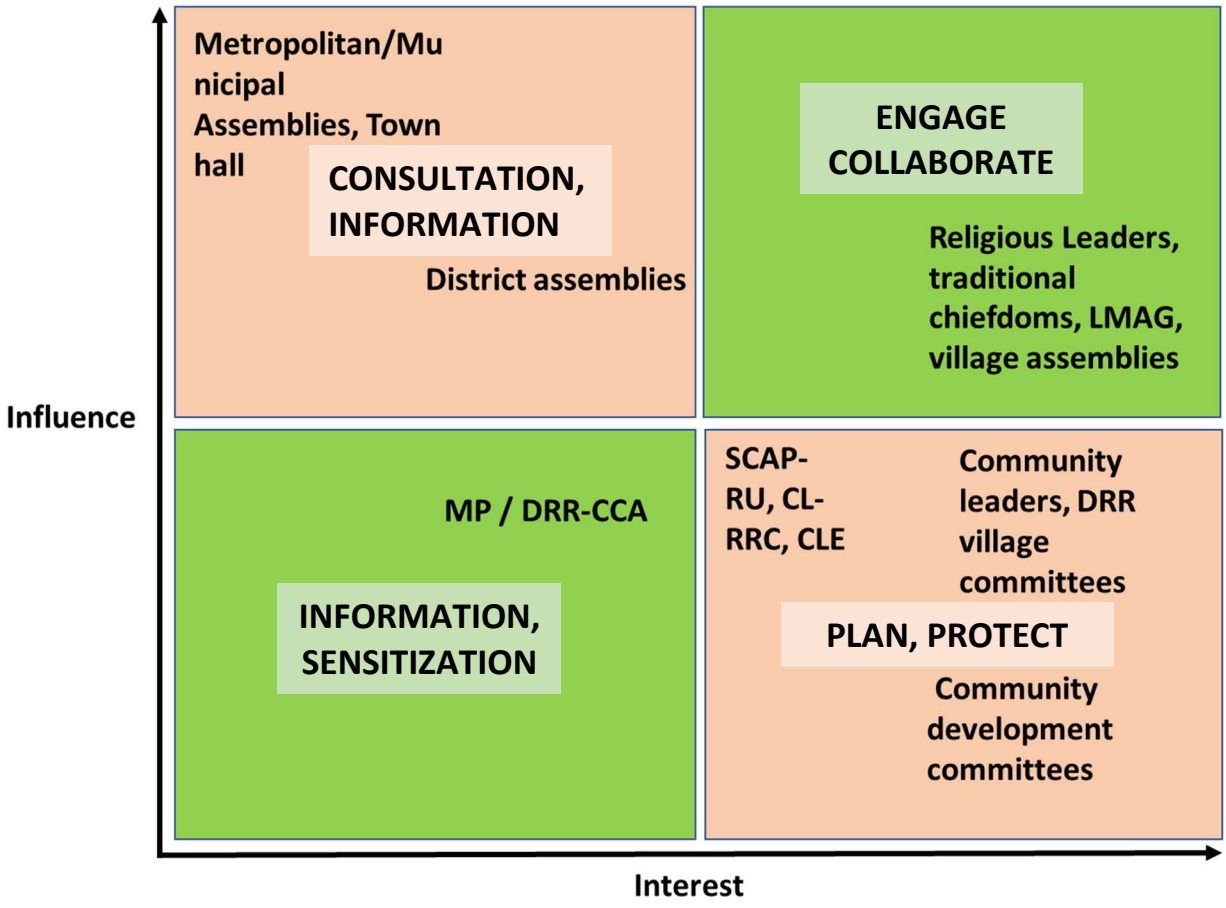

Figure 4 : Influence/Power-Interest Matrix of Community Institutions in the Volta Basin; MP / DRR-CCA = Municipal Platform for Disaster Risk Reduction and Adaptation to Climate Change; LMAG = Local Meteorological Support Group

Community institutions that have a strong interest in DRR are those made up of community members who perceive or experience the risks. These include grassroots boards and committees with a high proportion of community members. The institutions that have the lowest interests are those at the top of the local pyramid, particularly town halls and communal assemblies. They represent the varied interests of several locations which most often have few or no representatives in such structures, with influences from the state level. Other institutions with intermediate influence include mid-level and top-level multi-stakeholder committees and platforms.

The influence/power-interest relationship has made it possible to classify the existing community/local institutions in the Volta Basin by taking into account their motivations/needs and their ability to satisfy them.

This social structuring imposes a basic operational challenge in the choice of efficient intervention strategies for effective improvement of DRR and CCA. The various local actors must be involved in addressing the challenges of involving communities according to their interest in DRR and CCA and their power to influence the paradigm shift in favour of the effective improvement of DRR and CCA.

Low Influence/Low Interest: It is to be expected that there will be little direct involvement of these stakeholders in community-based DRR initiatives. It is important to ensure the sharing of information and awareness raising on local problems at the local level.

High Influence / Low Interest: These stakeholders may oppose the intervention; therefore, they need to be informed and their views recognized to avoid disruption or conflict. It is crucial to keep them informed and consulted on local DRR initiatives.

Actors with medium power (infra-communal councils and communal platforms) or high power (town halls, communal assemblies) with limited interest given the low representativeness of the communities in these bodies, must be more committed to their role as DRR and CCA. But it is necessary to support and ensure the operationalization of their strategy and actions.

Low Influence / High Interest: For those stakeholders who are directly concerned as victims or subject to FDR, a special effort is needed to ensure that their needs and aspirations are taken into account and that their participation is meaningful. Consultations and capacity building are necessary for the success of DRR initiatives. Among actors with low influence but a strong interest in DRR and CCA, they should be put at the heart of risk management planning and protected. In particular, they represent the communities at risk. These actors include the village and FDR management committees as well as the Local Water Committees (LWC).

High Influence / High Interest: These stakeholders need to be closely involved to ensure their support for DRR initiatives, through consultation, ongoing collaboration and capacity building. They include religious leaders and traditional chiefdoms as well as the village assembly and local meteorological assistance groups (LMAGs) that are able to boost the implementation of DRR and CCA.

3.3.2. Assets for effective community involvement

Feedback from the VFDM pilot sites and the results of local, national, and regional workshops highlight good practices that can be disseminated for improved DRR and CCA. These good practices are essential and proven assets for improving DRR and CCA in the context of global environmental change.

A variety of good practices were selected, which reflects the diversity of the contexts and applications of FDRM in the VB. They relate to the four dimensions of the Sendai Framework for Action. Twenty-three (23) good practices were identified, including eight in understanding DRs and five in each of the other areas of the Sendai Framework for Action. These good practices are recorded in Table 6.

Good practices concern in particular the deployment of EWS at the local level (through adapted communication, the consideration of endogenous knowledge, the strengthening of local governance on the management of CRs), the valorization of local materials, the capacity building of actors, the implementation of strategic flood and drought management structures, and technical tools for monitoring DRs.

The dissemination of good practices requires prior functional actions to ensure that they are better appropriated by the communities in order to make within-community dissemination possible. The actions to be undertaken for the success of the dissemination were also formulated through the same participatory process as that of good practices, i.e. the collection of proposals and opinions from the communities of the VFDM pilot sites and grassroots actors at the regional level through local, national and regional workshops.

Dissemination actions are proposed for each of the good practices and are presented in Table 6, according to the dimensions of the Sendai Framework for Action.

Table 6 : Good practices and dissemination actions proposed for improving disaster risk reduction and adaptation to climate change through effective community involvement in the Volta Basin

Dimensions of the Sendai Framework for Action	Best practices	Actions to disseminate good practices
Understanding Disaster Risk	- Existing endogenous knowledge and benchmarks in the countries	- Detailed description of knowledge and benchmarks of good practices (characterization and success rate) - Dissemination of the synthesis of endogenous knowledge and practices related to DRR in the Volta Basin

Dimensions of the Sendai Framework for Action	Best practices	Actions to disseminate good practices
		- Elaboration, editing and publication of the synthesis of endogenous knowledge and practices related to DRR in the Volta Basin.
	- Development of skills in the collection and processing of satellite imagery data	- Training of young people and professionals in the acquisition, processing and exploitation of satellite products and data - Building a multidisciplinary network of scientists in the field of GIS and remote sensing
	- Capacity building for media professionals	- Update of the directory of information dissemination channels
	- Promotion and enhancement of endogenous knowledge (beliefs, perceptions, local indicators)	- Awareness raising through local radio stations and town criers, social networks
	- Existence of contingency plans	- Carrying out simulation exercises
	- Existence of water level markers and delineation of the highest water levels	- Training and awareness on how to read and understand thresholds
	- Multi-hazard approach	- Consideration of multiple contingencies rather than focusing solely on one type of disaster. Many regions are prone to various types of disasters, and a multi-hazard approach ensures a more comprehensive understanding of risks
	- Community participation	- Involvement of communities in the risk assessment process. Local knowledge is invaluable in identifying hazards, vulnerabilities and coping mechanisms - Investigation of local communities to understand their perceptions of risk and develop context-specific risk reduction strategies
Strengthening the governance of FDR and CCA	- Synergy of action between structures	- Identification of endogenous knowledge holders and opinion leaders - Building the network of holders of endogenous practices - Organization of meetings between holders of endogenous practices, opinion leaders and scientists
	- Prioritizing DRR budgeting	- Advocacy and capacity building for the integration of DRR into planning tools at the local and national levels
	- Existence of the DRR Management Committee	- Capacity building of actors on their roles and responsibilities - Restitution of the results of the sessions and workshop
	- Actors in the disaster management chain are trained	- Extension of capacity building for flood and drought risk management stakeholders
	- Existence of a WhatsApp group for the exchange of information on DRs	- Share information about DRs
Disaster Risk Reduction Investment (DRR for Resilience)	- Reforestation	- Advocacy with the appropriate technical services for the assessment of ecosystem degradation and the determination of suitable reforestation species - Acquisition of reforestation plants - Planting and maintenance

Dimensions of the Sendai Framework for Action	Best practices	Actions to disseminate good practices
	- Water control through the construction of reservoirs, etc.	- Advocacy with local authorities for the construction of water reservoirs
	- Cost-benefit analysis of DRRs	- Compare the costs of resilience investments with the potential costs of averted disasters
	- Existence of a stormwater collection basin	- Producing and distributing documentary films
	- Reforestation	- Raising awareness of massive reforestation
Strengthening disaster preparedness	- Strengthening the Capacity of Local IFDRM Institutions	- Information, Awareness-raising, training of local actors, - Equipment, financing
	- Disaster simulation exercises	- Awareness-raising workshop for stakeholders on prevention measures and behaviours to adopt in the event of a disaster - Realization of at least one simulation per year with the actors
	- Use of endogenous knowledge	- Environmental education in households, schools and learning centres
	- Existence of a cereal bank	- Publication of food safety alert bulletins
	- Coordination and collaboration among the various actors	- Promotion of collaboration between local, national and international authorities

3.3.3. Opportunities to boost community involvement

In terms of opportunities for scaling up good practices, about fifteen opportunities are to be seized to contribute to the dissemination and deployment of the good practices selected (Table 7). These opportunities concern the capitalization of good practices such as the directory of good SLM practices, the strengthening of the contribution of local actors (including the media), the integration of endogenous knowledge and local actors, cross-border VB mechanisms such as the Ghana-Burkina CTGS, the CTGEN, the IWRM-CTCs, early warning systems, social networks and local radio stations in full expansion, the interest of TFPs and NGOs in the management of DRs and the growing potential for public-private partnerships.

Table 7 : Opportunities to consolidate and scale up the good practices proposed for the improvement of disaster risk reduction and adaptation to climate change through effective community involvement in the Volta Basin

Sendai Framework Dimensions	Best practices	Opportunities to consolidate and scale best practices
Understanding Disaster Risk	- Existing endogenous knowledge and benchmarks in the countries	- Existence of resource persons who hold ancestral knowledge to be consolidated for a better knowledge and understanding of disaster risks.
	- Development of skills in the collection and processing of satellite imagery data	- Opportunities for capacity building of actors with TFPs
	- Capacity building for media professionals	- Existing tools and communication channels on risks and management measures - TFP support frameworks for strengthening the media on risk communication and information dissemination.

Sendai Framework Dimensions	Best practices	Opportunities to consolidate and scale best practices
	- Promotion and enhancement of endogenous knowledge (beliefs, perceptions, local indicators)	- Existence of local radios, community leaders, social networks
	- Existence of contingency plans	- Existence of local committees
	- Existence of water level markers and delineation of the highest water levels	- Existence of local committees
	- Multi-hazard approach	- Increased knowledge of risk mapping and management strategies
	- Community participation	- Existence of plans and strategies for community, women's and gender involvement
Strengthening the governance of RIS and the CCA	- Synergy of action between structures	- Existence of transboundary VB mechanisms such as the Ghana-Burkina Faso CTGS, the CTGEN, the IWRM-CTCs - DRSP management platforms
	- Prioritizing DRR budgeting	- Existence of cross-sectoral DRR platforms - Presidential Supervision of Certain DRR Platforms - Availability of funds for disasters in selected countries and at the regional level
	- Existence of the DRR Management Committee	- Support for TFPs and NGOs
	- Actors in the disaster management chain are trained	- Existence of DR management projects and programs
	- Existence of a WhatsApp group for the exchange of information on DRs	- Most of the players have telephones and good network coverage
Investing in DRR for resilience	- Reforestation	- Support from the Directorate General of Water and Forests - Existence of climate finance mechanisms (Adaptation Fund - AF, Green Climate Fund - GCF)
	- Water control through the construction of reservoirs, etc.	- Projects/programmes for investment in community water infrastructure
	- Cost-benefit analysis of DRRs	- Post-Disaster Needs Assessment Mechanisms (PDNA)
	- Existence of a stormwater collection basin	- Planning of DRR-CCA activities in local plans
	- Reforestation	- Environment Week
Strengthening disaster preparedness	- Strengthening the Capacity of Local IFDRM Institutions	- Development of Projects and Programmes and employment related to IFDRM and CCA at the local level - Existence and involvement of TFPs in DRR (Red Cross, Médecins sans frontières, Plan international, CARE International, etc.) - Existence of civil protection agencies
	- Disaster simulation exercises	- Existence of local committees
	- Use of endogenous knowledge	- Existence of national reports on SLM
	- Existence of a cereal bank	- Existence of food safety EWS
	- Coordination and collaboration among the various actors	- Agreements and cooperation between stakeholders.

4. Framework for action

The development of the Framework for Action focuses on identifying the major problems and challenges of effective community involvement, defining strategic orientations and actions, as well as strategies for financing and monitoring the implementation of the plan.

4.1. Major issues and challenges of community involvement

The diagnosis carried out makes it possible to identify the major issues as well as the underlying challenges that emerge for the development of a reliable and relevant action plan for an effective involvement of communities in DRR and CCA in the Volta Basin.

The three (03) major issues that emerge from the diagnostic analysis of community involvement in DRR and CCA are as follows:

- the lack of locally adapted knowledge to boost community engagement for effective DRR;
- weak institutional and strategic development for effective management of FDR and CCA at the local level;
- the lack of appropriate technical capacity of communities on DR forecasting and preparedness.

> **→ Major Problem 1: Lack of locally adapted knowledge to boost community engagement for effective DRR**

The under-exploitation of endogenous knowledge is one of the major concerns highlighted by the actors in general. Feedback from the VFDM pilot initiatives and exchanges at local, national and regional levels have made it possible to identify the problems of poorly adapted knowledge that are obstacles to effective management of DRs. In fact, it has emerged from local consultations that many endogenous practices exist in flood and drought forecasting and warning, as well as in DRR and CCA; but which are very little or not exploited. In addition, the so-called modern methods of forecasting and managing DRs are not always directly and easily accessible to communities because of their poor adaptation to their system of reference, thought and perception. Much effort is expected in terms of the form or language of dissemination of risk alert messages. Local weather technologies are not always understood by communities.

> **→ Major Problem 2: Weak institutional and strategic development for effective management of FDR and CCA at the local level**

The VFDM pilot initiatives on DRR are one of the first experiences in the integrated management of FDR in the sub-region. They have made it possible to set up DR community management committees. It is clear that such institutions dedicated specifically to the management of DRs are not legion in the face of the amplification of DRs aggravated by CC. In addition, the few of these specific or related community structures that exist at the local level struggle to play a key role in DRR and CCA. As a result, DRR platforms are not deployed or poorly functioned at the local level, at least in some countries. Beyond this weakness, existing platforms are confronted, albeit like the above platforms but more seriously, with the problems of lack of organizational and operational resources.

Local or communal contingency plans are strategic DRR planning tools. They are normally developed and updated annually in anticipation of potential disasters in each locality. It turns out that contingency plans are not always renewed or are late; which is detrimental to effective disaster preparedness and response. It is therefore important that these instruments are regularly updated.

The question of financing obviously remains a fundamental problem that limits the development and functioning efforts of the institutions. It remains cross-cutting in the operationalization of all DRR and CCA policies and strategies. It should be stressed that the financing problem is seen from two major angles, namely i) the share of State funding that is considered insufficient and ii) the weak capacity of the institutions themselves, particularly local institutions, to mobilize funding.

> **→ Major problem n°3: Lack of appropriate technical capacity of communities on DR forecasting and preparedness**

Feedback has highlighted at all levels the lack of technical capacity of actors to ensure effective DRR and a suitable adaptation to the security of people, goods and socio-economic activities. This situation is alarming at the local level where resilience to DRs calls for the development of appropriate capacities. Beyond the acquisition of the knowledge of understanding the DRs mentioned above, the three phases of preparedness, response and recovery require procedures, practices and skills capable of reducing the risks and consequences associated with them. Whether it is floods or drought or any other disaster, this three-phase approach needs to be applied[3].

Preparedness requires the establishment of community-based flood and drought management institutions (e.g. management committee, ad hoc response committee), including any other disasters, management planning for potential DRs and, as appropriate, prevention initiatives. The weak development of community structures therefore strongly penalizes the effectiveness of IFDRM in the basin, as does the non-renewal or absence of local contingency plans. The weak capacities of the actors notified during the process on the feedback on the appropriation of texts and strategies as well as for the implementation of DRR measures is of course an obstacle to effective preparation.

The response concerns the onset of the disaster and includes situational awareness (including damage), protection and relief of people and property (including shelter and immediate care). It calls for appropriate behaviours, timings, implementation of the established plan and mobilisation of the planned support network. Unfortunately, the response to disasters is still poorly oiled in terms of interventions, highlighting the lack of technical capacity at all levels of the actors and more pronounced at the community level. The actors point in particular to the lack of simulation exercises and poor preparation in general.

Recovery itself suffers from poor preparedness against the backdrop of a lack of financial resources for both preparedness and post-disaster recovery. The restoration of essential services, the physical and psychological rehabilitation of people, the reconstruction of property and infrastructure as well as the capitalization of DRR experiences are main issues addressed by this phase. In the Volta Basin, the actors emphasized the systematic capitalization of feedback with a view to strengthening community resilience to DRs.

The main challenges underlying the major issues discussed above and that will be addressed in the short and medium term are summarized in Table 8.

[3] Handbook on Community-Based Flood and Drought Management in the Volta Basin, VFDM Project, 2022

Table 8 : Major Issues and Challenges of Effective Community Involvement in Disaster Risk Reduction and Climate Change Adaptation

Major problems	Major challenges and issues
Lack of locally adapted knowledge to boost community engagement for effective DRR	❖ Consideration of endogenous practices in strengthening forecasting as well as in adaptation to floods and droughts for more effective community engagement in DRR ❖ Development of more tailored knowledge and forecasting on FDR for local communities ❖ Community development and ownership of local meteorology
Weak institutional and strategic development for effective management of FDR and CCA at the local level	❖ Promotion of Community institutions dedicated to the management of DRs and CC ❖ Strengthening the deployment of DRR platforms at the local level ❖ Regular and timely updating of local contingency plans ❖ Appropriate funding for the DDR
Lack of appropriate technical capacity of communities on DR forecasting and preparedness	❖ Appropriation of texts and strategies by communities and all actors in the grassroots support chain ❖ Technical capacity development (SLM, IWRM, CC, rescue & relief, etc;) applicable at the local level ❖ Popularization and regular applications of simulation exercises in rescue and emergency relief ❖ Systematic capitalization of feedback

4.2. Strategic orientations for boosting community involvement

4.2.1. Expected changes

The changes expected by communities and stakeholders are strategic, institutional, operational and financial. They are summarized below for each of the orders.

At the strategic level

- Strengthening local DRR regulations
- Regular development/updating of local contingency plans
- Establishment/organization of regular talks between the local and legislative levels for the strategic development of the DRR

At the institutional level

- Provision (establishment and/or functional strengthening) of DRR platforms within all local authorities
- Provision (establishment and/or functional strengthening) of sustainable community management committees for flood and drought control at the grassroots local level throughout the VB
- Development of synergies of interventions between actors / Intersectoral management of DRR and CC

At the operational level

- Integration of endogenous knowledge into DRR strategy
- Lessons learned on DRR and CCA are capitalized to strengthen interventions and strategies
- Communities are prepared to respond effectively to potential disasters as well as for post-disaster recovery

- DRR and CCA actors are equipped to effectively support communities in DRR and CCA

At the financial level

- States and municipalities in the Volta Basin are equipping themselves with appropriate provisions for preparedness, response and recovery in DRR
- Community-based and local institutions are able to mobilize financial and material resources for their DRR and CCA efforts

4.2.2. Strategic axes for boosting community involvement

The correlation made between the major problems identified and the main challenges to be met makes it possible to distinguish three (03) main axes of strengthening community involvement for effective DRR and CCA (Table 9).

Table 9 : Strategic axes related to the challenges of boosting community involvement in disaster risk management and climate change adaptation

Major problems	Underlying challenges	Strategic axes
Lack of locally adapted knowledge to boost community engagement for effective DRR	❖ Consideration of endogenous practices in strengthening forecasting as well as in adaptation to floods and droughts for more effective community engagement in DRR ❖ Development of more tailored knowledge and forecasting on FDR for local communities ❖ Community development and ownership of local meteorology	Strengthening community and stakeholder knowledge of FDR for effective DRR and CCA at the community level
Weak institutional and strategic development for effective management of FDR and CCA at the local level	❖ Promotion of Community institutions dedicated to the management of DRs and CC ❖ Strengthening the deployment of DRR platforms at the local level ❖ Regular and timely updating of local contingency plans ❖ Appropriate funding for the DRR	Promotion of community and local institutions for effective involvement as a guarantee of efficient management of FDR and CCA
Lack of appropriate technical capacity of communities on DR forecasting and preparedness	❖ Appropriation of texts and strategies by communities and all actors in the grassroots support chain ❖ Technical capacity development (SLM, IWRM, CC, rescue & relief, etc;) applicable at the local level ❖ Popularization and regular applications of simulation exercises in rescue and emergency relief ❖ Systematic capitalization of feedback	Empowerment of communities and management actors for effective community preparedness, response and recovery against FDR and other disasters

The three (03) main strategic axes of intervention for effective community involvement in DRR and CCA are as follows.

- **Axis 1:** Strengthening the knowledge of communities and actors on FDR for effective DRR and CCA at the community level;

- **Axis 2:** Promotion of community and local institutions for effective involvement as a guarantee of efficient management of FDR and CCA;
- **Axis 3:** Empowerment of communities and management actors for the effective preparedness, response and recovery of communities against FDR.

4.2.3. Strategic orientations, objectives and priority actions

On the basis of the strategic actions identified, the overall objective and the specific objectives, as well as the priority actions and activities for their implementation, are formulated.

Overall objective

The overall objective of the Framework for Action is to energize community involvement to ensure effective disaster risk reduction and CCA in the VB.

Through the implementation of this action plan, the aim is to remove bottlenecks for effective community involvement in DRR and CCA. This calls for the strengthening of institutional and operational capacities, including strategic ones, at the community and local levels, as well as actors at the supra-local level to stimulate a dynamic of actions capable of guaranteeing sustainable DRR and CCA.

Specific objectives

In accordance with the three strategic axes defined, three strategic objectives are pursued as follows:

- strengthen community and stakeholder knowledge on FDR for effective DRR and CCA at the community level;
- ensure the development of community and local institutions for efficient management of FDR and CCA;
- improve community preparedness, response and recovery capacities for effective reduction of FDR.

Priority actions and activities

The process of local, national and regional consultations based on the feedback from the VFDM project has made it possible to highlight ten priority actions and twenty-seven activities that will contribute to the dynamization of community involvement for effective DRR and CCA in the Volta Basin.

The ten (10) priority actions identified are as follows:

- valorization of endogenous knowledge;
- development of Community techniques for the assessment of FDR;
- capacity building of communities and local actors for effective implementation of legal DRR provisions;
- operationalization of the local structures of IFDRM and CCA;
- strengthening collaboration among DRR actors, including CCA;
- improving investments for effective DRR and CCA at the local level;
- development of appropriate and effective communication for effective DRR at the community level;
- IEC for effective community engagement in DR preparedness, response and recovery;
- building resilient infrastructure;
- capitalization of DRR experiences at the local level in the Volta Basin.

Priority actions are presented in Table 10 with a list of targeted activities and potential actors capable of driving change, according to strategic axes and specific objectives.

Table 10 : Priority actions, targeted activities and potential implementation actors according to strategic axes and specific objectives

Axis 1: Strengthening the knowledge of communities and actors on FDR for effective DRR and CCA at the community level
Specific Objective 1: Strengthen community and stakeholder knowledge of FDR for effective DRR and CCA at the community level
Actors of change: Community institutions, social intermediation actors (CWPs, NGOs), DR reduction and CCA platforms, state hydrometeorological institutions, Universities & research institutions
Priority actions
A1.1: Valorization of endogenous knowledge Development of a community-accessible repository of existing resilient DRR practices; Establish a system for recognizing/rewarding holders of endogenous knowledge; Development of an endogenous process for the evaluation of FDR at the scale of the Volta Basin
A1.2: Development of community-based FDR assessment techniques Development of community-based flood risk assessment techniques that are gender-sensitive and context-specific; Development of community-based drought risk assessment techniques that are gender-sensitive and context-specific
Axis 2: Promotion of community and local institutions for effective involvement as a guarantee of effective management of FDR and CCA
Specific Objective 2: Ensure the development of community and local institutions for effective management of FDR and CCA
Actors of change: Community/local institutions, social intermediation actors (CWPs, NGOs), DR reduction and CCA platforms, hydrometeorological state institutions
Priority actions
A2.1: Capacity building of communities and local actors for effective implementation of DRR legal provisions Popularization of political, legal and strategic provisions; Drafting of municipal decrees of FDRM; Updating of the VB local contingency plans; Integration of gender (women and vulnerable groups) into VB-wide DRR policies and plans
A2.2: Operationalization of local IFDRM and CCA structures Formalization of the FDR Community Management Committees; Establishment of federations of FDR Community Management Committees; Strengthening/Implementing DRR and CCA Platforms
A2.3: Strengthening collaboration among DRR (including CCA) actors Development of a guideline for community involvement at all stages of DRR in the Volta Basin; Organization of sharing workshops between DRR and CCA actors;
A2.4: Improving investments in locally effective DRR and CCA Advocacy for resource mobilization (Infrastructure component, Public Security and Administration component, Social Service and Services component and Economic component); Capacity building of local DRR institutions in financial mobilization
Axis 3: Empowerment of communities and management actors for the effective preparedness, response and recovery of communities against FDR
Specific Objective 3: Improve community preparedness, response and recovery capacities for effective FDR

reduction
Actors of change: Community/local institutions, social intermediation actors (CWPs, NGOs), DR and CCA reduction platforms, state civil protection and hydrometeorological institutions, firefighters
Priority actions
A3.1: Development of Responsive and Effective Communication for Effective DRR at Community Level Mass awareness (theatre, debates, films, documentaries) on FDR; Strengthening community radios for the benefit of communication on DR;
A3.2: IEC for effective community engagement in DR preparedness, response and recovery Environmental education in households, schools and learning centres; Popularization, training and simulation of contingency plans; Strengthening the capacities of state and non-state services in specific areas in terms of preparedness and reconstruction; Training of communities, women and youth on DRR; Periodic organization of sensitive simulation exercises
A3.3: Building Resilient Infrastructure Taking into account environmental impact studies; Construction of low-carbon infrastructure; Installation of community beacons for flood prevention and warning
A3.4: Capitalization of DRR experiences at the local level in the Volta Basin Regular hold of the Retex at all levels; Preparation of capitalization documents; Dissemination of good practices

4.2.4. Simplified logical framework

As the diagnosis of community involvement in DRR and the proposals for action are made on the basis of a participatory approach involving all the actors concerned by DRR, through documentation of community practices and consultations (particularly in workshops) at the local, then national and regional levels, the action plan remains the result of the reflections and suggestions of the communities and the DRR actors themselves. The national and regional consultants provided the necessary quality assurance through the consolidation and coherence of the proposals.

The implementation periods chosen are spread over five (5) years, with the short term (ST) of 1 to 2 years, the medium term (MT) of 2 to 3 years and the long term (LT) of 4 to 5 years. Some actions are permanent and are scheduled for each term while others are one-off on one term or two terms depending on the extent of the action in time.

The institutions responsible for the actions are those that have the leadership role in the implementation of the targeted actions by virtue of their prerogatives or sovereign roles or their importance for the actions, depending on the scales (local, subnational, cross-border/regional) of implementation. They were proposed by the actors and supplemented as necessary to take into account potential actors who were omitted or capable of boosting the implementation of actions by the sovereign institutions. Historical/potential actors with proven experience in supporting actions have also completed the list of structures associated with the implementation.

The programmed activities are presented in Table 11 representing the logical framework of the action plan. It presents the activities according to priority actions and specific objectives, indicating the period of implementation and the responsible actors.

Table 11 : Simplified logical framework

N°	Priority actions	Activities	Period			Responsible institutions	Related institutions
			ST	MT	LT		
Axis 1: Strengthening the knowledge of communities and actors on FDR for effective DRR and CCA at the community level							
Specific Objective 1: Strengthen community and stakeholder knowledge of FDR for effective DRR and CCA at the community level							
1.1	Valorization of endogenous knowledge	Development of a community-accessible repository of existing resilient DRR practices	X	X		- Civil Protection Agency - VBA	- RED CROSS - Local authorities - Universities and Research Centers - NGOs/CSOs
		Establish a system for the recognition/reward of endogenous knowledge holders	X			- VBA	- Civil Protection Agency - NGOs/CSOs
		Development of an endogenous evaluation process for FDR at the scale of the Volta Basin	X			- VBA	- Civil Protection Agency - Ministries in charge of water, agriculture and the environment - Universities and Research Centers
1.2	Development of community-based FDR assessment techniques	Development of community-based and environmentally appropriate flood/drought risk assessment techniques	X			- VBA	- Civil Protection Agency - Ministries in charge of water, agriculture and the environment - NGOs/CSOs
		Development of appropriate communication tools for different audiences (posters, etc.)	X			- VBA - GWP-WA	- Civil Protection Agency - Ministries in charge of water, agriculture and the environment - NGOs/CSOs
- Axis 2: Promotion of community and local institutions for effective involvement as a guarantee of effective management of FDR and CCA							
- Specific objective 2: Ensure the development of community and local institutions for efficient management of FDR and CCA							
2.1	Capacity building of local communities	Popularization of political, legal and strategic provisions	X			- VBA - Civil Protection Agency	- Ministries in charge of water and the environment

N°	Priority actions	Activities	Period			Responsible institutions	Related institutions
			ST	MT	LT		
	and actors for effective implementation of DRR legal provisions						- Regional institutions (GWP/WA, VBA, etc.) - CWPs - NGOs/CSOs
		Drafting of municipal FDRM decrees	X	X		- Mayor/Local authorities	- Civil Protection Agency - Grassroots Development Committees - NGOs/CSOs
		Updating the VB local contingency plans (and finalizing them where they do not yet exist)	X	X	X	- Local authorities	- Civil Protection Agency - Grassroots Development Committees - NGO/CSO Defence and Security Forces - DSS-decentralised state services - State, platform - NGOs/CSOs - TFP
		Integration of gender (women and vulnerable groups) into VB-wide DRR policies and plans	X	X		- VBA - GWP-WA	- Civil Protection Agency - Ministries in charge of water, agriculture and the environment - NGOs/CSOs
2.2	Operationalization of local IFDRM and CCA structures	Formalization of the FDR Community Management Committees	X	X		- Civil Protection Agency	- Mayor/Local authorities - Grassroots Development Committees - NGOs/CSOs
		Establishment of federations of FDR Community Management Committees			X	- Civil Protection Agency	- Mayor/Local authorities - Grassroots Development Committees - NGOs/CSOs
		Strengthening/establishing DRR and CCA Platforms	X			- Civil Protection Agency	- Ministry in charge of civil protection - Grassroots Development Committees - Mayor/Local authorities

N°	Priority actions	Activities	Period			Responsible institutions	Related institutions
			ST	MT	LT		
							- NGOs/CSOs
2.3	Strengthening collaboration among DRR actors, including CCA	Development of a guideline for community involvement at all stages of DRR in the Volta Basin, including negotiation procedures for conflict of interest cases	X	X		- VBA	- Ministry in charge of civil protection, water and the environment - Local and decentralized/decentralised authorities - NGOs/CSOs
		Organization of sharing workshops between DRR and CCA actors (CRT community of practice)	X	X	X	- VBA	- Ministries in charge of water, agriculture and the environment - Civil Protection Agency - NGOs/CSOs - Red Cross - GWP-WA
		Conducting research and development to identify the best governance models (and to identify all the actors to be involved, in specific contexts) and their roles/potentialities	X	X	X	- VBA - GWP-WA	- Universities - Research structures - Civil Protection Agency
2.4	Improving investments for locally effective DRR and CCA	Advocacy for resource mobilization (Infrastructure Component, Public Security and Administration Component, Social Service and Services Component, and Economic Component)	X	X		- VBA - GWP-WA	- Ministries in charge of water, environment - Humanitarian institutions - CWPs - NGOs/CSOs - Local authorities - Local and decentralized/decentralised authorities - TFP
		Capacity building of local DRR institutions in financial mobilization	X	X		- CWPs and Civil Society	- Ministries in charge of water, environment, finance - Humanitarian institutions - Local authorities

N°	Priority actions	Activities	Period			Responsible institutions	Related institutions
			ST	MT	LT		
							- Local and decentralized/decentralised authorities - CWPs - NGOs/CSOs - TFP
- Axis 3: Empowerment of communities and management actors for the effective preparedness, response and recovery of communities against FDR							
- Specific Objective 3: Improve community preparedness, response and recovery capacities for effective FDR reduction							
3.1	Development of adapted and effective communication for DRR at the community level (two-way communication)	Mass awareness (theatre, debates, films, documentaries) on FDR	X	X		- Civil Protection Agency	- CWP & ONG/OSC - RED CROSS - Local authorities - Press, TV, radio, actors/theatre companies etc.
		Strengthening community radios for the benefit of communication on DRs, including creation/strengthening of thematic and multi-stakeholder WAP groups	X	X		- Civil Protection Agency	- RED CROSS - Local authorities - Presses, TV, radio CWPs - NGOs/CSOs
3.2	IEC for effective community engagement in DR preparedness, response and recovery	Environmental education in households, schools, workplaces (if possible) and learning centres	X	X	X	- Civil Protection Agency	- Ministries in charge of water, environment, primary, secondary, and higher education, and social affairs - CWPs - NGOs/CSOs - RED CROSS
		Extension, training and simulation of contingency plans	X	X	X	- Civil Protection Agency	- RED CROSS - Local authorities - Grassroots Development Committees - NGOs/CSOs - Defence and Security Forces - DSS-decentralised state services

N°	Priority actions	Activities	Period			Responsible institutions	Related institutions
			ST	MT	LT		
		Capacity building of state and non-state services in specific areas in terms of preparedness and reconstruction	X			- Civil Protection Agency	- Ministries in charge of water, agriculture and the environment - Regional institutions (GWP-WA, VBA, etc.) - RED CROSS - Universities and Research Centers
		Training communities, women and youth on DRR	X	X	X	- Civil Protection Agency	- RED CROSS - Local authorities - Grassroots Development Committees - CWPs - NGOs/CSOs - Defence and Security Forces - DSS-decentralised state services
		Periodic organization of simulation exercises sensitive to gender and to all "weak" actors (elders, people with disabilities, etc.)	X	X	X	- Social Welfare Agency	- RED CROSS - Local authorities - Grassroots Development Committees - NGOs/CSOs - Defence and Security Forces - DSS-decentralised state services
3.3	Building Resilient Infrastructure	Consideration of environmental and social impact assessments	X	X	X	- State & Decentralized Authorities	- NGOs/CSOs - Local communities (CFDMC, LWC, etc.) - TFP
		Construction of low-carbon infrastructure (with low greenhouse gas emissions)	X	X	X	- State & Decentralized Authorities	- NGO/CSO - Local communities (CFDMC, LWC, etc.) - Private sector - TFP

N°	Priority actions	Activities	Period			Responsible institutions	Related institutions
			ST	MT	LT		
		Installation of community beacons for flood prevention and warning	X	X	X	- State & Decentralized Authorities	- CWPs - NGO/CSO - Local communities (CFDMC, LWC, etc.) - TFP
3.4	Capitalizing on DRR experiences at the local level in the Volta Basin	Consistent hold of Retex at all levels	X	X	X	- Civil Protection Agency	- Ministries in charge of water and agriculture - Decentralized communities - Local communities (CFDMC, LWC, etc.) - CWP - NGO/CSO - TFP
		Elaboration of capitalization documents	X	X	X	- VBA - GWP-WA	- Civil Protection Agency - Ministries in charge of water and agriculture - Decentralized communities - Local communities (CFDMC, LWC, etc.) - CWPs - NGOs/CSOs - TFP
		Dissemination of good practices	X	X	X	- VBA - GWP-WA	- Civil Protection Agency - Ministries in charge of water and agriculture - Decentralized communities - Local communities (CFDMC, LWC, etc.) - TFP

4.2.5. Governance and Funding

Planned community actions require an appropriate organization for their implementation and a financing strategy at each of the levels concerned.

At the regional level, the organization of the implementation of the planned community actions within the Volta Basin will be coordinated by the VBA, which the countries have mandated for their cooperation with a view to the rational and sustainable development of the water resources of the Volta River in an equitable manner and for the well-being of the communities sharing the BV. Through its mandate, the VBA will coordinate actions at the basin level and will support the States in the implementation of planned community actions. To support countries, the VBA needs to take into account the actions for which it is responsible and to extend the pilot sites by country for their application as part of the faire-faire to hand over to the countries for scaling. It will rely on the GWP-WA for advocacy to scale up community DRR and CCA sites to basin states.

At the national level, the implementation of community actions will be coordinated mainly by the civil protection agency or any national structure representing the DRR platform. The support of the National Focal Structure (NFS) of the VBA will accompany the planned actions as well as other national structures whose objectives contribute to DRR. The agency will coordinate actions related to the strengthening of DRR regulations and support for strengthening the institutional development of DRR, as well as capacity building of technical actors on preparedness, response and recovery at all national levels.

At the local level, the implementation of community actions will be coordinated by the administration of local authorities (town hall or sub-prefecture). It has a key role to play in coordinating all actions for effective community involvement in DRR and CCA. Coordination at the local level involves strengthening local institutions in general and communities in particular through their establishment and/or operational functional strengthening. Institutional strengthening through the deployment of community management committees in the national portions of the Volta Basin is the cornerstone of effective DRR in the basin. The local territorial administration will strengthen its local legislation to boost the actions of the different phases of DRR and will support the various capacity-building initiatives of local actors and communities to strengthen preparedness, response and recovery. Institutional strengthening must take into account, after the establishment of a significant number of functional community management committees, support for the creation of federations of these committees to further strengthen community involvement and community monitoring in DRR.

In order to carry out Community actions, it is necessary to ensure appropriate funding. The mobilization of funding therefore remains a key component of the implementation of the planned actions. The financing strategies for the different scales are proposed below.

At the regional level, the VBA will develop a support programme to back up initiatives aligned with the planned actions. The project will take into account all the proposed regional governance. The components of such a programme will include the extension of pilot sites, capacity building of country actors for effective DRR and support to countries in the institutional and operational strengthening of local institutions and particularly communities.

At the national level, the technical directorates in charge of water in partnership with the civil protection agency, the technical directorates in charge of agriculture and climate and civil society will set up a national programme for the implementation of the planned national actions. The components of such a programme will include strengthening legislation on DRR, local and community institutional development, and capacity building of actors in the DRR implementation chain from the national to the community level. Capacity building will include advocacy for the strengthening of state funds allocated to DRR for the benefit of the Annual Budgeted Work Plans (ABWP) of the civil protection agency and the technical directorates concerned, and contingency plans. The strengthening of legislation will take into account the state financing provisions or incentives for DRR.

At the local level, the focus will be on building the capacity of local and community actors to mobilize sustainable financing. Sustainable financing involves strengthening the local contribution to DRR through their inclusion in the budgeted local development plan and the mobilization of supra-local financing.

Financial mobilization incentives should be taken into account in this strategy. Strengthening financial mobilization capacities will enable local and community institutions to develop DRR-oriented local development projects.

The governance and funding diagram for priority actions is presented in Figure 7.

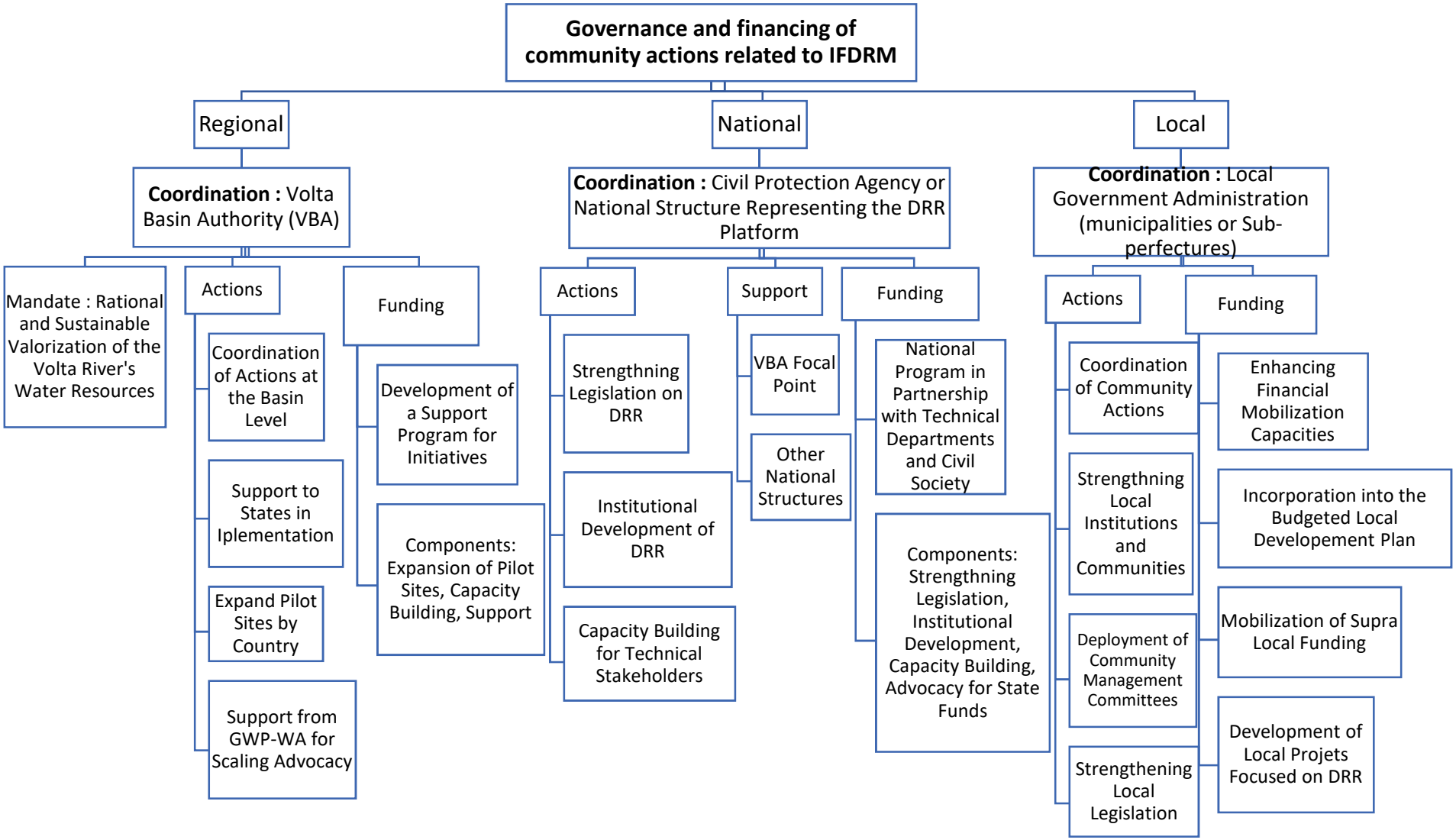

Figure 5 : Governance and financing of the Framework for Actions to Boost Community Involvement in Disaster Risk Reduction and Climate Change Adaptation

4.2.6. Monitoring and evaluation of IFDRM's community actions

Monitoring and evaluation of the implementation of the action plan will be carried out at several levels, from the regional to the local level (Figure 8). It will be carried out according to the provisions of the VB water charter and within the projects/programs put in place to ensure the effective involvement of the communities of the basin.

The VB Water Charter has a mechanism for monitoring and evaluating the implementation of the basin's action plans and in accordance with these provisions, the VBA and the States produce periodic reports. The VBA will work with the States Parties to define indicators for monitoring community involvement in DRR and CCA with a view to integrating them into the overall reporting framework on the basin. This monitoring and evaluation framework will ensure the monitoring of community involvement in a sustainable manner. These reports by the VBA and the States will be based on assessments of the implementation of DRR and CCA actions at the community level, in this case on floods and droughts.

Each project/programme at regional, national and local level will include a monitoring and evaluation component in its planning in accordance with its duration of implementation. Projects/programmes will define the specific indicators for their evaluations. Country guidelines will be defined with the support of the VBA through the national focal points. A mid-term evaluation and a final evaluation will be planned for each of the projects/programmes.

The tools for monitoring the indicators of the implementation of the action plans for community involvement in each project/programme are periodic project reports, study reports and mid-term and final evaluation reports of projects/programmes.

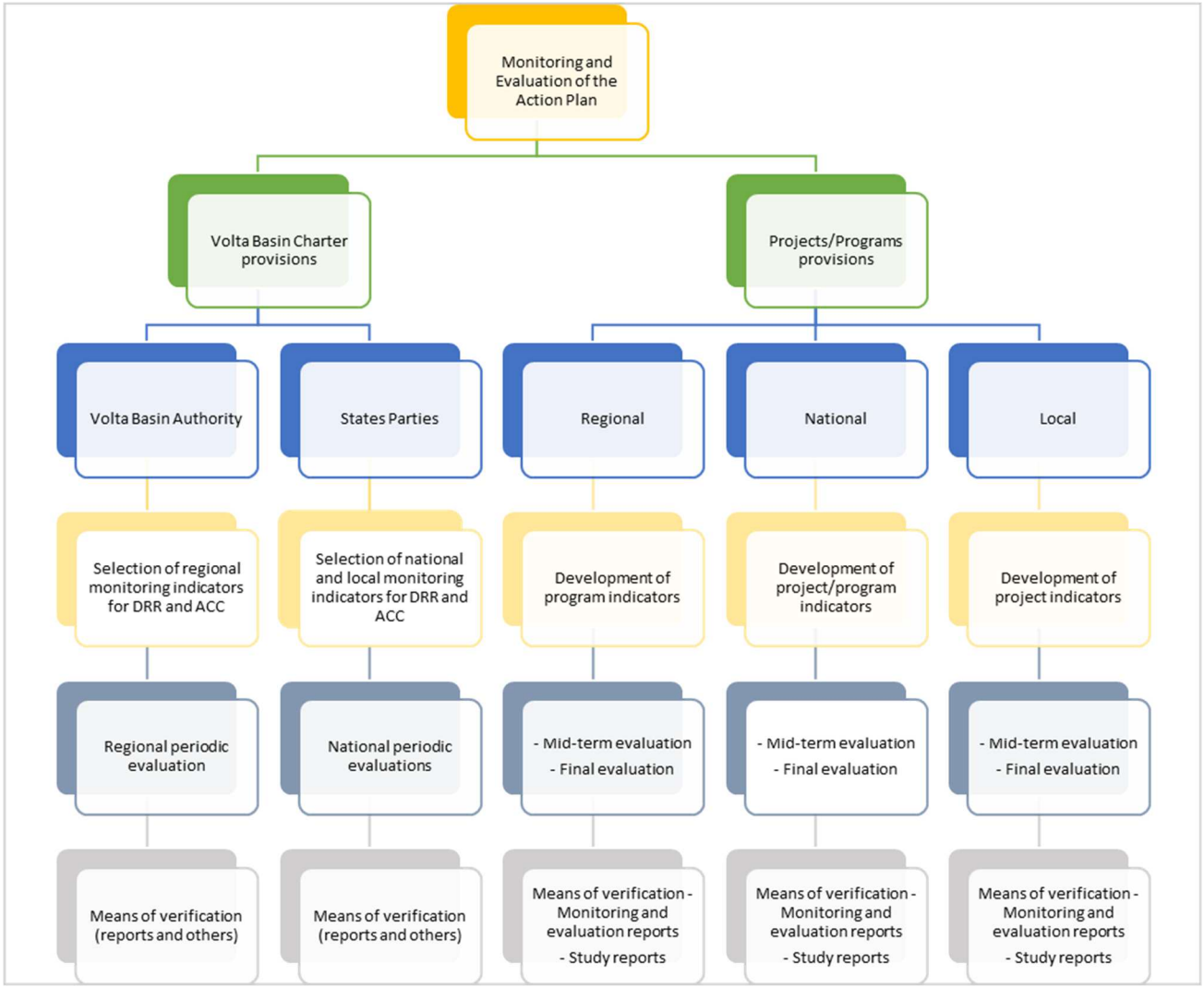

Figure 6: Monitoring and evaluation mechanism of the Framework of Actions to Boost Community Involvement in Disaster Risk Reduction and Climate Change Adaptation

Conclusion

The local consultation processes around the VFDM pilot sites and at the national and regional levels have made it possible to make an in-depth diagnosis of the problems and constraints related to the involvement of communities in DRR and CCA. It has been found that countless problems and constraints hinder the effectiveness of DRR and CCA at the community level, which is the very foundation of integrated and sustainable flood and drought management. These problems and constraints, which are of a regulatory, institutional and operational nature, pose three (03) major challenges related to the involvement of communities in DRR and CCA, namely: (i) the lack of locally adapted knowledge to boost community engagement for effective DRR, (ii) the weak institutional and strategic development for effective management of FDR and CCA at the local level and (iii) the lack of appropriate technical capacities of communities on DR forecasting and preparedness.

To address these challenges related to community involvement for effective DRR and CCA, three priority areas of action are defined as follows:

- Axis 1: Strengthening the knowledge of communities and actors on FDR for effective DRR and CCA at the community level;
- Axis 2: Promotion of community and local institutions for effective involvement as a guarantee of effective management of FDR and the CCA;
- Axis 3: Empowerment of communities and management actors for the effective preparedness, response and recovery of communities against FDR.

Actions have been formulated in a participatory manner through local, national and regional consultations at the Volta Basin level. These actions have been refined, completed and prioritised using a down-top approach from consultations on the pilot sites to the municipal, national and regional levels.

At the Community level, the actions adopted include the strengthening of specific Community institutions to specifically address FDRs with the necessary accompanying measures to ensure sustainable DRR and CCA. At the local level, this includes strengthening local legislation through the issuance of ordinance for the benefit of DRR and CCA, and the appropriation of DRR and CCA provisions. At the national level, actions aim to support the local level through institutional capacity building and preparedness, response and recovery, and the effective involvement of communities in regulatory processes and the mobilization of funding for DRR and CCA, as well as gender inclusion. At the regional level, the actions aim in particular at capacity building and support for States Parties for the effective implementation of the community involvement action plan for effective DRR and CCA.

A governance and funding mobilization strategy has been developed to support the implementation of actions at all levels. The strategy includes the development of projects/programmes at the regional, national and local levels to put the planned actions on track as well as the conduct of advocacy and awareness-raising for the mobilization of long-term financing.

The entire process will be supported by a monitoring and evaluation system at the different territorial scales (local, national and regional) and over time. The projects/programmes will be equipped with a monitoring and evaluation mechanism timed to their end, while the monitoring and evaluation mechanism of the VBA and the States Parties will ensure long-term monitoring and evaluation.

The Framework for Action is a tool that carries great hope for the development of sustainable community resilience to the FDR and CCA. It deserves to be implemented as soon as possible to ensure its effectiveness for integrated and sustainable flood and drought management.

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Appendix 1: Flood Risk Profile

The flood impact indicators considered are the number of inhabitants impacted, the economic loss of built-up areas, the agricultural loss (area of fields impacted), the impact on pastures, critical infrastructure/facilities affected, the impact on water resources and hydropower production, and the impact on protected areas (see figure below).

Affected population

The impacts of flooding on the population are distributed in almost all regions of the BV, with a general worsening trend in terms of the population affected by flooding under the projected climatic conditions. Northern Ghana (Volta and Eastern and Savannah regions) and most of Burkina Faso (in the north) are the most affected with average numbers of people affected likely to double each year. At the BV level, the annual number of people affected increases from nearly 30,000 in the current situation to more than 40,000 under the projected climatic conditions, and even up to nearly 80,000 if socio-economic projections are taken into account[4].

Economic loss of built-up area

The average annual losses for the built sector, especially the residential sector which accounts for 50%, reach about USD 25 million each year under current climatic conditions. Ghana is the most affected with average annual loss (AAL) values which, under projected climatic conditions (reference model), exceed USD 4 million[5].

Loss of agricultural production

Flooding is affecting cropland throughout the BV and these impacts are worsening with a degradation of nearly 40% compared to projections. This increase reaches 75% when considering a 50-year return period, for which more than 140,000 ha of cropland can be expected to be affected under the projected climatic conditions (reference model) compared to about 80,000 hectares under current climatic conditions[6].

[4] Volta Basin Disaster Risk Profile (VBA, 2022)
[5] Volta Basin Disaster Risk Profile (VBA, 2022)
[6] Volta Basin Disaster Risk Profile (VBA, 2022)

Impact on the Pasture

Flooding is affecting pastures throughout the BV. The trend is nevertheless mixed in the current climatic conditions and for the projected climatic conditions, showing a not very significant effect[7]. However, by focusing on a 50-year loss, its impact increases by about 30% when moving from current to projected climate conditions. The highest impact is concentrated in the Mopti region of Mali, both under current and projected climatic conditions.

Implications for critical infrastructure/facilities

The impacts of the floods on road infrastructure and health and education facilities are moderate in the VB. The impact on health and education facilities is about 0.3% of the overall stock; However, they could increase by 20% for educational institutions and 70% for health institutions, compared to the projected baseline climatic conditions[8].

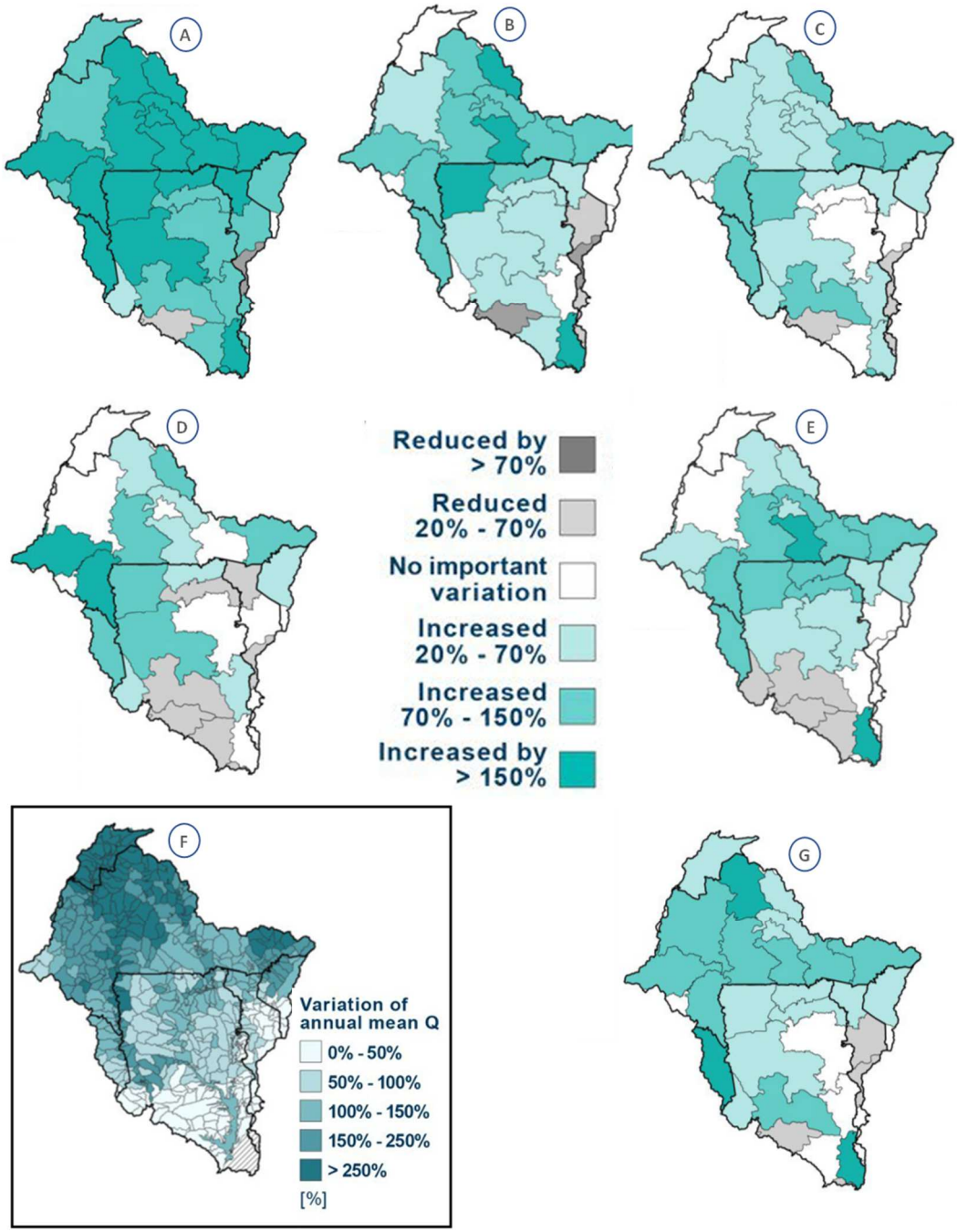
Impacts on water resources and hydroelectry

It is expected that water availability will increase under the projected climatic conditions for the period 2017-2100, particularly in the north of the basin[9]. The projected climate variability will lead to an increase in the magnitude and frequency of floods and droughts, although an average increase in river flows is expected. Years of low and abundant rainfall will be more frequent and alternate. Water reservoirs and hydroelectric potential are projected to increase in all future periods. Around 2030 and 2080, the largest increase concerns the Kompienga reservoir (29% and 70%), while around 2050 it concerns the Bui reservoir (41%). However, the simulations also indicate recurrent dry years.

Impact on protected areas

Floods are likely to affect most protected areas in the northern regions, however some regions of Ghana and Togo show the opposite behaviour. Considering a loss with a 50-year return period, the number of hectares likely to be flooded is projected to have almost doubled compared to current conditions[10].

[7] Volta Basin Disaster Risk Profile (VBA, 2022)
[8] Volta Basin Disaster Risk Profile (VBA, 2022)
[9] Volta Basin Disaster Risk Profile (VBA, 2022)
[10] Volta Basin Disaster Risk Profile (VBA, 2022)



Maps on the variations in flood risks projected by 2100 in the Volta Basin, compared to the current situation (2019-2017) *for A) the affected population, B) the economic loss of built-up areas, C) the agricultural loss , D) the affected pastures, E) the infrastructure, F) the water resources and hydropower, G) the protected areas*

Source: Volta Basin Disaster Risk Profile (VBA, 2022)

Appendix 2: Drought Risk Profile

The impact indicators considered for drought are the population impacted, the average annual loss of agricultural yield, the loss of area sown, the loss of agricultural production, the livestock potentially affected, and the protected areas likely to be affected (see figure below).

Population

More than 4.5 million people per year are exposed to severe drought conditions under current climatic conditions. This exposure to drought will increase by an average of 66% according to projections by 2100, i.e. on average nearly 8 million people per year in the VB and will exceed 15 million, i.e. three times more than in current climatic conditions, if the moderate population growth is taken into account (United Nations socio-economic projections). [11]

Average annual loss of agricultural yield and area sown

The impacts of drought on drought-induced crop yield losses are considered highest in the northern regions of the Volta Basin, particularly in Mali and Burkina Faso[12]. The current average annual yield loss is about 10% around north-central Burkina Faso. Under the projected climatic conditions, the contrast between the north and south of the Volta Basin will increase. Most regions of Burkina Faso will face average annual reductions of more than 8%, while northern Ghana, Togo and Benin are expected to reach 6%. In Côte d'Ivoire, a relatively large increase (+50%) in the average annual drought-induced loss of maize yield is expected.

Loss of agricultural production

Losses in average annual agricultural production (AAL) are contrasted in the VB. High losses are often in the regions, for example, of central Ghana, the western part of Burkina Faso; while the largest increases (+60%) in AAL are expected in Zanzan (Côte d'Ivoire), Upper West Ghana & Ahafo (Ghana) and Projected West and South Central (Burkina Faso). In the Volta Basin, drought-induced maize production losses result in an average annual loss of nearly USD 17 million. This amount is expected to increase (+36%) to nearly USD 23 million according to projections[13].

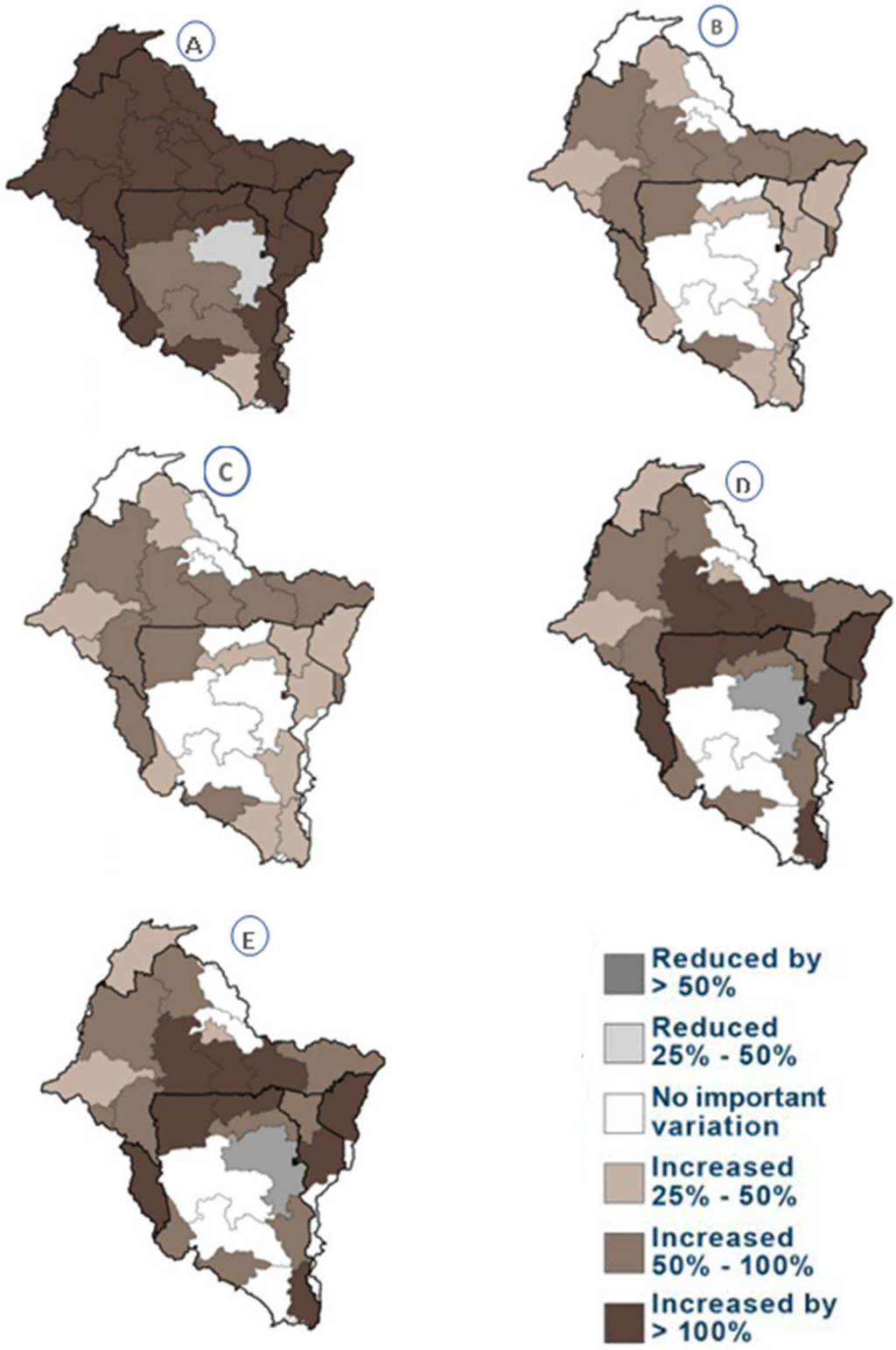
Potentially affected livestock

Livestock are exposed to severe drought conditions in the Volta Basin every year. On average, more than 5 million cattle and small ruminants are currently exposed to the effects of severe drought each year[14]. This figure could reach 9 million animals per year according to projections. This is a 71% increase from the current situation without taking into account changes in livestock populations. Under current and projected climatic conditions, there is a clear gradient from south to north that is related to aridity patterns and that the contrast will increase between north and south, and between regions and countries.

Protected areas likely to be affected

On average, more than 7500 square kilometers of protected natural areas are exposed to severe drought conditions in the VB each year[15]. On average, more than 13,000 square kilometres of protected areas per year are projected to be affected by severe drought conditions in the Volta Basin. This is a 72% increase from the current situation without taking into account potential changes in protected areas.

[11] Volta Basin Disaster Risk Profile (VBA, 2022)
[12] Volta Basin Disaster Risk Profile (VBA, 2022)
[13] Volta Basin Disaster Risk Profile (VBA, 2022)
[14] Volta Basin Disaster Risk Profile (VBA, 2022)
[15] Volta Basin Disaster Risk Profile (VBA, 2022)



Maps on the variations in drought risks projected by 2100 in the Volta basin *for A) the affected population, B) the loss of agricultural yield, C) the loss of agricultural production, D) the livestock potentially affected, E) the protected areas*

Source: Volta Basin Disaster Risk Profile (VBA, 2022)

Annex 3: Summary of Political, Legal and Policy Papers on DRR and CCA in the Volta Basin

Document Title	Objectives/visions	Proposed actions
Resolutions of the XVIII WMO Congress in 2018	The resolutions adopted at the XVIII WMO Congress highlight WMO's new strategy and aim to better meet the needs of society through the provision of reliable, accessible, user-oriented and fit-for-purpose information and services	- Strengthen national multi-hazard early warning systems and expand coverage to better address risks - Expand the provision of climate information and decision-support services at all levels - Developing support services for sustainable water management - Improve and expand the dissemination, exchange and management of current and past Earth system observation data and derivatives through the WMO Information System (WIS) - Ensure access to digital Earth system analysis and forecasting products at all spatio-temporal scales from WMO's Global Data Processing and Forecasting System (GTPS), without interruption - To meet the needs of developing countries to provide and use essential services related to weather, climate, water and related environment
African Union (AU) Programme of Action for Disaster Risk Reduction (2015-2030)	The Programme of Action aims to guide the reduction and management of multiple hazard-related risks in development processes at all levels, as well as within and across sectors, in line with the Sendai Framework. It seeks to strengthen disaster risk reduction in Africa and its integration into the policies of the African Union and Member States, in line with the Sendai Framework.	- Enhance coherence and integration between disaster risk reduction, climate change adaptation and mitigation, ecosystem management and fragility, and other development imperatives - Strengthen long-term capacities, including coordination mechanisms, at the continental and regional levels, to support the implementation of the African Regional Strategy and the Sendai Framework and systematically contribute to strengthening the resilience to natural disasters - Strengthen mechanisms, frameworks and capacities at the national and local levels for the integration, implementation and coordination of disaster risk reduction strategies and programmes - Develop a comprehensive approach to systematically integrate risk reduction measures into the design and implementation of programs to help disaster-stricken communities prepare for, respond to, and recover from emergencies - Develop practical tools and mobilize resources to support the implementation of DRR programmes and projects
ECOWAS, Action Plan for Disaster Risk Reduction (2015-2030)	The action plan is based on the four pillars of the Sendai Framework namely understanding disaster risks, strengthening disaster risk governance, investing in DRR for resilience and improving disaster preparedness for effective response and to "build back better" in recovery, rehabilitation and reconstruction. It places a transversal emphasis on	- Promote understanding of gender-responsive early warning, integrating indigenous knowledge and traditional practices - Develop, use and improve gender-sensitive disaster risk and vulnerability indicators at all levels (regional and national levels) - Support the strengthening of the capacity of regional disaster management to monitor gender-sensitive risks, services and institutions - Developing and strengthening gender-sensitive information channels in disasters: developing

Document Title	Objectives/visions	Proposed actions
	the gender and provides a framework through which DRR and gender focal points in the Commission and Member States can collaborate and work in partnership to ensure gender-responsive DRR.	and piloting a regional disaster information service - Promote and integrate gender-responsive DRR into ECOWAS and national development programmes, with climate adaptation, in particular drought and flood management and desertification - Support the creation, strengthening and regional networking of national platforms for gender-sensitive DRR policies, legislation, funding mechanisms and voluntary participation - Supporting Member States to build gender-responsive resilient infrastructure across sectors - Establish a fund to support gender-responsive DRR - Support the strengthening of national disaster response capacities and the reorientation towards a gender-responsive DRR goal - Develop gender-responsive information sharing programs and cooperation between disaster managers, gender experts, and community development - Facilitate sustainable and gender-responsive recovery and reconstruction with a risk reduction approach and build back better Develop gender-responsive regional disaster response capacity, including EERT, as part of a regional disaster management mechanism
Convention on the Status of the Volta River and Establishment of the Volta Basin Authority (VBA, 2007)	The objective of the States Parties to the Convention is to cooperate closely with a view to the rational and sustainable development of the water resources of the Volta River in an equitable manner and for the well-being of the communities sharing the BV.	Article 4 - Development and equitable and reasonable use of the water resources of the basin - Obligation to cooperate between States sharing the same watershed - Regular exchange of data and information between States Parties - Notification of proposed measures that may have adverse impacts, as well as related consultations and negotiations - Precaution, protection and prevention in the management of the basin's ecosystems and its communities - Notification of emergency situations - Possibility of concluding agreements concerning any portion of the Volta River for a project, programme or other use of water resources between States Parties.
The Volta Basin Water Charter (2018)	The general objective of this Water Charter is to set out the principles, rules, procedures and modalities for the equitable, concerted and sustainable use of the shared water resources of the Volta River Basin, with a view to contributing to the sustainable development of the Volta River Basin, in accordance with the mandate of the Volta Basin Authority. It specifically aims, on the one hand, to specify, supplement and develop the provisions of the Convention on the Status of the Volta River and the	- Promote mitigation and adaptation measures to the impacts of climate change and integrate these measures into countries' development objectives, including through institutional development, capacity building, strengthening of the policy and legal framework, support for research, and education, training and awareness-raising, and ensure the sustainable financing of these measures (Chapter 7, Article 53) - Ensuring resilience to climate change effects on populations, species and ecosystems of the basin through the implementation of the necessary measures (assessing vulnerability, identifying appropriate responses, strengthening the capacities of all actors, integrating the management of the adverse effects of climate change into sustainable basin management programmes, projects and strategies) (Chapter 7, Article 55)

Document Title	Objectives/visions	Proposed actions
	Establishment of the Volta Basin Authority of 19 January 2007, and, on the other hand, to promote the integrated management of transboundary water resources, and in particular to: a) To prevent and peacefully resolve inter-state disputes related to the use of shared water resources; b) To provide a framework for the quantitative and qualitative management of surface and groundwater resources; (c) ensure the conservation and restoration of the basin's aquatic ecosystems and their biological diversity, including the control of pollution, land degradation, the proliferation of aquatic invasive species and sustainable fisheries management; (d) Promote good governance in the integrated management of shared water resources and the environment.	- Develops and implements a sub-regional mitigation and adaptation strategy - the impacts of climate change in the basin, in line with national, sub-regional and regional programmes and plans in this area. (Chapter 7, Article 56) - Developing, implementing and updating contingency plans, including early warning and adaptation systems to mitigate, eliminate or reduce damage that may be caused by emergencies to the people, environment, property and water resources of the basin (Chapter 8, Article 59) - Inform the population about emergency plans, including early warning systems (Chapter 8, Article 59) - Inventory and map the hazard, vulnerability and risk of areas potentially subject to flooding and drought on its territory; - Capitalize on feedback on flood and drought management (Chapter 8, Article 61) - Develop and maintain a forecasting and early warning system by means of rainfall and hydrometric stations and prepare Emergency Plans to define the actions to be taken in the event of an alert or crisis situation (Chapter 8, Article 61) - Define objective indicators to qualify and anticipate particularly severe low water situations resulting in the impossibility of respecting the objective flows defined in Article 14 (Chapter 8, Article 62)
Strategy for flood and drought risk reduction and management in the Volta Basin and action plan (2023-2030)	Vision: By 2030, the Volta Basin has operational mechanisms (institutional, legislative and financial) for a concerted and integrated management of flood and drought risks, guaranteeing the resilience of communities to climate change, sustainable and inclusive socio-economic development, as well as the protection of ecosystems and the optimization of water resources. Objective: To mitigate the current and future impacts of floods and droughts on communities and ecosystems in the Volta Basin, through preventive, integrated, inclusive and sustainable management of risks and water resources, through the consolidation of the institutional, technical, scientific and financial capacities of the VBA, and the strengthening of cooperation and collaboration among States Parties	- Improved common knowledge of RIS across the VB - Enhanced cooperation, coordination and harmonization among institutions and States parties - Development of communication plans and contingency plans at the VB level - Establishment of a coordinated network of measures for the reduction of FDR, in an integrated manner - Strengthening of land use planning and sustainable land management policies - Co-development of community plans for the prevention of FDR, based on awareness and the promotion of local knowledge on risks - Strengthening of the VOLTALARM platform as an operational VB-wide Early Warning System - Implementation of protocols allowing the triggering of anticipatory actions for the different sectors of the VB - Development of decision-making tools in the agricultural environment, for the management of water resources, and the choice of agricultural activities and practices, based on the knowledge and integration of climate and weather forecasts
Action Plan for the Effective Participation	The action plan aims to improve the participation of women and vulnerable groups in a holistic way in	- Improving gender mainstreaming in the governance framework of the IFRM and E2E-EWS-FF processes in the Volta Basin;

Document Title	Objectives/visions	Proposed actions
of Women and Vulnerable Groups in the Integrated Flood Risk Management (IFRM) and Early Warning System for Flood Forecasting (SAP-BEB-PC) processes in the Volta Basin (2023)	the Integrated Flood Risk Management (IFRM) and the End-to-End Early Warning System for Flood Forecasting (E2E-EWS-FF) processes in the Volta Basin	- Capacity building of actors for the inclusive and participatory processes IFRM and E2E-EWS-FF in the Volta Basin; - Strengthening women's engagement and leadership in the inclusive and participatory IFRM and E2E-EWS-FF processes in the Volta Basin; - Capitalization and dissemination of successful experiences and best practices of the IFRM and E2E-EWS-FF processes integrating concerns related to women and vulnerable groups in the Volta Basin.
Transboundary Diagnostic Analysis of the Volta Basin (2013)	The TDA aims to provide a scientific and participatory assessment of the threats facing the resources of the Volta Basin and their root causes	- Preparation of the EWS which defined the priority actions aimed at removing the constraints diagnosed by the EWS
VBA Strategic Action Programme (2014)	Vision: A basin shared by partners driven by goodwill and a spirit of cooperation, managing water resources in a rational and sustainable way for their integral socio-economic development. Objective: The long-term objective of the Volta EWS is to strengthen the capacity of countries to plan and manage the Volta Basin and its aquatic resources and ecosystems within their territories in a sustainable way.	- Integration of climate change into national water use policies across the VB - Educating water users across the Basin on how to adapt to the impacts of climate change - Improving water quality assessment in the Volta Basin - Development of models for the distribution of water resources among competing users in the region - Establish an early warning system for droughts, floods and water damage in the VB - Identification of appropriate responses to the impacts of climate change on the VB's natural resources - Implementation of a regional program to address aquatic invasive species in the VB waterbodies - Development and implementation of a regional programme for the protection and restoration of river banks and gallery forests upstream of Lake Volta - Creation, rehabilitation and securing of transhumance and livestock corridors in the Volta Basin - Protection of the Volta Basin wetlands - Monitoring the biodiversity of the VB - Pollution control in heavily polluted areas of the VB - Capacity building of national water quality analysis laboratories in the VB - Strengthening transboundary and regional cooperation for water use management - Improvement and harmonization of regulations and safety standards relating to the VB's hydrological infrastructure - Support to riparian countries in the implementation of the institutional aspects of their IWRM plans

Document Title	Objectives/visions	Proposed actions
		- Operationalization of the BV Observatory
Flood and Drought Risk Maps in the Volta Basin (2022)	The objective of the maps is to spatialize the risks of exposure and impact of floods and drought in each of the VB countries	- Risk mapping for better decision-making
Manual for Community-Based Flood and Drought Management in the Volta Basin (2022)	Objective: To provide general and specific guidelines for effectively organizing/strengthening activities to ensure community participation at different levels of decision-making in flood and drought management	- Establishment of the Community Flood and Drought Management Committees (CFDMC) - Participatory mapping - Endogenous knowledge and measures on floods and droughts - Natural flood risk forecasting - Awareness raising and training on flood and drought risk management - Capacity building - First Aid Training - Safety marking - Local solutions to fight against floods and drought - Weather equipment - Flood Damage Estimation

Appendix 4: Summary of Analysis of the Integration of DRR and CCA Policies, Plans and Guidelines with Suggestions in the Volta Basin

Dimensions	Local/national aspects not taken into account (cf. feedback from suggestions from local experiences e.g. VFDM pilot initiatives)	Transboundary/regional aspects not taken into account	Suggestions
Understanding Disaster Risk	- Poor perception of the importance of IFDRM among local elected officials - Weak cross-sectoral integration of provisions - Lack of knowledge of documents at the local level - Weak vertical integration with the local level of IFDRM and CCA political-legal and policy documents	-	- Raise awareness and advocate for local elected officials to take into account IFDRM and CCA in local planning documents - Strengthen the IEC on IFDRM and CCA policy at the local level - Ensuring that national political-legal and strategic provisions are taken into account in local planning
Strengthening the governance of flood and drought risks (FDR) and Climate Change Adaptation (CCA) with reference to the legal and institutional framework, including technical tools such as risk profile, maps, warning systems, and operational plans	- Weak cross-sectoral integration of provisions - Lack of knowledge of documents at the local level - Low community participation - Low accessibility of texts	- Lack of a VB-wide SLM policy	- Need to popularize all decrees implementing laws - Update and popularize drought plans - Popularize the development plan and raise awareness of compliance with the requirements of the plan - Encourage community participation in the process of developing forest management plans - Compile and make accessible DRR and CCA texts - Monitor the application of DRR and CCA regulations - Developing a basin-wide SLM policy
Investing in Disaster Risk Reduction (DRR) for Resilience	- Low knowledge of planning documents such as SDAGE/SAGE at the local level		- Popularize planning documents such as SDAGE/SAGE to make them known to all development actors

Dimensions	Local/national aspects not taken into account (cf. feedback from suggestions from local experiences e.g. VFDM pilot initiatives)	Transboundary/regional aspects not taken into account	Suggestions
Strengthening disaster preparedness to respond effectively and to "build back better" during the rehabilitation and reconstruction phase	- Low valuation of local forest species in the operationalization of drought risk reduction - Weak operationalization of DRR and VAC plans and strategies - Weak alignment between national and local contingency plans - Weak alignment between national plans for the organisation of the civil response and local contingency plans - The non-prioritization of the development and operationalization of local contingency plans - Slowness in procurement procedures - Low capacity to mobilize financial resources	- Lack of a VB-wide SLM policy - Fable vertical integration with IFDRM' regional plans	- Proposing resilient forest species in the implementation of drought risk reduction - Advocate to local elected officials to take CCA into account in local plans - Resource mobilization for disaster preparedness and reconstruction - Ensure that the provisions of national contingency plans are taken into account in local contingency plans - Ensure that the provisions of the national civil response plans are taken into account in local contingency plans - Prioritize the development/updating of MCPs - Organize simulation exercises - Strengthening the procurement chain for disaster preparedness and reconstruction - Strengthening the capacities of municipalities in the search for funding for FDRM - Strengthening the capacity of actors on disaster preparedness and reconstruction - Developing a basin-wide SLM policy - Strengthen the integration of regional, national and local plans for effective DRR and CCA

Dimensions	Local/national aspects not taken into account (cf. feedback from suggestions from local experiences e.g. VFDM pilot initiatives)	Transboundary/regional aspects not taken into account	Suggestions
Ongoing flood and drought governance and risk management initiatives, programmes and projects	- Lack of follow-up of achievements by beneficiaries - Lack of capitalization of the project's achievements - Lack of synergy of action with other projects involved in the national portion of the VB - Strong orientation of projects towards urban areas - Lack of knowledge of the importance of the weather system installed in Tabota - Low knowledge of EWS at the local level - Low involvement of local media, town criers, etc. in some community AMPs	-	- Strengthening the capacities of grassroots communities to monitor and capitalize on project achievements - Facilitate synergies of actions between projects operating in the national portion of the VB - Organize advocacy for the consideration of rural areas, in particular the national portion of the VB, in flood risk reduction interventions - Educate communities on the importance of installed weather devices - Strengthen local government ownership of EWS to ensure access to information for grassroots communities - Revitalizing Community EWS

Appendix 5: Volta Bassin actors and their potential roles in DRR and CCA

Actors	Roles
Regional	
Volta Basin Authority (VBA) and its organs: - The Assembly of Heads of State and Government - The Council of Ministers - The Forum of the Parties under the supervision of the Council of Ministers - The Committee of Experts - Executive Management	- Definition of the Authority's general cooperation and development policy - Formulation and monitoring of sectoral policies and programmes in accordance with the general policy of cooperation and development as defined by the Convention. - Implementation of policies, plans and programmes/projects - Support for the concerted management of the basin's water resources based on the involvement and consideration of all the different actors in the Basin
Inter-State Committee for Drought Control in the Sahel (CILSS)	- Promotion of food and nutrition security research and combating desertification - Promotion of the principle of modernizing agriculture and livestock farming in order to create wealth and employment, while taking into account the effects of climate change
Global Water Partnership West Africa (GWP-WA)	- Promoting sustainable development through integrated water resources management, at the country and river basin levels - Promote and support National Water Partnerships in the countries of the sub-region - Promote the adoption and application of good IWRM practices - Assist in the development of institutional, technical and financial management tools for the control and monitoring of water resources; - Promoting training, basic research and action research for the benefit of IWRM - Encourage education and awareness-raising among the population on water resources issues; - To help prevent or resolve conflicts over the use of transboundary water resources
WASCAL (West African Scientific Service Centre on Climate Change and Adaptive Use) of the Land)	- Support knowledge generation and analytical capacity building on understanding and managing climate change and land - Training postgraduate students to strengthen the capacities of States in the region to manage climate change - Promoting collaborative research - To constitute a centre of competence for the region
AGRHYMET accredited Regional Climate Centre for West Africa and the Sahel (CCRAOS)	- Provide data on droughts and floods to CILSS and ECOWAS States - Conduct operational climate monitoring activities (weather and climate forecasting) - Ensuring capacity building for actors in the region - Provide data services, management and dissemination of weather and climate information
Agency for the Safety of Air Navigation in Africa and Madagascar (ASECNA)	-
WMO Regional Specialized Meteorological Centre (RSMC)	- Contributing to the early warning and prediction of extreme events
African Centre for Meteorological Applications for Development (ACMAD)	-
African Risk Capacity (ARC)	- Insuring against climate risks through early detection of disaster risks and preparedness for response - Promote the exchange of knowledge, data, and early risk detection methods between the ARC and ECOWAS Member States - Strengthening States' capacities to prepare for and respond to the risks of natural disasters
West African Coastal Management Programme (WACA)	- Supporting countries' efforts to improve the management of their shared coastal resources - Reduce natural and anthropogenic risks to coastal communities.

Actors	Roles
	Stimulating knowledge transfer and policy dialogue between countries - Mobilising public and private finance to tackle coastal erosion, flooding, pollution and climate change adaptation
Regional Observatory of the West African Littoral (ORLOA)	- Producing quality data and information on the dynamics of marine and coastal spaces - Promoting scientific and technical knowledge on the coast - Strengthening the capacities of regional and national actors - Disseminate harmonised information and knowledge on the coastline to all stakeholders -
WA-CIFI - WACA Joint Initiative of the World Bank's Hydromet Programme in West Africa, in association with WMO	- To help West African countries (through WACA and MOLOA) to operate and maintain a reliable coastal flood forecasting system - Providing an early warning system for coastal risks
Sahara and Sahel Observatory (OSS)	- Supporting African member countries in the sustainable management of their natural resources - Developing knowledge on environmental issues - Contribute to strategic thinking on the sustainable management of land and water resources and climate change
The African Centre for Meteorological Applications for Development (ACMAD)	- Provide regular medium- and long-term continental weather and climate forecasts - Provide continental early warnings of drought, tropical cyclones and other extreme events - Capacity-building on meteorological applications for sustainable social and economic development at the national level - Develop methodologies and techniques for applications at national and sub-regional levels - Contribute to stronger participation in global climate and weather monitoring programmes - To provide specialized training for relevant development professionals and practitioners in Africa - Strengthening appropriate research, data and networking facilities in Africa
African Monitoring of Environment for sustainable Development (AMESD)	- Provide the African user community with better access to Earth observation data, field and ancillary data, as well as infrastructure, local capacity and services needed to support long-term environmental monitoring - Establish operational regional information services to support and improve environmental management decision-making - Establish national, regional and continental environmental information processes, frameworks and activities that enable African governments to more effectively meet their obligations under international environmental treaties and participate in strategic global environmental monitoring programmes - Organize specialized training and staff exchange programs to maintain the technical capacity of African AMESD actors over the long term - in order to ensure their self-sufficiency
United Nations Development Programme (UNDP) & United Nations system (FAO, OCHA, WHO, WFP, UNICEF, UNHCR, UNESCO)	- Supporting capacity building at the strategic, institutional and operational levels for disaster risk resilience (UNDP) - Supporting Fundraising/Coordination of International Interventions (UNDP) - Caring for refugees/victims (UNHCR) - Providing social services for the protection of vulnerable children (UNICEF) - Bringing food relief (WFP) - Coordinating emergency response to save lives and protect people in humanitarian crises - Strengthening the prevention of food and nutrition insecurity in areas at risk of calamities or disasters (FAO) - Providing medical assistance (WHO)

Actors	Roles
	- Contributing to the construction of inclusive, safe, resilient and sustainable cities and communities (UN-Habitat)
World Meteorological Organization (WMO)	- To provide a framework for international cooperation to advance weather, climate, water and related environmental services, with a view to improving the lives of all.
World Bank	- Promote impactful development, namely: - Inclusive of all, including women and youth; - Resilient to shocks, including climate and biodiversity crises, pandemics and fragility; - Sustainable, through growth and job creation, human development, public financial and debt management, food security, and access to clean air, water, and affordable energy.
African Development Bank (AfDB)	- Responding to climate change and investing in climate action - Building resilience to shocks, conflict, and fragility - Promoting gender equality
International Committee of the Red Cross (ICRC)	- Protects and assists victims of armed conflict and other situations of violence - Responding to emergency situations - Promoting respect for international humanitarian law and its integration into national legislation
Benin	
The National Platform for Disaster Risk Reduction and Climate Change Adaptation (PNRRC-ACC) and its Permanent Secretariat (National Civil Protection Agency - NACP) Composition : - The ministries and institutions of the State involved in the management of emergency situations, the Prefects of the departments - Representatives of UN agencies and development partners, - The National Association of Municipalities of Benin (ANCB), - The Red Cross and humanitarian associations/NGOs - The Country Water Partnership (PNE-Benin)	- Promote the integration of disaster and flood risk prevention and management into sustainable development and poverty reduction policies, plans and programmes - Define strategic orientations and validate the programs established in the context of disaster risk reduction and flooding - Facilitate the mobilization of resources for the implementation of risk reduction, disaster management, rehabilitation and post-disaster development programmes and projects. The PNRRC-ACC is represented at the departmental, communal, village or city district levels. which implements its orientations and decisions.
Burkina	
National Council for Emergency Relief and Rehabilitation (CONASUR) and its Permanent Secretariat (SP/CONASUR) Composition : - State actors - ONG & associations - The CWP Water Partnership (PNE-Burkina) - TFP	- Prevent and manage all disasters, including population movements and rehabilitation.
Côte d'Ivoire	
National Platform for Risk Reduction and Disaster Management Composition : - An Interministerial Committee - An intersectoral technical committee - An Executive Secretariat - The Country Water Partnership (PNE-	- To empower the Organization to manage all aspects of disasters in the country; - Raising awareness of disasters through intensive public education; - Ensuring disaster prevention, risk reduction and vulnerability - Be able to provide a frontline response in the event of a disaster - Contributing to post-emergency rehabilitation and reconstruction efforts - Assist and motivate community-based organizations to serve as credible

Actors	Roles
CI)	voluntary organizations to assist in disaster prevention and management at the local level - Establish surveillance and early warning systems - Enforce laws to prevent and mitigate disasters; - Increase human capacity and staff development.
Ghana	
National Disaster Management Committee and National Disaster Management Organization (NADMO) et son Secrétariat National Composition : - All DRR Departments - Country Water Partnership (GWP-Ghana)	- Manage disasters by coordinating resources from government institutions and non-governmental agencies and developing the capacity of communities to respond effectively to disasters and improve their livelihoods through social mobilization, job creation, and poverty reduction projects - Enforcing laws to prevent and mitigate disasters - Managing all aspects of disasters - Raising awareness of disasters through intensive public education - Ensuring disaster prevention, risk reduction and vulnerability as a means of reducing the impact of disasters on society - Providing the first line of response in the event of a disaster - Establish monitoring and early warning systems to facilitate the identification of disasters in their formative phases - Disseminate timely information and alerts
Mali	
The National Platform for Disaster Risk Reduction (PNRRC) and its Permanent Secretariat Composition : - Interdepartmental Committee on DRR - Regional DRR Committees - Local DRR Committees - Communal DRR Committees - The Country Water Partnership (PNE-Mali)	- Ensuring the implementation of the National DRR Strategy - Support the sustainable integration of the prevention and DRR dimension, strategies, development plans, and poverty reduction programs - Validate all national programmes and projects in the field of prevention and DRR - To promote collaboration between all structures involved in the field of DR - Facilitating the mobilization of resources for risk reduction programmes and projects and post-disaster reconstruction - To make recommendations, suggestions and useful advice on all matters relating to the proper functioning of the Platform.
Togo	
National Platform for Consultation for the Prevention of Natural Disaster Risks (PNPRC) and its permanent secretariat, the National Agency for Civil Protection (NACP) Composition : - The Ministries in charge of the Economy and Finance, Social Action and National Solidarity, Agriculture, the Environment, Infrastructure, Transport, Decentralization, Local Authorities and Regional Planning - The Technical Directorates for Water, Climate, Environment, Agricultural and Demographic Statistics, Health and Civil Protection - Civil society (NGOs and associations) includes the Togolese Red Cross - The Country Water Partnership (PNE-Togo)	- Coordinate all emergency prevention and management actions on the national territory - Ensure the animation of the early warning system (EWS) - Supervise all disaster relief and rescue of people and property - periodically update the various disaster prevention and management plans. -

Annex 6: DRR and CCA mechanisms, coordination challenges and suggestions for sustainable interventions impacts in the VB

Updated inventory of DRR and CCA mechanisms	Difficulties and constraints of coordination/collaboration/synergy	Improvements to be implemented for concrete results with lasting impacts
Local		
- Regional and Prefectural Disaster Risk Reduction Platforms	- No platform at the base	- Building Platforms from the Ground Up
- Village Risk Management Committee; Local Water Committees	- Weak response capacity - Irregular meetings	- Training for associative life - Strengthen the capacities of actors on contingency plans; - Provide emergency resources
- Communal Platform (MP / DRR-CCA)	- Slow transmission of information - Lack of qualified financial, material and human resources	- Strengthen the capacities of actors on contingency plans; - Setting up a material and financial support mechanism
- SODEXAM's early warning system - ORSEC Plan	- Delay in the official dissemination of information due to administrative steps in the dissemination mechanism (CICG)	- Implement rapid feedback mechanisms - Diversify the channels of information dissemination in order to reach all populations
- LMAG (Local Meteorological Assistance Group) - CEWERS (Community Early Warning and Emergency Response System)	- Low human, material and financial capacities	- Train local stakeholders in DRR and CCA management - Supporting resource mobilization
- - LWC, CODESUR, etc.	- Weak capacity of local actors to communicate good practices in different languages	- Develop IEC tools in different languages on DRR and CCA good practices
National		
- National Platform (PNDRR-CCA)	- Administrative slowness	- Strengthen collaboration between platforms from the national to the local level; - Review the institutional anchoring of the SAP
- Supervisory Board - NACP Board of Directors - NACP - National Platforms for Disaster Risk Reduction	- Weak collaboration between actors - Low mobilization of financial resources	- Strengthening frank collaboration among institutions involved in DRR - Training actors to mobilize specific DRR funding
- National Risk Management Committee	- Low response capacity	- Train the National Committees on risk forecasting, anticipation and management.
- SODEXAM's early warning system - National Climate Change Program	- Difficulties in collecting information from certain actors - Poor performance of meteorological and hydrological observation networks, especially in urban areas	- Create a DRR and CCA Management Platform - Create an observatory for the management of data on DRR and CCA in the Volta Basin
- CONASUR	- Weak coordination of the interventions of the various actors	- Ensuring a synergy of actions towards a national multi-stakeholder platform
Transboundary/Regional		

Updated inventory of DRR and CCA mechanisms	Difficulties and constraints of coordination/collaboration/synergy	Improvements to be implemented for concrete results with lasting impacts
- Volta Basin Authority (VBA) - GWP-WA (States and the Executive Secretariat) - SDAGE Sourou (Master Plans for the Development and Management of Water in the Sourou Basin)	- Political instability - Insecurity linked to terrorism - Stakeholder Forum Irregularity - Limited extension of formalized mechanisms for sharing information and experiences	- Strengthen collaboration with stakeholder platforms at national and cross-border level - Strengthening the synergy of focal points in VBA member countries - Train in water resources management in situations of security risks and conflict.
- ECOWAS - CILSS	- Weak Policy Alignment - Lack of clarification of the role of the different agencies involved in FDRM and CCA	- Facilitate the development of a DRR and CCA Management Stakeholder Engagement Plan - Facilitate the development of a Stakeholder Action Plan

Appendix 7: Glossary of Terms Used

Concept		Definition
Adaptation	:	Any adjustment of natural or human systems in response to actual or expected stimuli, or their effects, that mitigates damage or enhances the associated beneficial opportunities. The broader concept of adaptation applies to current or projected climate change as well as to non-climatic factors such as soil or surface erosion.
Adaptation to climate change	:	The process of adjusting natural systems or human activities in response to current or projected climate change impacts and their consequences. In human systems, it is a matter of mitigating or avoiding adverse effects and exploiting beneficial effects. In some natural systems, human intervention can facilitate adaptation to the expected climate and its consequences (IPCC, 2014).
Alert	:	A message or information composed of signs, words, sounds or images that announces an imminent danger that may be flooding, drought, pollution, etc. Early warning is a message or information that precedes the hazard or threat; while there is still time to reduce damage or loss, or even avoid disaster. It is also a systematic humanitarian action undertaken before a disaster strikes, making full use of scientific and forecasting information. According to the United Nations Office for Disaster Risk Reduction (UNDRR), the Early Warning System (EWS) is an integrated system for monitoring, forecasting and controlling risks, disaster risk assessment, communication and preparedness, systems and processes that enable individuals, communities, governments, businesses and others to take timely action to reduce disaster risk before dangerous events occur."
Building resilience		An action or process to strengthen the capacity of communities, ecosystems and economies to anticipate, absorb and respond quickly and effectively to the effects of a given hazard such as flooding and drought.
Capacity	:	The combination of all the strengths and means available within a community, society or organization that can be used in the face of risks to achieve set objectives.
Capacity Development	:	The process by which people, organizations and society stimulate and develop their capacities over time to achieve economic and social goals, including through the improvement of knowledge, skills, systems and institutions.
Climate change	:	A rapid change in the state of the climate, which persists for an extended period of time, usually for decades or more, as a result of direct or indirect human activity, altering the composition of the global atmosphere and adding to the natural variation observed on a comparable time scale. Variation in the state of the climate, which can be detected (e.g. by means of statistical tests) by changes in the mean and/or variability of its properties and which persists for a long period of time, usually for decades or more. Climate change can be due to natural internal processes or external forcings, including modulations of solar cycles, volcanic eruptions, or persistent anthropogenic changes in atmospheric composition or land cover (IPCC, 2014).
Climate variability	:	Changes in the mean state and other statistical variables (standard deviations, frequency of extremes, etc.) of climate at all spatial and temporal scales beyond the variability of specific weather events. Variability can be due to natural internal processes within the climate system (internal variability) or to variations in

Concept		Definition
		anthropogenic or natural external forcings (external variability).
Climate vulnerability	:	The degree to which a system is able, or unable to, cope with the adverse effects of climate change, including climate variability and extreme weather conditions. The extent to which a system is likely or unable to cope with the adverse effects of climate change, including climate variability and extremes. It is a function of the character, magnitude and rate of climate variations to which a system is exposed, its sensitivity and its adaptive capacity (United Nations Framework Convention on Climate Change (IPCC, 2007).
Climatic hazard	:	A climatic event or phenomenon that can cause loss of life, damage to property, as well as social, economic and environmental damage.
CRT (Culturally Responsive Teaching)	:	A pedagogical approach that puts at the heart of knowledge and development the consideration of differences and diversity of thought and cultures. It is based on four components, namely awareness, co-learning, the informational process and co-construction.
Disaster	:	A serious disruption to the functioning of a community or society at any level as a result of hazardous events (hazards), the repercussions of which depend on the conditions of exposure, vulnerability and capacities of the community or society concerned; involving significant negative impacts, human and material losses, as well as social, economic and environmental consequences that the affected community or society cannot overcome with its own resources (United Nations Office for Disaster Risk Reduction (DRR) glossary | UNDRR).
Disaster Risk Management	:	Process of systematic use of administrative guidelines, operational skills, capacities and organizations to implement appropriate policies, strategies and response capacities to mitigate the impacts of natural hazards and related environmental and technological disaster risks.
Disaster Risk Reduction	:	Efforts to analyse and manage the causes of disaster risks, including through reduced risk exposure, which reduces the vulnerability of people and property, sound management of land and the environment, and improved preparedness for adverse events. It focuses on protecting populations and strengthening their resilience as well as limiting damage.
Environmental and Social Assessment	:	The process of assessing the risks that a proposed development project/programme may pose to the environment and the effects it is likely to have in its area of influence, studying its variants, identifying ways to improve its selection, location, planning, design and execution by preventing, minimising, mitigating or offsetting its negative effects on the environment and enhancing its positive effects. The environmental assessment also includes the process of mitigating and managing environmental and social nuisances throughout the duration of the project.
Environmental Impact Assessment - EIA	:	The process by which the environmental consequences of a project or programme are assessed as an integral part of the planning and decision-making process, with a view to limiting or reducing negative impacts and maximising the positive impacts of the project or programme. The process of assessing the impacts, both beneficial and harmful, that a proposed development project/programme will have on the environment and human health and ensuring that these consequences are duly taken into account in its design.
Exhibition	:	Exposure refers to all populations, environments, physical and material goods,

Concept		Definition
		services and activities that may be threatened in the event of a risk.
Forecast	:	A statement or defined statistical estimate of the likelihood of an upcoming event or specific conditions for a given area.
Hazard	:	A physical manifestation, dangerous phenomenon, substance, human activity or condition that is likely to cause loss of life or bodily injury, damage to property, social and economic disruption or environmental degradation. Hazards include latent conditions that may eventually pose a threat. These can have various origins: natural (geological, hydrometeorological or biological) or anthropogenic (environmental degradation and technological risks) or socio-natural. Hazards can have an individual, sequential or cumulative origin and consequences. Each hazard is characterised by its location, intensity, magnitude, frequency and associated degree of probability (The disaster risk reduction (DRR) glossary | UNDRR).
Information Education Communication - IEC -	:	A set of education and communication activities aimed at a voluntary and lasting change in a practice by an individual or a community. It's an approach that goes beyond just raising awareness.
Prevention	:	A set of activities that completely avoid the negative impact of hazards, and minimize the associated environmental, technological and biological disasters. Disaster prevention expresses the concept and intention to completely avoid possible negative effects through measures taken in advance.
Reaction	:	The provision of emergency services and public assistance during or immediately after a disaster in order to save lives, reduce health impacts, ensure public safety, and meet the basic livelihood needs of those affected. It is an integral part of the short-term response. In the event of a disaster, the response is mainly focused on immediate short-term needs and is sometimes referred to as a "disaster case". The division between this stage of response and the phase of recovery, reconstruction and rehabilitation is unclear. Some of the actions, such as the provision of temporary housing and water, may extend to the recovery phase.
Recovery/ Reconstruction/ Rehabilitation	:	Restoration, improvement and installation of livelihoods and living conditions in disaster-affected communities, including efforts to return to normalcy, to reduce risk factors. Recovery, rehabilitation or reconstruction begins immediately after the emergency or response phase is over, and should be based on pre-existing strategies and policies that clearly facilitate institutional responsibilities for recovery and allow for public participation.
Resilience	:	The ability of a system, community or society exposed to hazards to resist and absorb them, to adapt to their effects and to recover quickly and effectively, including by preserving and restoring its basic essential structures and functions (www.unisdr.org/we/inform/terminology). Resilience refers to the ability to "come back" or "bounce back" after a shock.
Response capacity	:	The ability to reduce risk once it is identified and reported.
Risk	:	A possible danger, more or less predictable, inherent to a situation or activity. It is the possibility of a future, uncertain event or an indeterminate term, not solely within the control of the parties and which may cause the loss of an object or any

Concept		Definition
		other damage (https://www.ineris.fr/fr/risques/est-risque/comment-definir-risque). The possible and uncertain consequences of an event on something of value, with due regard to the diversity of values. Risk is often represented as the probability of the occurrence of dangerous trends or events that are amplified by the consequences of such phenomena when they occur. Risk arises from the interactions of vulnerability, exposure and hazards (IPCC, 2014).
Risk assessment	:	A process that allows: (i) to understand the hazard(s) and the risk factors that could cause harm (identification of the hazard(s)); (ii) to analyze and review the risk associated with the hazard (risk analysis and risk review) and (iii) to determine appropriate means to eliminate threats or to control the risk when threats cannot be eliminated (risk control) Risk Assessment: OSH Responses (cchst.ca).
Sensitivity	:	The extent to which a system is modified or affected by disturbances such as a change in climatic conditions caused by the onset of drought.
Spatial planning	:	The process undertaken by public authorities to identify, assess and decide on the different possible options for land use, including consideration of the long-term economic aspect, social and environmental objectives, implications for different communities and interest groups, as well as the formulation and promulgation of plans that describe permitted or acceptable uses. Land use planning can help mitigate the effects of disasters and reduce risks by discouraging the installation and construction of vital structures in at-risk areas, including the location of agricultural and pastoral areas, service roads for transportation, electricity, water, sewerage, and other essential services.
Strategic Environmental Assessments - SEAs	:	An analytical and participatory approach that aims to integrate environmental considerations into the development of policies, plans and programs designed by the Administration. The objective of a SEA is to identify, at the very beginning of a process, the environmental issues that strategic decisions are likely to generate and to assess the alternatives that would achieve the desired objectives while minimizing the effects on the environment (http://www.environnement.gouv.qc.ca/evaluations/evaluation-strategique.htm)
Sustainable development	:	Development that meets the needs of the present without compromising the ability of future generations to meet their own needs. It is based on the economic, social and environmental pillars.
Vulnerability	:	The characteristics and circumstances of a community or system that make it susceptible to the effects of a hazard. It varies significantly within a community and over time. It is a characteristic of the facet of interest (of the community or system) that is independent of its exposure. However, in common usage, the word is often used more broadly to include the exhibit facet.