



## **Reversing Ecosystem and Water Degradation in the Volta River Basin (REWarD-Volta River Basin)**

### **Part I: Project Information**

#### **GEF ID**

9910

#### **Project Type**

FSP

#### **Type of Trust Fund**

GET

#### **Project Title**

Reversing Ecosystem and Water Degradation in the Volta River Basin (REWarD-Volta River Basin)

#### **Countries**

Regional

#### **Agency(ies)**

UNEP, IUCN

#### **Other Executing Partner(s)**

Volta Basin Authority, GWP-WA, Ministries in charge of water resources in basin countries, other relevant national authorities.

#### **Executing Partner Type**

Others

#### **GEF Focal Area**

International Waters

#### **Taxonomy**

Focal Areas, International Waters, Fisheries, Freshwater, Aquifer, River Basin, Lake Basin, Strategic Action Plan Implementation, Pollution, Nutrient pollution from all sectors except wastewater, Climate Change, Climate Change Adaptation, Adaptation Tech Transfer, Climate resilience, Climate information, Influencing

models, Deploy innovative financial instruments, Transform policy and regulatory environments, Strengthen institutional capacity and decision-making, Convene multi-stakeholder alliances, Stakeholders, Civil Society, Community Based Organization, Academia, Non-Governmental Organization, Trade Unions and Workers Unions, Private Sector, SMEs, Local Communities, Beneficiaries, Type of Engagement, Consultation, Participation, Partnership, Information Dissemination, Communications, Education, Behavior change, Awareness Raising, Public Campaigns, Gender Equality, Gender Mainstreaming, Women groups, Gender results areas, Participation and leadership, Capacity Development, Access to benefits and services, Knowledge Generation and Exchange, Access and control over natural resources, Capacity, Knowledge and Research, Innovation, Knowledge Generation, Knowledge Exchange, Learning, Adaptive management

**Rio Markers****Climate Change Mitigation**

Climate Change Mitigation 0

**Climate Change Adaptation**

Climate Change Adaptation 1

**Duration**

60In Months

**Agency Fee(\$)**

658,934.00

**A. Focal Area Strategy Framework and Program**

<b>Objectives/Programs</b>	<b>Focal Area Outcomes</b>	<b>Trust Fund</b>	<b>GEF Amount(\$)</b>	<b>Co-Fin Amount(\$)</b>
IW-1_P1	Political commitment/shared vision and improved governance demonstrated for joint, ecosystem-based management of transboundary water bodies On-the-ground demonstration actions implemented, such as in water quality, quantity, conjunctive management of groundwater and surface water, fisheries, coastal habitats.	GET	4,182,566.00	46,133,771.00
IW-2_P3	Improved governance of shared water bodies, including conjunctive management of surface and groundwater through regional institutions and frameworks for cooperation lead to increased environmental and socio-economic benefits. Increased management capacity of regional and national institutions to incorporate climate variability and change, including improved capacity for management of floods and droughts.	GET	2,940,000.00	29,031,865.00
<b>Total Project Cost(\$)</b>				<b>75,165,636.00</b>

## B. Project description summary

### Project Objective

Reverse ecosystem and water degradation and support integrated ecosystem-based development in the Volta River Basin through strengthened transboundary governance and restoration and conservation of ecosystems for sustainable livelihoods.

Project Component	Financing Type	Expected Outcomes	Expected Outputs	Trust Fund	GEF Project Financing(\$)	Confirmed Co-Financing(\$)
Component 1. Improve knowledge base and development of management tools for informed decision-making process	Technical Assistance	Outcome 1.1  The transboundary network of data collection/processing delivers up-to-date information for decision making and basin planning to respond to environmental threats at basin, national, and local levels.	Output 1.1.1  Annual Surface Water Resources Models and Decision Support Tools <sup>[1]</sup> made available to support the optimization of water use and flows to minimize negative environmental impacts (links to Output 2.1.1)  Output 1.1.2 Indicators developed (linked to the Decision Support Tool) taking into account the environmental capital, ecosystem services and functions. Socio-anthropological impacts analysis methods developed, tested and integrated into the Decision Support Tool.  <sup>[1]</sup> There are at least two options of such models to be applied, e.g. WEAP or MIKE. Both types of models could be applied in the region to build on previous interventions, such as the UNEP-GEF Floods and Droughts Management Tools.	GE T	740,000.00	19,124,000.00

Project Component	Financing Type	Expected Outcomes	Expected Outputs	Trust Fund	GEF Project Financing(\$)	Confirmed Co-Financing(\$)
Component 2. Strengthening of transboundary planning, regional and in-country coordination and capacity	Technical Assistance	Outcome 2.1 Transboundary coordination improved due to the capacity strengthening, development and installation of modern decision support tools for water resources planning in accordance with Priority Actions of the SAP.	Output 2.1.1 Functional Regional Coordination and National Water User Inter-Sectoral/Inter-Ministerial Committees Established to Assure Formal Dialogue between countries and sectors	GEF	2,190,000.00	21,294,000.00
			Output 2.2.1 Community oriented early-warning system(s) for droughts developed and operational. <a href="#">[1]</a>			
		Outcome 2.2 Capacity of VBA and national authorities strengthened through the development and implementation of a capacity building programme and early warning system(s) at basin, national, and local levels	Output 2.2.2 Staff of the Volta Basin Observatory fully trained to operate the Decision Support System including the Drought Early Warning System			
			<a href="#">[1]</a> SAP Priority Action A.6 ? Besides direct anthropogenic pressure on the environment, land and water, climate change and climate variability is one of the main factors of negative changes in the Volta Basin, and a driving force for socio-economic impacts, particularly at the local level (see p. 16)			
			<a href="#">[2]</a> SAP Priority Actions B10, C1, C4.			

Project Component	Financing Type	Expected Outcomes	Expected Outputs	Trust Fund	GEF Project Financing(\$)	Confirmed Co-Financing(\$)
Component 3. Strengthening of resilience of ecosystems for sustainable livelihoods in the Volta basin.	Investment	Outcome 3.1 Production systems in key sectors apply integrated water resource management and ecosystem-based approaches at community and sub-basin levels	Output 3.1.1 Measures on sustainable use of water for crop and livestock productions implemented to improve productivity, food security and incomes.	GE T	3,200,000.00	29,216,000.00
			Transboundary sites identified in sub-basins:			
			? Sourou sites between Mali and Burkina Faso			
			? Oti sites between Togo and Ghana			
			? Bagre sites in the black Volta between Burkina and Ghana			
			Output 3.1.2 Sustainable fisheries management practices implemented to improve productivity, food security and incomes.			

Project Component	Financing Type	Expected Outcomes	Expected Outputs	Trust Fund	GEF Project Financing(\$)	Confirmed Co-Financing(\$)
Component 4. Knowledge management and sharing, and effective M&E	Technical Assistance	Outcome 4.1 Knowledge on environmental and water management aspects of governance improved through the development of targeted visual materials and public awareness campaigns	Output 4.1.1 Communication strategy for SAP implementation is developed and implemented, also through a series of public awareness campaigns.  Output 4.1.2 International Waters knowledge products are generated and disseminated using existing global information and knowledge sharing platforms, e.g. GEF IW: LEARN.	GET	450,000.00	1,463,000.00
Component 4. Knowledge management and sharing, and effective M&E	Technical Assistance	Outcome 4.2 Project implementation based on RBM and lessons learned/best practices documented and disseminated.	Output 4.2.1. Project Monitoring & Evaluation Plan and system developed and in place  Output 4.2.2. Mid-Term and Final Project Evaluations  Output 4.2.3. Awareness Campaigns on Management of Natural Resources (related to 4.1.1)	GET	203,396.00	489,318.00
Sub Total (\$)					6,783,396.00	71,586,318.00
<b>Project Management Cost (PMC)</b>						
GET			339,170.00	3,579,318.00		
Sub Total(\$)			339,170.00	3,579,318.00		
Total Project Cost(\$)			7,122,566.00	75,165,636.00		

**C. Sources of Co-financing for the Project by name and by type**

<b>Sources of Co-financing</b>	<b>Name of Co-financier</b>	<b>Type of Co-financing</b>	<b>Amount(\$)</b>
GEF Agency	IUCN	In-kind	8,000,000.00
GEF Agency	UNEP	In-kind	3,000,000.00
Other	GWP project: WACDEP (Water, Climate and Development in Africa)	In-kind	2,600,000.00
Donor Agency	WMO-GWP project: Integrating Flood and Drought Management and Early Warning for Climate Change Adaptation in the Volta Basin	In-kind	3,500,000.00
Other	GWP-WA project: New programme covering 5 transboundary basins in Africa including the Volta basin	In-kind	1,000,000.00
Recipient Country Government	Burkina Faso	In-kind	6,816,303.00
Recipient Country Government	Ghana	In-kind	1,311,000.00
Recipient Country Government	Togo	In-kind	760,000.00
Recipient Country Government	Mali	In-kind	32,000,000.00
Recipient Country Government	Benin	In-kind	1,178,333.00
Recipient Country Government	Cote d'Ivoire	In-kind	15,000,000.00



Sources of Co- financing	Name of Co-financier	Type of Co- financing	Amount(\$)
Total Co-Financing(\$)			75,165,636.00

**D. Trust Fund Resources Requested by Agency(ies), Country(ies), Focal Area and the Programming of Funds**

<b>Agency</b>	<b>Trust Fund</b>	<b>Country</b>	<b>Focal Area</b>	<b>Programming of Funds</b>	<b>NGI</b>	<b>Amount(\$)</b>	<b>Fee(\$)</b>
UNEP	GET	Regional	International Waters		No	3,580,500	340,148
IUCN	GET	Regional	International Waters		No	3,542,066	318,786
<b>Total Grant Resources(\$)</b>						<b>7,122,566.00</b>	<b>658,934.00</b>

**E. Non Grant Instrument**

NON-GRANT INSTRUMENT at CEO Endorsement

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Includes Non grant instruments? **No**

Includes reflow to GEF? **No**

F. Project Preparation Grant (PPG)  
PPG Required **false**

PPG Amount (\$)  
200,000

PPG Agency Fee (\$)  
18,500

Agency	Trust Fund	Country	Focal Area	Programming of Funds	NGI	Amount(\$)	Fee(\$)
UNEP	GET	Regional	International Waters		No	100,000	9,500
IUCN	GET	Regional	International Waters		No	100,000	9,000
Total Project Costs(\$)						200,000.00	18,500.00

## Core Indicators

**Indicator 4 Area of landscapes under improved practices (hectares; excluding protected areas)**

Ha (Expected at PIF)	Ha (Expected at CEO Endorsement)	Ha (Achieved at MTR)	Ha (Achieved at TE)
0.00	20000.00	0.00	0.00

**Indicator 4.1 Area of landscapes under improved management to benefit biodiversity (hectares, qualitative assessment, non-certified)**

Ha (Expected at PIF)	Ha (Expected at CEO Endorsement)	Ha (Achieved at MTR)	Ha (Achieved at TE)
	15,000.00		

**Indicator 4.2 Area of landscapes that meets national or international third party certification that incorporates biodiversity considerations (hectares)**

Ha (Expected at PIF)	Ha (Expected at CEO Endorsement)	Ha (Achieved at MTR)	Ha (Achieved at TE)

Type/Name of Third Party Certification

**Indicator 4.3 Area of landscapes under sustainable land management in production systems**

Ha (Expected at PIF)	Ha (Expected at CEO Endorsement)	Ha (Achieved at MTR)	Ha (Achieved at TE)
	5,000.00		

**Indicator 4.4 Area of High Conservation Value Forest (HCVF) loss avoided**

Ha (Expected at PIF)	Ha (Expected at CEO Endorsement)	Ha (Achieved at MTR)	Ha (Achieved at TE)

**Documents (Please upload document(s) that justifies the HCVF)**

Title

Submitted

**Indicator 7 Number of shared water ecosystems (fresh or marine) under new or improved cooperative management**

	Number (Expected at PIF)	Number (Expected at CEO Endorsement)	Number (Achieved at MTR)	Number (Achieved at TE)
<b>Shared water Ecosystem</b>	Volta Basin			
<b>Count</b>	<b>0</b>	<b>1</b>	<b>0</b>	<b>0</b>

**Indicator 7.1 Level of Transboundary Diagnostic Analysis and Strategic Action Program (TDA/SAP) formulation and implementation (scale of 1 to 4; see Guidance)**

<b>Shared Water Ecosystem</b>	<b>Rating (Expected at PIF)</b>	<b>Rating (Expected at CEO Endorsement)</b>	<b>Rating (Achieved at MTR)</b>	<b>Rating (Achieved at TE)</b>
Volta Basin		4		
<b>Select SWE</b>				<input type="checkbox"/>

**Indicator 7.2 Level of Regional Legal Agreements and Regional management institution(s) (RMI) to support its implementation (scale of 1 to 4; see Guidance)**

<b>Shared Water Ecosystem</b>	<b>Rating (Expected at PIF)</b>	<b>Rating (Expected at CEO Endorsement)</b>	<b>Rating (Achieved at MTR)</b>	<b>Rating (Achieved at TE)</b>
Volta Basin		3		
<b>Select SWE</b>				<input type="checkbox"/>

**Indicator 7.3 Level of National/Local reforms and active participation of Inter-Ministeral Committees (IMC; scale 1 to 4; See Guidance)**

<b>Shared Water Ecosystem</b>	<b>Rating (Expected at PIF)</b>	<b>Rating (Expected at CEO Endorsement)</b>	<b>Rating (Achieved at MTR)</b>	<b>Rating (Achieved at TE)</b>
Volta Basin		2		
<b>Select SWE</b>				<input type="checkbox"/>

**Indicator 7.4 Level of engagement in IWLEARN through participation and delivery of key products(scale 1 to 4; see Guidance)**

<b>Shared Water Ecosystem</b>	<b>Rating (Expected at PIF)</b>	<b>Rating (Expected at CEO Endorsement)</b>	<b>Rating (Achieved at MTR)</b>	<b>Rating (Achieved at TE)</b>
Volta Basin		2		
<b>Select SWE</b>				<input type="checkbox"/>

**Indicator 11 Number of direct beneficiaries disaggregated by gender as co-benefit of GEF investment**

	<b>Number (Expected at PIF)</b>	<b>Number (Expected at CEO Endorsement)</b>	<b>Number (Achieved at MTR)</b>	<b>Number (Achieved at TE)</b>
<b>Female</b>		5,000		
<b>Male</b>		10,000		
<b>Total</b>	0	15000	0	0

Provide additional explanation on targets, other methodologies used, and other focal area specifics (i.e., Aichi targets in BD) including justification where core indicator targets are not provided

## PART II: Project JUSTIFICATION

### 1. Project Description

#### 1. The global environmental and/or adaptation problems, root causes and barriers that need to be addressed;

The Volta Basin (400,000 km<sup>2</sup>) is one of the major West African river basins that drains into the Gulf of Guinea (Figure 1). Its resources are shared by six countries: Benin, Burkina Faso, Cote d'Ivoire, Ghana, Mali, and Togo, of which Burkina Faso and Ghana have the major part both in terms of area and population (Table 1).

Table 1 Share of basin per country

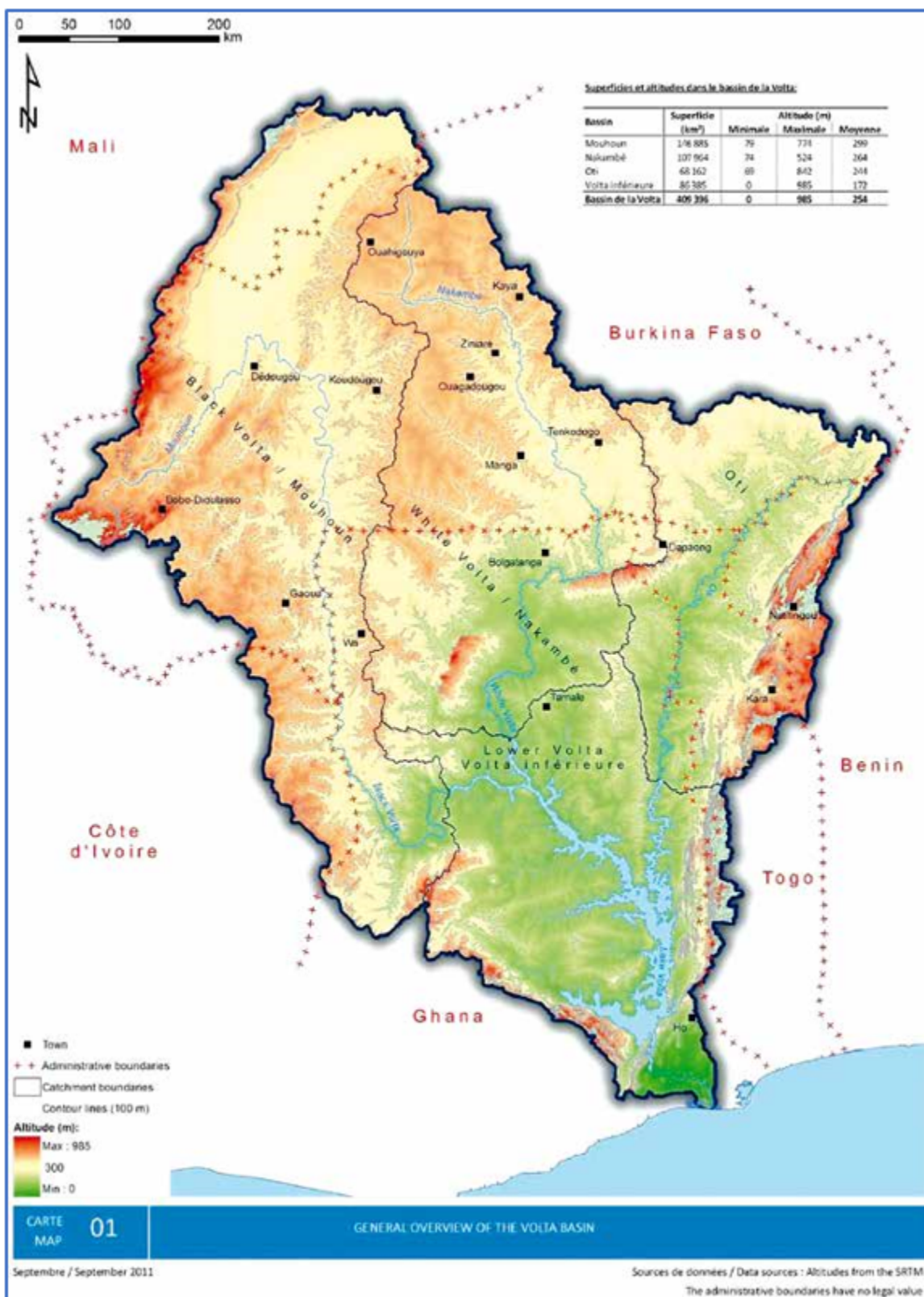
Country	Area of basin (km <sup>2</sup> )	Percentage of the basin in the country	Percentage of the country in the basin	Population in the basin projected for 2025 (1000)
Benin	13590	3.41	12.1	820
Burkina Faso	171105	43.0	62.4	15997
Cote d'Ivoire	9890	2.48	3.07	718
Ghana	165830	41.6	70.1	11696
Mali	12430	3.12	1.00	1260
Togo	25545	6.41	45.0	3385
Total	398390	100	-	33876

Source: Volta Basin Transboundary Diagnostic Analysis, 2013

The Volta Basin contains a rich set of ecosystems, many of them globally significant. These diverse ecosystems are largely shaped by the climatic diversity and climate zones of the region. Globally significant terrestrial ecosystems in the region include semi-deciduous and dry deciduous forests, savannahs, and steppes. In addition, the area contains riparian forests, grasslands, mangroves, and forest plantations, as well as specific ecosystems within protected areas. A hugely diverse range of freshwater aquatic ecosystems are fed by three major rivers: the Oti, the Black Volta and the White Volta. Extensive marine and coastal ecosystems stretch out from the Volta Estuary in Ghana northeast along the coast of Togo providing diverse and rich habitats. The basin contains vast biological diversity and a large number and range of species ? many of which are endemic or threatened, or otherwise globally important.

According to demographic statistics, the population of the basin was 18.6 million in 2000 and is projected to reach 33.9 million in 2025 and 56 million in 2050. Although, overall, the economic situation has improved in recent years, the countries that share the Volta Basin remain among the poorest in the world. The basin's resources are vital to its population and to its economic development. The most important economic sectors are agriculture (which is currently extensive and mostly rain-fed), livestock production, fisheries, forestry, and the harvesting of biodiversity. Other growing sectors are industry, trade, mining, energy, recreation, and tourism.





## Figure 1 The Volta Basin

All sectors depend on and utilize the natural resources of the region, consequently all sectors potentially pose a threat to the sustainability of the resources if not appropriately managed. Existing infrastructure developments to manage water resources, notably for hydropower and irrigation, have already impacted the hydrological cycle at many points, and future plans pose a potential threat to the sustainability of the resources if not managed sustainably with a basin-wide Master Plan, yet to be developed and agreed upon by all the riparian countries.

Many socioeconomic trends suggest that the demand for, and the pressure on, the basin's natural resources are likely to grow over the coming years. The most notable trends are fast population growth and urbanization; growing demand for food; growing demand for water for agriculture, energy and households; high dependence on biofuels for energy; and rapid growth in livestock numbers. These factors are likely to combine with climate change and variability to pose a real threat to sustainable development of the Volta Basin and the integrity of its natural resources.

Many governance-related factors also affect the sustainable use and management of the natural resources of the region. These include fragmented and uncoordinated institutions, laws, policies, and investment programmes at regional, national, and local levels. Although greatly evolved in recent decades, these still remain incomplete and fragile. Instability, centralization, and difficulties in enforcing legislation are other governance factors that indirectly impact the basin's resources. Lack of trained and motivated human resources is also a key issue. In particular, efforts to develop multi-country cooperation, although greatly boosted by the recently established Volta Basin Authority, remain insufficient.

In line with international best practices, to address environmental and social concerns in the basin the UNEP-GEF Volta Project, Addressing Transboundary Concerns in the Volta Basin and its Downstream Coastal Areas, in collaboration with the Volta Basin Authority (VBA), finalized in 2013 the Transboundary Diagnostic Analysis (TDA), with a subsequent Strategic Action Programme (SAP) which was endorsed by the riparian countries in 2014. The Transboundary Diagnostic Analysis identified environmental problems that need to be addressed jointly by the VBA, the basin riparian countries and the international community. These concerns include: i) changes in water quantity and seasonal flows, ii) coastal erosion downstream of the Volta Basin, iii) invasive aquatic species, iv) increased sedimentation of river courses, v) loss of soil and vegetative cover and, vi) water quality concerns (agricultural, industrial and domestic pollution of water bodies). The TDA also identified governance issues such as policy, legislative and institutional constraints that undermine effective water resources management in the basin both at the national and regional levels.

This situation has led to several impacts such as change in ecosystem functions, loss of biodiversity, continuing decline in local access to water, flooding, spread of invasive aquatic species, reduction in agricultural production, livestock deaths, collapsed fisheries, loss of sources of biological materials and products, loss in wetlands services. The socioeconomic consequences of these impacts include increases in poverty levels, food insecurity, loss/reduction of livelihoods, declining health status of the population, reduction in income and revenue, migration with resulting conflicts.

The main root causes of these priority transboundary environmental problems identified by the basin TDA are climate change and variability, population increase, increased water and land use, poverty in the basin countries, slow adaptation of cultural and social beliefs and practices to changing circumstances, change of societal values, low levels of education and literacy and, lack of good governance.

The Volta Basin SAP has been developed with the aim to halt or slow the current rate of environmental degradation in the Volta Basin. To that end, the following seven Environmental Quality Objectives (EQOs) were identified for the basin: i-) EQO 1: water is optimized among primary users (domestic, agricultural, ecosystem and hydroelectric power) so that they receive adequate and sustainable supplies, ii-) EQO 2: the

coast between Ada and Keta is stabilized by 2025, iii-) EQO 3: the proliferation of invasive aquatic species is contained, especially in five priority biodiversity hotspots<sup>[1]</sup>, iv-) EQO 4: sedimentation in five key hotspots is reduced by 20 per cent by 2025, v-) EQO 5: critical ecosystem functions are conserved, restored and managed for sustainable use in at least five priority areas, vi-) EQO 6: water of sufficient quality is available to support ecosystem needs at four pollution hotspots and, vii-) EQO 7: the legal and institutional governance framework within the Volta Basin is strengthened.

Given the generally low levels of technical knowledge for sustainable natural resources management that characterizes the basin, coupled with priority transboundary concerns identified during the TDA process, the project envisages to address the following issues: weak integration of ecosystem-based management approaches in the governance and cooperation frameworks, lack of quality information for basin's resources management under the increasing pressures from climate change and climate variability on ecosystems and their services/functions in selected areas.

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[1] The term "hotspot" is adopted from the Volta Basin SAP where it is not further defined. In the context of this project it refers to a geographic location of high importance under pressure or threat. For example, a biodiversity hotspot is a biogeographic region with significant levels of biodiversity that is threatened by human habitation. A pollution hotspot is a location where emissions from specific sources may expose people or environmental assets to elevated risks of adverse health or environmental effects.

## **2. The baseline scenario or any associated baseline projects,**

In the absence of the GEF project, the Volta Basin will continue to be impacted by:

- ? Weak involvement of local stakeholders and communities in the sustainable management of basin's resources
- ? Low food production due to poor ability to adapt to and cope with climate and weather variability, especially periods of drought;
- ? Existing inadequate political structures, institutional, legal and regulatory frameworks will hamper the ability of riparian countries to implement IWRM at sub-basin level leading to poor implementation of basin-wide objectives, increased competition over water resources, reduced crop and livestock production, overfishing;
- ? Inadequate support of riparian countries to the VBA in view of the effectiveness of its role;

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- ? Inability of the Volta Basin Observatory and its associated national institutions capacities and skills to monitor the basin environmental resources, predict and assess potential climate change scenarios and impacts;
- ? Increased ecosystem degradation including, sedimentation of river courses, invasive aquatic species, coastal erosion, loss of soil and biodiversity and water pollution;
- ? Increased pressures on natural resources for various purposes (agriculture, livestock, fisheries, etc.) due to low and unsustainable productivity of the natural ecosystems;

The proposed project builds on a set of baseline projects, which aim to support the Volta Basin Authority and the riparian countries to achieve the objectives of the Volta Basin Convention and Strategic Action Programme. These projects need to be linked and complemented by an overarching initiative that addresses incomplete and inadequate information basis for joint ecosystem-based management, ecosystem restoration and conservation as well as climate variability and change issues within the governance and cooperation framework of the Volta basin.

It also builds on past and current strong collaboration between UNEP, IUCN and VBA. For example, the UNEP, VBA and IUCN successfully implemented the GEF funded project that led to the development of the TDA/SAP of the Volta Basin. Recently, UNEP and IUCN successfully implemented the GEF funded project on protected areas and resilience to climate change that led to the development of tools to mainstreaming climate change into biodiversity and protected areas policies in Central and West Africa. In addition, IUCN, GWP/WA and VBA have a long tradition of cooperation through several projects including the past PAGEV (Project pour l'amélioration de la gouvernance de l'eau dans le bassin de la Volta) and the Poverty Reduction and Environmental Management Initiative (PREMI), and the ongoing Partnership for Environmental Governance in West Africa (PAGE) and WACDEP (Water, Climate and Development in Africa).

After the endorsement of the Volta Basin Strategic Action Programme by the riparian countries in May 2014, two GEF Agencies (World Bank and UNEP) showed interest in submitting complementary initiatives for funding.

The World Bank initiative development objective is to improve the capacity of the VBA for transboundary water resources management and international cooperation through institutional development and implementation of priority actions of the Strategic Action Programme, which will result in direct environmental and livelihoods benefits. Priority actions targeted include an independent institutional assessment of VBA, the development of a Water Charter for the Basin, restoration of flows through river

bank rehabilitation, reversal of vegetation degradation through reforestation and enhancing of agricultural practices through water-conserving techniques.

At country level there are more activities and initiatives than can possibly be shown here. A list of identified initiatives and activities is provided per country in Annex R. Table 3 shows just the number of activities per country and how they relate to the SAP (no information was available for Côte d'Ivoire and Mali). The list may not be exhaustive, but provides an indication of where significant resources and efforts are invested in the countries.

Some other major recent, ongoing and planned initiatives, which the project will build on and coordinate with include the following at basin level (see Table 2 for an overview). During the inception phase the regional and national efforts most relevant for the REWARD project to collaborate with will be identified and a plan for effective coordination made:

? The primary objective of the interdisciplinary GLOWA Volta Project (GVP) was to provide an analysis of the physical and socio-economic determinants of the hydrological cycle within the Volta Basin in the face of global and regional environmental change. The corresponding primary output took the form of a scientifically sound and adequately tested Decision Support System (DSS) for the assessment, sustainable use and development of the Basin's water resources. The DSS provides a comprehensive monitoring and simulation framework, enabling decision makers to evaluate the impacts of climatic and land use trends with particular emphasis on the consequences of deliberate policies, investments and other interventions for the social, economic and biological productivity of water resources.

? Basin Focal Project Volta (PN55). CGIAR. The Basin Focal Project Volta (BFP Volta) (completed) carried out the following tasks: (i) Assessment of present conditions of the distribution of rural poverty, of farming systems with their productivity and water productivity, (ii) Analysis of opportunities and risks, especially under the double pressure of demography and possible climate change, and modeling of water resources to identify sensitivity of water allocation to development and climate scenarios, and (iii) Identification of research gaps and implementation plan.

? UNEP-GEF Volta Project (completed). Addressing Transboundary Concerns in the Volta Basin and in Downstream Coastal Areas. (completed). The major outputs were a regional Transboundary Diagnostic Analysis (TDA) identifying priority transboundary issues in basin, a Strategic Action Programme (SAP) to address the priority issues, and demonstration of national and regional measures to combat transboundary environmental degradation in the basin. The project's total duration including two extensions was six years from January 2008 to December 2014.

? The World Bank Project (Volta River Basin Strategic Action Programme Implementation Project - VSIP) supported the development of the Volta River Basin Water Charter, the development of a Communications Strategy and Plan which will serve as the guiding document for improving coordination and collaboration among all relevant stakeholders; and on information sharing on current and planned projects in the Basin and the implementation of four SAP Priority Actions. This project was stopped in August 2019 ahead of the original planned completion date following an ?Independent Institutional Assessment of the Volta Basin Authority, BRL, 2017? carried out as part of the project and notably the report on a proposed project restructuring of the Volta River Strategic Action Programme Implementation (World Bank, 2018). This report highlighted several causes of the project delay, including (i) the weak capacities of the VBA in implementing World Bank project, (ii) the limited support of the VBA members States and (iii) the lack of preparedness of feasibility studies. These elements have been thoroughly analysed by VBA and its member States during this project preparation and appropriate lessons have been learned to address these challenges in the course of this project.

? The West African Science Service Centre on Climate Change and Adapted Land Use (WASCAL) Project: it is an initiative of the German Federal Ministry of Education and Research to establish, together with West African partner countries, a center of competence on climate change and adapted land use in West Africa. It is currently supporting the generation of knowledge and developing analytical capability in the region to solve current and future land management problems caused by changing climate and weather conditions, the primary objective of which was to provide an analysis of the physical and socio-economic determinants of the hydrological cycle within the Volta Basin in the face of global and regional environmental change. The corresponding primary output took the form of a scientifically sound and adequately tested Decision Support System (DSS) for the assessment, sustainable use and development of the Basin's water resources. The DSS provides a comprehensive monitoring and simulation framework, enabling decision makers to evaluate the impacts of climatic and land use trends with particular emphasis on the consequences of deliberate policies, investments and other interventions for the social, economic and biological productivity of water resources.

? The Water, Climate and Development Programme for Africa (WACDEP) developed by the African Ministers Council on Water (AMCOW) in collaboration with Global Water Partnership (GWP) supported VBA for the following initiatives: i-) Assessment of the Current State of Water Management and Climate Change in the Volta Basin as part of the Establishment of an Observatory for Water Resources and Related Ecosystems, ii-) Outlines and principles for sustainable development of the Volta Basin, iii-) Setting-up of an Early Warning System for droughts, floods and incidence of pollution in the Volta basin, iv-) Implementation of Integrated Flood Management with a focus on Benin, Burkina Faso, Cameroon, Cote d'Ivoire, Ghana, Mali, Nigeria, Senegal and Togo.

? VBA is also involved in a Flood and Drought Management Tool project that is funded by GEF and implemented by UNEP, with the International Water Association (IWA) and DHI as the executing agencies. The project aims at developing methodologies and tools within a decision support system (DSS) to facilitate the inclusion of information about floods, droughts and future scenarios into integrated water resources management (IWRM) planning, Water Safety Planning (WSP), Transboundary Diagnostic Analyses (TDA) and Strategic Action Plans (SAP). The project was implemented from 2014 - 2018, and three pilot basins (Volta, Lake Victoria and Chao Phraya) were identified for development and testing of the Decision Support System.

? Integrating Flood and Drought Management and Early Warning for Climate Change Adaptation in the Volta basin (VFDM; funded by the Adaptation Fund) is implemented by WMO and executed by WMO, GWP-WA and VBA. The main objective of the project is to assist the six countries in the implementation of coordinated and joint measures related to disaster risk reduction and climate adaptation. The groups of people who will most directly benefit of the project outputs are related to the types of activity: 1) new tools developed for risk reduction, such as flood and drought risk maps and Early Warning System, and climate change adaptation measures, 2) testing of the EWS on pilot areas, 3) capacity building activities integrated into the three components of the work project. The project will provide an important linkage to the meteorological offices within the different countries and there will be important synergies with respect to data, databases and dissemination to local communities. During the REWarD inception workshop, a collaborative framework with the WMO-led project will be developed to assure complementarity in the process of developing and/or running the early warning system at both the basin-wide and community level. It has already been agreed with the VFDM project that it will focus on analysis and warning of floods rather than droughts. VBA, GWP-WA and IUCN are participating in the WMO-led project and will seize this opportunity to enlarge this partnership to the REWarD project. In fact, VBA and GWP-WA are two of the regional executing agencies of the project, and host one of the project Technical Assistant. Connecting with the WMO-led project will enlarge the pilot areas from 10 to twenty communities and augment the lessons learned. Particularly, communities involved in component 3 activities (crop, livestock and fishing) will pilot the developed Early Warning System.

? The Partnership for Environmental Governance in West Africa (PAGE) funded by Sida and implemented by IUCN is providing supports to the stakeholders in the Volta, Niger, Senegal and Mono basins. The PAGE is a regional five-year programme aimed at improving the livelihoods and living conditions of the people of West Africa through strengthened environmental policies and institutional framework. In fact, this partnership already exists, and it is because it has already produced significant outputs in the areas of governance and natural resources management at local, national and sub-regional levels that its members intend to extend the work to 2018. The project is a multi-actor-based intervention under three specific working themes: i-) enforcement of regional laws and policies and shared governance; ii-) improving the state of ecosystems to adapt to climate change and alleviate poverty and; iii-) mobilizing knowledge for better decision-making. The project was implemented from 2014-2018.

? The WISE-UP to Climate? aims to develop knowledge on how to use mixed portfolios of built water infrastructure (e.g. dams, levees, irrigation channels) and ?natural infrastructure? (e.g. wetlands, floodplains, watersheds) for poverty reduction, water-energy-food security, biodiversity conservation and climate resilience. WISE-UP aims to show the application of optimal portfolios of built and natural infrastructure using dialogue with decision-makers to identify and agree trade-offs between different uses of available water resources in the Volta and Tana River basins. The project was implemented from 2014-2018 and includes six partners - the Council for Scientific and Industrial Research (CSIR) Water Research Institute, The African Collaborative Center for Earth System Sciences (ACCESS) ? University of Nairobi, the International Water Management Institute (IWMI), the Overseas Development Institute (ODI), the University of Manchester, the Basque Centre for Climate Change (BC3), and the International Union for Conservation of Nature (IUCN).

? TIGER-NET is a large application project funded by the European Space Agency, with the main goal of supporting the African Earth Observation Capacity for Water Resource Monitoring. TIGER-NET aims to support the satellite-based assessment and monitoring of water resources from watershed to cross-border basin levels through the provision of a free and powerful software package, with associated capacity building, to African authorities. More than 28 EO data processing solutions for water resource management tasks have been developed, in correspondence with the requirements of the participating key African water authorities (incl. Volta Basin Authority), and demonstrated via dedicated case studies covering a wide range of themes and information products, including basin-wide characterization of land and water resources, lake water quality monitoring, hydrological modeling and flood forecasting and mapping. TIGER-NET was implemented from 2012-2015, with an extension TIGER-BRIDGE from 2015-2017.

Table 2      **TABLE 2      Selected Major Interventions in the Volta Basin and their Relevance for the SAP**

Projects	Countr	SAP Priority Actions
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[illegible]

*Reference is made to Annex Q (showing priority areas of the SAP) and Annex R (showing the list of national projects).*

**Table 3      TABLE 3      Selected interventions per country relevant for the SAP**

Projects (countries)	SAP Priority Actions																																
	A: Water is optimised among primary users (domestic, agricultural, ecosystem and hydropower) so that they receive adequate and sustainable supplies							B: The coast between Ada and Keta is stabilized by 2025 (1-2)  The proliferation of invasive species is contained, especially in five priority biodiversity hotspots.(3)  Sedimentation in five key hotspots is reduced by 20% by 2015.(4)  Critical ecosystem functions are conserved, restored and managed for sustainable use in at least five priority areas (5-10)										C: Water of sufficient quality is available to support ecosystem needs at four pollution hotspots				D: The legal and institutional framework within the Volta Basin is strengthened											
	1	2	3	4	5	6	7	1	2	3	4	5	6	7	8	9	10	1	2	3	4	1	2	3	4	5	6	7	8	9	10	11	12
Benin				2								1								1					2	1		3					
Burkina Faso	3					2	4								2	2	2	1					2		6			3	1				
Ghana	6			4	2	5	5								2		2		3		3				2			4					
Togo	6			1			6											2			1				1			1					

*Reference is made to Annex Q (showing priority areas of the SAP) and Annex R (showing the list of national projects). No information was received for Cote d'Ivoire and Mali*

### 3. The proposed alternative scenario, GEF focal area[2]<sup>2</sup> strategies, with a brief description of expected outcomes and components of the project,

This project will address some of the actions in the SAP (see Annex Q) that have seen least coverage according to Table 2 and Table 3 and Action D11 (assess economic value of ecosystems). However, it will also address issues that have seen considerable attention from other initiatives but still remain challenges, such as Action A6 (early-warning system for floods and droughts), Action B8 (protect wetlands) and

Action D10 (operationalize the Volta Basin Observatory). A full and detailed list of the actions addressed under the current project is provided in this Chapter.

This initiative, jointly implemented by UNEP and IUCN, will support the priority SAP implementation activities to address transboundary environmental concerns taking into consideration the importance of the basin's natural resources for the development of the region. Furthermore, REWarD will contribute to the following Aichi Targets:

Target 1 ? People are aware of the values of biodiversity and the steps they can take to conserve and use it sustainably.

Target 6 - All fish and invertebrate stocks and aquatic plants are managed and harvested sustainably, legally and applying ecosystem based approaches, so that overfishing is avoided, recovery plans and measures are in place for all depleted species, fisheries have no significant adverse impacts on threatened species and vulnerable ecosystems and the impacts of fisheries on stocks, species and ecosystems are within safe ecological limits.

Target 7 - Areas under agriculture, aquaculture and forestry are managed sustainably, ensuring conservation of biodiversity.

Target 14 - Ecosystems that provide essential services, including services related to water, and contribute to health, livelihoods and well-being, are restored and safeguarded, taking into account the needs of women, indigenous and local communities, and the poor and vulnerable.

Target 19 - Knowledge, the science base and technologies relating to biodiversity, its values, functioning, status and trends, and the consequences of its loss, are improved, widely shared and transferred, and applied.

The preparation of the project gathered the main stakeholders and partners (donors, IFIs private sector, and civil society). Taking into consideration the institutional challenges required in terms of policy, legal and legislative frameworks disparities, as well as the degradation of basin's environmental resources, the project will have 4 major pillars:

- i) better knowledge and characterization of the Volta basin water and environmental resources, including impacts of climate change,
- ii) application of this knowledge for the development of operational tools for the basin water resources, and supporting early warning in the case of extreme events, such as droughts,

- iii) basin's ecosystems protection and restoration for enhanced and sustainable livelihoods for the local communities, and
- iv) information sharing, development of knowledge products, communications, and M&E.

This project fits within and complements the GEF portfolio of International Waters projects. It is expected to generate many useful lessons, will serve as a mature model for many other transboundary initiatives, and will contribute to the strengthening of the overall GEF-IW portfolio, through participation in IW:LEARN activities and the implementation of transboundary stress reduction demonstration projects. Moreover, the project is designed to incorporate lessons from other GEF IW initiatives such as projects on the Niger, Lake Chad and Senegal basins. The GEF funding will: enable regionally coordinated implementation of the SAP through the Volta Basin Authority and foster the removal of sectorial barriers to the integrated management of the Volta basin water resources and ecosystems.

This project is consistent with GEF's International Waters strategy as described in the GEF Programming Document:

IW Objective 2 aims to Balance Competing Water-uses in the Management of Surface & Groundwater while considering climatic variability and change, through the development of Advance Conjunctive Management of Surface & Groundwater Systems? (Programme 3) and implementation of the Water/Food/Energy/Ecosystem Security Nexus? (Programme 4);

IW Objective 3 Programme 7 aims to Foster Sustainable Fisheries.

The project is focused on the implementation of the Volta Basin SAP and anchored on integrated, ecosystem-based approaches to the sustainable management of the basin.

In addition, the project will establish enabling conditions for adaptive ecosystem-based management through functional/capacitated national inter-ministerial, regional expert committees and development of data and information sharing system. Based on priorities identified in the SAP and existing regional and national Plans, the project will implement innovative transboundary actions to improve water efficiency use, promote IWRM, and reduce identified environmental issues and stresses, including through local, community-based actions. The potential impacts of climate change/variability, will be embedded in the management actions directed towards ecosystem carrying capacity as the central theme of the project. The project will also deliver additional outputs such as enhanced public awareness and strengthened stakeholder capacity to carry out actions.

To account for the nature of the project (multitude of disciplines in six countries based on stakeholder inputs), it is planned to implement a series of baseline assessments and/or more detailed elaboration of planned activities from both technical design point of view and with regard to geographic focus during the inception phase. This work will be undertaken in a participatory manner with engagement of key stakeholder groups. Such an approach is considered critical for the success of the Project and sustainability of outcomes and impacts.

During the project preparation, a modus operandi was found by the stakeholders with regard to the regional and national leadership in implementing the VBA mandate across the member states. In fact, stakeholders in the VBA member state stressed the need for this project of common interest; that is, both the VBA and its members states have interest in jointly executing this project to the benefits of both the whole basin and the communities depending on the basin resources. They therefore shared responsibilities and activities in the project. The Stakeholder analysis and engagement plan (Section A.3) and the institutional arrangement (Section A.6) provide details on the shared responsibility in the project execution at regional and country levels.

For further details on the project's Logical Framework, including its Theory of Change, see Annex A.

One of the assumptions of the Theory of Change is related to data sharing among the basin countries being essential for the planning, implementing and monitoring of the project activities. Even though, no specific agreements on data sharing have been concluded during the current preparation phase, data sharing is specifically covered by the Volta Basin Authority Convention (Article 4) signed by the Head of States at the creation of the Volta Basin Authority.

**Project objective:** Reverse ecosystem and water degradation and support integrated ecosystem-based development in the Volta River Basin through strengthened transboundary governance and restoration and conservation of ecosystems for sustainable livelihoods.

The project will be implemented through four components:

? Component 1. Improvement of knowledge base and development of management tools for informed decision-making process (linked to SAP Environmental Quality Objectives 1, 5, and 7)

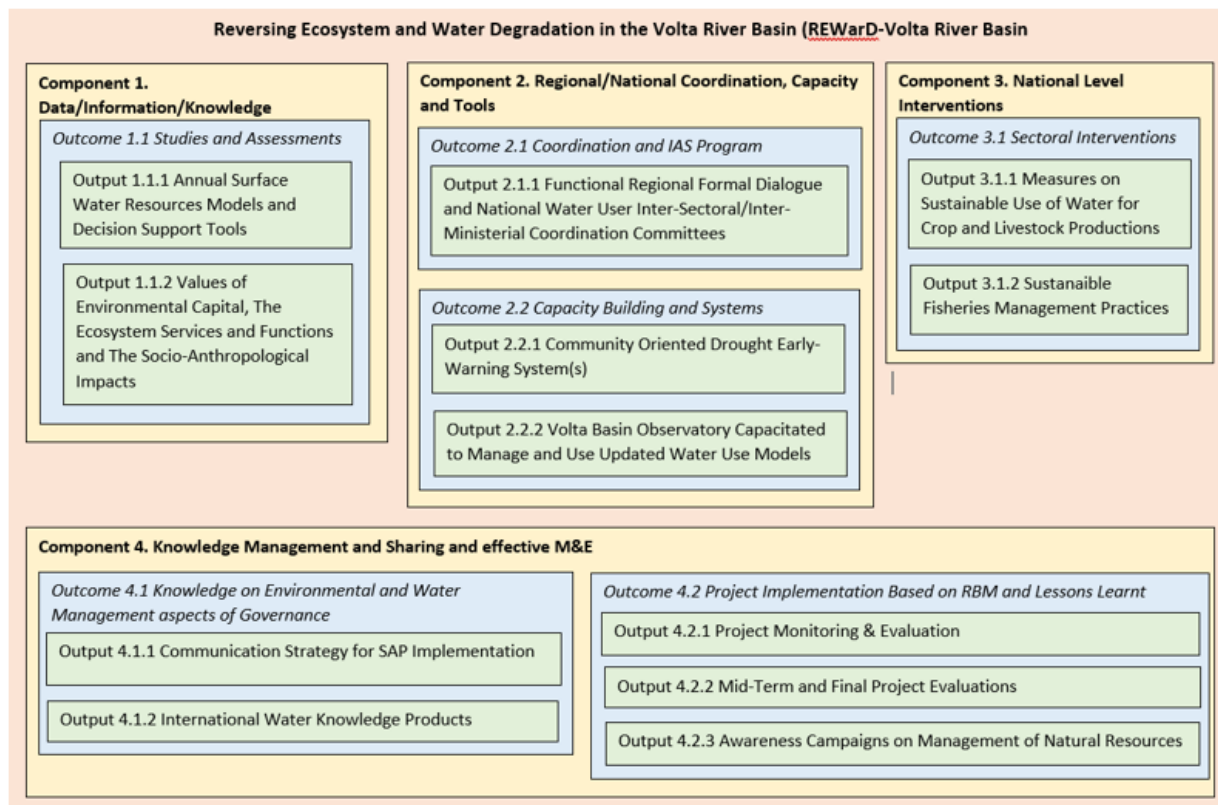
? Component 2. Strengthening of transboundary planning, regional and in-country coordination and capacity, also during extreme events related to climate change and variability (linked to SAP Environmental Quality Objectives 1, 3, 6, and 7)

? Component 3. Strengthening of resilience of ecosystems for sustainable livelihoods in the Volta basin (linked to SAP Environmental Quality Objectives 1, 5, and 7)

? Component 4. Knowledge management and sharing, and effective M&E (linked to SAP Environmental Quality Objectives 5 and 7)

The project will provide VBA with technical and institutional capacities to strengthen its mandates, namely on helping member States to find and implement joint solutions to the degradation of the basin resources. It will also help VBA and its technical and financial partners to ensure consistency and compatibility with the SAP and other parties involved in the SAP implementation. GEF resources will be used to implement key SAP Priority Actions (see Annex Q) related to the development of ecosystem-based management tools and serve as a vehicle to implement on-ground stress reduction measures aimed at demonstrating the establishment of sustainable use and management of the basin's resources.

Stakeholders at both country and regional levels and the participants to the validation workshop of the project document by the basin countries held on 5-7 November 2019 in Ouagadougou, strongly recommended to support field activities as well as activities related to information generation, awareness raising and dialogue between local, national and regional stakeholders. In addition, executing partners at national level were identified whom VBA should work with to ensure strong relationship between the regional activities and country-based field activities and country ownership.



**Figure 2 Project components and outputs**

## **Component 1. Improvement of Knowledge Base and Development of Management Tools for Informed Decision-Making Process**

Component 1 responds to the need for setting up and/or reinforcing an adequate knowledge system, as well as for strengthening of stakeholders' capacities in sustainable transboundary management. It captures actions, which contribute to the expanding knowledge and scientific characterization of the Volta Basin's natural resources in view of a better adaptation to climate change and sustainable management of the basin's ecosystems. These actions will also capacitate VBA to build its basin investment policy and enable cohesion and coordination of various development projects in the Volta Basin. Even if it is well known that this is a part of the mandates of various national institutions, and the Volta Basin Observatory (Component 2), the findings of the TDA and discussions with stakeholders during the SAP process have shown that:

? The current, clearly articulated, transboundary or regional focus needs to be translated into national priority actions, as the regional objectives provide boundary conditions for the countries. However, the key management decisions eventually affecting the regime of the entire basin are taken at the national level. There is an increasing need for coordinating interventions at the two levels.

? National technical services often need reinforcement of their capacities for successful acquisition, treatment and dissemination of data and information for decision makers and managers;

? The Volta Basin Observatory is still a relatively new creation and, therefore, needs strengthening of its capacities including development of analytical tools to be fully operational,

? Sustainable management at the basin level and the ability to support the implementation of ongoing and planned initiatives, mainly the basin strategic programme, the water charter, investment plan, and national/regional plans, policies, projects and programmes require coherent and updated knowledge on the status of the basin's water resources and ecosystems.

The increasing demands on the resources continue to create competition between sectors and countries. Construction of hydraulic infrastructure of different sizes and for different purposes has been developed over the years. Climate change and variability, and upstream water resources development have impacted surface water availability to all sectors and countries. The Volta Basin is also endowed with freshwater ecosystems, which provide various ecosystem services that contribute to local livelihoods, and larger-scale basin objectives, by providing food, fuel and construction materials, regulating flows (reducing peak and increasing baseflows) as well as by providing habitats for animals, such as migrant birds, which may attract recreational activities. Several water resources models have been tested and developed in the Volta. Yet, these models have not fully considered the interrelationship between water resources and ecosystems. The purpose of this component is to set up and/or reinforce an adequate knowledge system, as well as strengthen stakeholders' capacities in sustainable transboundary management. It will therefore strengthen the knowledge base on water resources and ecosystems services and develop user friendly management tools for informed decision-making in the Volta Basin, for the benefit of farmers and others whose livelihoods depend on ecosystem services.

Component 1 thus provides a knowledge and informational basis for the implementation of the majority of activities within the Project. The two key outputs of Component 1 are described in detail in the following:

### **Output 1.1.1: Annual Surface Water Resources Models and Decision Support Tools (SAP Priority Action A.5)**

Use of mathematical models and decision support tools in the Volta Basin has been recognised in the SAP (ref. Priority Action A.5) as important instruments to perform good practice water resources planning and management. Embedding mathematical models as part of a dedicated Decision Support System (DSS) creates an opportunity for international and national organisations and institutions in the region to apply science-based methodologies and share experience based on a consistent and agreed methodology using a common IT platform. Involvement of local institutions and governments into the delivery of Output 1.1.1

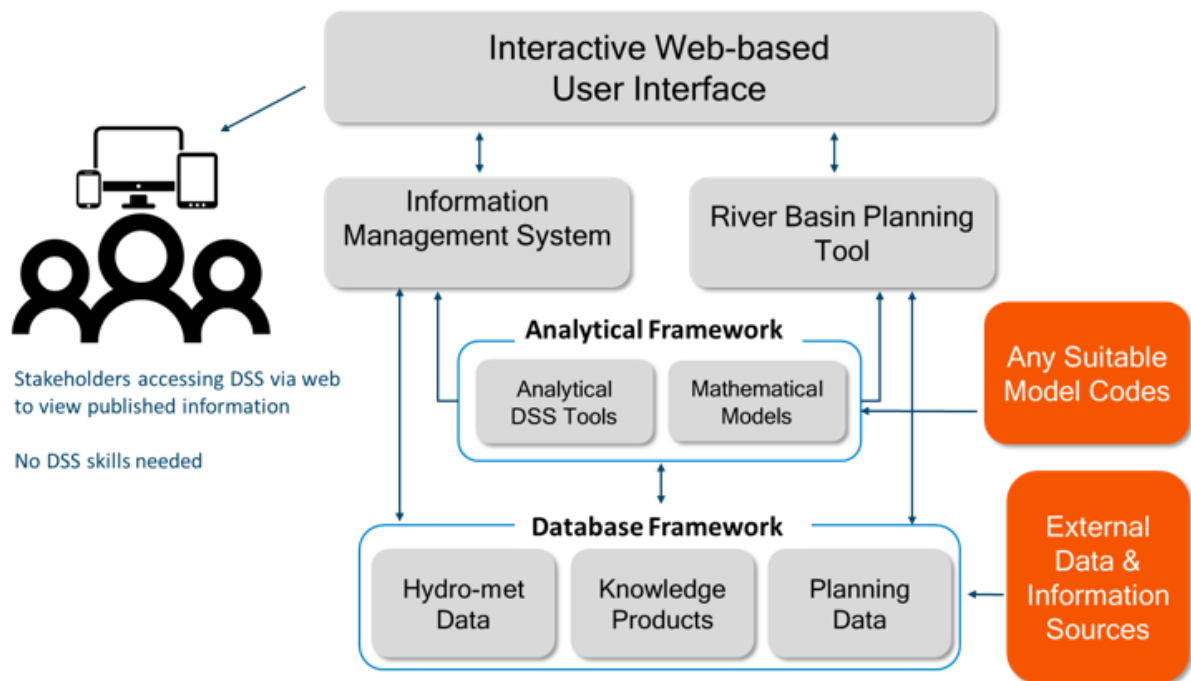


will positively contribute to the capacity strengthening in the region, capacitate future upscaling and enhance the sustainability of the output.

The focus within Output 1.1.1 will be to formulate and implement a dedicated Decision Support System (DSS), which supports active river basin planning and management by providing:

- ? Access to a comprehensive knowledge base on water resources availability and use, populated with temporal and spatial information and helpful knowledge products characterising the issues in the Volta River basin;
- ? Access to a water resources system modelling framework for simulating present conditions and future scenarios in the Volta River basin (or sub-basins) on required temporal and spatial scales;
- ? Web-based DSS, providing access to relevant data and information as well as tailored tools for specialists, practitioners, decision makers and stakeholders related to river basin planning and management;
- ? Access to intuitive application components for information sharing that will allow a wider group of users to actively participate in the planning of future water infrastructure and impact assessments; and

An expandable and modern DSS, which can cater for emerging technologies, e.g. new ways of data acquisition (including access to global Earth Observation data) or adoption of innovative methodologies for improving water resources assessments and basin management.



**FIGURE 3 DSS tailored for planning and management decisions in the Volta river basin based on an architecture that cater for other multiple usages including forecasting and early warning (output 2.2.1).**

#### Execution and key stakeholders of output 1.1.1

In collaboration with the Project Management Unit (PMU), GWP-WA (reference is made to A6) will contract an international institution capable of developing a Decision Support System (DSS) and providing training. The requirement specifications for the DSS will be prepared in close collaboration with VBA and the national water resource departments of the basin countries. Intermediate and final results will be presented to VBA and the basin countries to obtain their feedback.

Output 1.1.1 will be implemented in parallel with output 2.2.2 ( training activities for VBA and basin countries in using the DSS). This will ensure proper technical knowledge and competent feedback from the basin countries during the development phase of the DSS.

#### Targets, indicators and means of verification for output 1.1.1

The end-of-project targets of output 1.1.1 and related means of verification are:

- ? Improved knowledge base sufficient to support the DSS and accepted by VBA
- ? Water resource system model able to simulate key challenges and accepted by VBA
- ? A DSS able to support the dialogue and water decisions to be taken by the basin countries

#### Procurements for output 1.1.1

The main procurements related to this output are:

- ? Contracting of an international institution able to develop the described DSS. Procurement expected to be combined with procurement of consultant for output 2.2.1 and output 2.2.2.
- ? Costs related to workshops to present and discuss the development of the DSS

#### Activities of output 1.1.1

Achieving Output 1.1.1 requires the following activities:

##### **Activity 1.1.1.1: Establishment of an improved Knowledge Base**

Activity 1.1.1.1 will establish an improved dedicated knowledge base for the Volta River basin as an integral part of the DSS database (see Figure 3). This knowledge base will be built by drawing upon relevant data and information from existing repositories to create the required knowledge products for the basin and planning analyses in the DSS. The populated DSS database that will emerge from this project does not substitute any existing database or knowledge base systems, but may in fact enhance some of the existing systems through data and information exchange. The knowledge base of the DSS database will:

- ? Exchange data with the *hydrological* database available at VBA/VBO (storing hydrological data of key gauging stations up to 2008) and thereby enhance this database as well;

- ? Contain a repository for *Abstraction and Water Uses* data and information, based on gathered data and projections about sectoral water usage in the basin;
- ? Contain a repository for *Hydraulic Infrastructure* data and information, based on gathered key data (dam design, operation rules, etc.) on existing and planned infrastructure investments in the basin;
- ? Exchange data and information with the Volta Basin Information Sharing System (VB-ISS) by using compatible database formats. The required information is to a large extent already available in the national organizations, but further efforts will be made to collect and process these;
- ? Make automated and manual data acquisition of Earth Observation (EO) products available in the DSS database. The DSS will transfer additional EO information to the VB-ISS, which may not be part of its current EO data acquisition procedure.

The existing Water Resource Information System (WRIS) developed by DHI (2013) will be linked to the DSS and its used enhanced with the new DSS database framework.

As part of Activity 1.1.1.1 an inventory and analysis of the existing national/regional data and information about water resources availability, current and future water uses and demands, hydraulic and hydrological regime of the Volta River, existing and planned hydro-constructions, and irrigation infrastructures will be conducted.

This will also include a partial institutional assessment of VBA to establish a mechanism for the exchange of data and information at national and regional levels. This will guide the capacity building (Output 2.2.2) to enhance the Volta Basin Observatory (VBA/VBO) to be able to operate and maintain the developed DSS (including database and modelling tools) in a sustainable manner. Based on the experience from the recent DSS implementation for the Zambezi Watercourse Commission<sup>[1]</sup>, the implementation of the DSS presents a unique opportunity to improve the coordination and participation of member states in the management of their ecosystems and water resources in a combined regional and national manner.

This activity will strengthen the knowledge base, enhance the data and information availability, and provide opportunities for sharing both through the developed DSS and through an updated VB-ISS, which has been developed in previous phases of the UNEP-GEF Volta Project.

#### **Activity 1.1.1.2: Establish a reliable water resources system model for the Volta River Basin**

Under this activity existing (national) water resource model(s) for the Volta River basin will be reviewed with the aim to establish a reliable water resources system model that fits the purpose of transboundary planning and management.

Existing water resources system models established previously for the Volta River Basin have been based on the WEAP, MIKE HYDRO Basin and other model codes. A review of these will be carried out during the inception period and recommendations for selecting and establishing the most appropriate modelling framework will be presented to VBA for their approval. It is not anticipated that the water resources system model in the DSS is directly linked to any numerical groundwater model, but review of any existing groundwater models for the Volta basin may provide relevant information of how to conceptually represent groundwater development and sustainability in the modelling framework and planning decision making.

Based on the findings from the review a new enhanced modelling framework will be designed and developed either through updating and operationalization of existing model(s) or establishing a new model

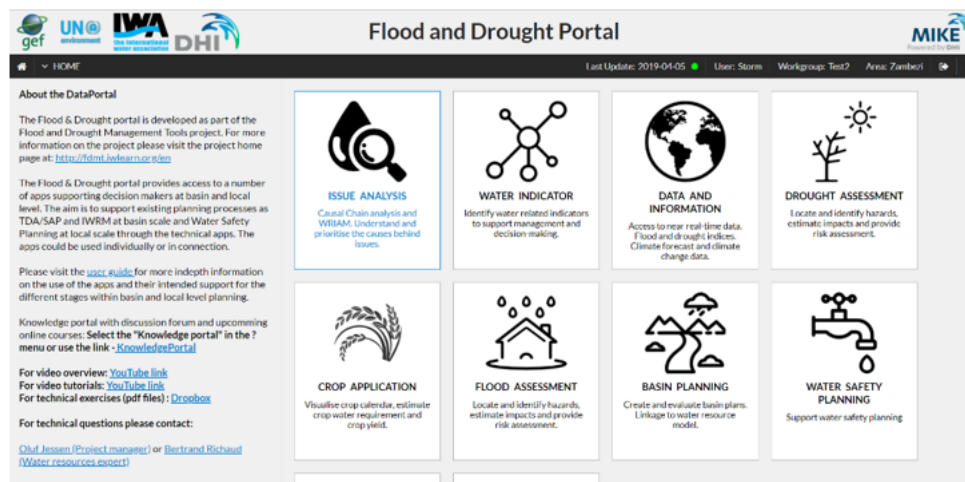
or models, which can smoothly be embedded in the DSS for basin planning and management activities. UNEP experience in ecosystems valuation as well as the WB WAVES methodologies will be taken into account in this activity.

The model(s) will be set up, calibrated and applied using the information uploaded and stored in the DSS's knowledge base. This includes data and information for all key water uses, e.g. hydro-power, domestic and rural water supply, agriculture (including livestock and crop production, fisheries, etc.).

The result of this Activity 1.1.1.2 will be a modelling framework embedded in the DSS. The model will support regional and national decision making in relation to water requirements, water allocation and development and implementation of new water infrastructures under considerations of future climate change, population growth etc.

### Activity 1.1.1.3: Implementing the DSS for water resources planning and management

Water resources models are important for creating a sound and transparent basis for decision making. But models require a decision framework around them in order to become useful tools for water managers and decision makers. This activity will implement a bespoke DSS specifically for water resources planning and management aspects. It will take advantage of the already developed (GEF funded) Floods and Droughts Portal, which provides functionalities for linkage between data management, simulation models, planning analysis and basin plan development. The purpose of the DSS implementation is to create a decision environment around the established river basin system models to produce the decision parameters necessary for the basin planning.



**FIGURE 4 The DSS will build on the existing Flood and Drought portal functionalities and concepts and further streamline dedicated planning and management needs in the Volta river basin.**

[1] Zambezi Water Resources Information System (ZAMWIS) Enhancement 3: Hydro-meteorological Database and Decision Support System, Implemented by the ZAMCOM Secretariat 2017-2019. Funded by the World Bank

In line with all dedicated technology transfer projects a brief business analysis will be undertaken, which will touch upon four common important aspects for successful IT solution implementation:

? **Types of future users of the DSS** ? Who will use the DSS and which type of functionality will each category of users need to have access to? Some DSS users will need strong technical skills to apply tools and models on a frequent basis while others may only occasionally use it, e.g. for obtaining information. This analysis helps configuring user interfaces and user access rights for the future user community.

? **Ways of working with the DSS** ? Mapping of the expected ways of working for each user category. It reveals expected user behaviours and workflows that will lead to appropriate user interface design and requirements.

? **Additional functional requirements** ? To identify any key functional requirements that must be included to meet the expected level of functionality. As a DSS platform exists (existing Flood and Drought portal), it is expected it includes some of the anticipated functionalities. However, any new requirements identified helps to ensure that the DSS serves its purpose.

? **Non-functional requirements** ? To identify the non-functional requirements that lead to correct dimensioning of hardware and software and other aspects that the DSS shall meet, but not directly related to features the software need to expose.

The configuration and implementation of the DSS will be defined in order to support the planning and management processes in Volta River basin.

To the extent practical and technically feasible, the DSS tools and systems developed under the project will be embedded or coupled to VBA's existing IT-infrastructure in order to enhance the sustainability of the systems. This will make it easier for VBA to use, maintain and sustain the DSS.

Based on the improved knowledge base (Activity 1.1.1.1), the decision-making process will utilise the results from the embedded water resources system model (Activity 1.1.1.2) through an indicator-based approach as illustrated in Figure 5. In line with all dedicated technology transfer projects a brief business analysis will be undertaken, which will touch upon four common important aspects for successful IT solution implementation:

? **Types of future users of the DSS** ? Who will use the DSS and which type of functionality will each category of users need to have access to? Some DSS users will need strong technical skills to apply tools and models on a frequent basis while others may only occasionally use it, e.g. for obtaining information. This analysis helps configuring user interfaces and user access rights for the future user community.

? **Ways of working with the DSS** ? Mapping of the expected ways of working for each user category. It reveals expected user behaviours and workflows that will lead to appropriate user interface design and requirements.

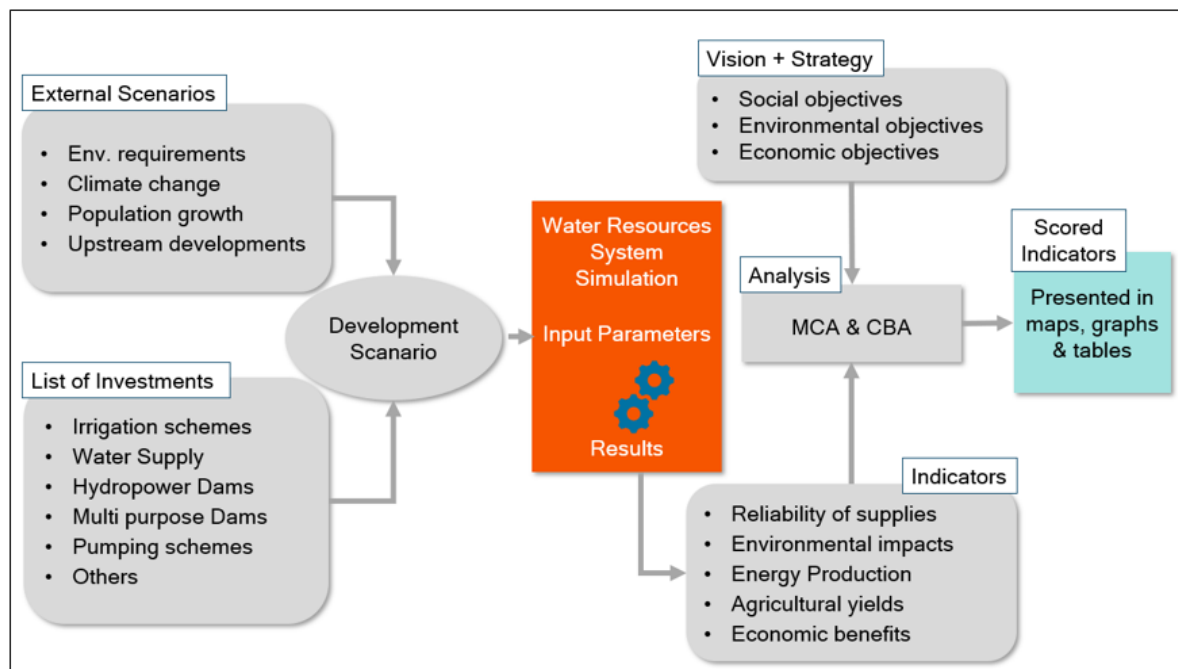
? **Additional functional requirements** ? To identify any key functional requirements that must be included to meet the expected level of functionality. As a DSS platform exists (existing Flood and Drought portal), it is expected it includes some of the anticipated functionalities. However, any new requirements identified helps to ensure that the DSS serves its purpose.

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Based on the improved knowledge base (Activity 1.1.1.1), the decision-making process will utilise the results from the embedded water resources system model (Activity 1.1.1.2) through an indicator-based approach as illustrated in Figure 5.



**FIGURE 5 Workflow of the planning application in the DSS, including the use of multi criteria assessment (MCA) and cost-benefit analysis (CBA) tools.**

The implemented DSS will provide tools supporting water management within the Volta basin with specific focus on analysing priority investments for improved water availability, increased water security, socio-economic benefits, protection of ecosystems and natural resources, and climate resilience in a coordinated management of the Volta basin water resources and related ecosystems.

Identification and planning of future investments will be supported by imposing investments and external scenarios as input parameters to the water resources model and translating model results into indicators, which can be compared in multi criteria assessment (MCA) and cost-benefit analysis (CBA) framework.

The DSS will incorporate workflows, which can be used in desktop studies as well as in stakeholder workshops, where decision makers and stakeholders can discuss outcomes of various planning scenario options based on agreed visions and strategies for the basin development regionally, nationally or locally.

The DSS will be set up with focus on drought management and water availability. Flood warnings as well as hydropower optimisation will not be part of the functionality within this project framework.

The project 'Integrating Flood and Drought Management and Early Warning for Climate Change Adaptation in the Volta Basin', implemented and executed by WMO in collaboration with VBA and GWP-WA, will focus on flood management and is also foreseen to support rehabilitation of existing monitoring stations. The REWarD project will thus not include rehabilitation of the monitoring station infrastructure.

The DSS will be cloud based to ensure efficient support and maintenance in order to limit the resources from VBA required to maintain and operate the IT infrastructure needed for the DSS. The general tendency is currently to outsource the hosting and storage of water resources tools, which allows access to the tool from anywhere in the Volta basin. Moreover, cloud based systems are better secured than any locally hosted systems. A sustainability plan for the DSS will be developed in collaboration with VBA. Possible license costs and cloud based services subscription for at 5 years are included into the GEF budget allocated for this activity.

#### **Output 1.1.2: Valuation of Environmental Capital, Ecosystem Services and Functions, and Socio-Anthropological Impacts in the Volta Basin (SAP Priority Action D.11)**

Countries within the Volta Basin are heavily dependent on the environment as a source of livelihood-supporting services and resources. Society uses and depends heavily upon the environment for its basic needs. The source and 'sink' services are scarce and continue to degrade. In order to change the currently observed negative dynamics, the adoption of more environment-friendly and sustainable patterns of use that will increase the base of environmental assets over time and improve the environment's capacity to continuously provide goods and services is needed. The valuation of natural resources and ecosystem services is, therefore, an attempt to assign quantitative and monetary values to the goods and services provided by these ecosystems. Effective planning of their use and management is hindered by the lack of robust and quality-assured data and information on socio-economic and ecological characteristics and values of key resources. Therefore, there is a risk of making irrational decisions regarding management, use and protection of natural resources if the real value of these assets are not known. Reliable and authentic data collection and analysis is paramount for sound future decisions in the Volta Basin.

The project will support the process of an environmental valuation for a better characterization and knowledge of the basin ecosystems through the assessment of values of environmental resources and ecosystem functioning for an effective decision-making, resource development and management. The results of this valuation exercise will inform the process of operational and long-term planning at regional, but also at national level. One of the key applications of the results of this study will be prioritization of the future SAP implementation related activities in the basin, particularly at country level within the implementation of NAPs. It is recognised, however, that the present involvement of country teams on activities on valuation is insufficient, and additional efforts will be required to strengthen the current capacity in the countries.

A socio-economic study including a comprehensive gender analysis on the relationships between water uses, the environmental services and water resources, and their impacts on each other will be carried out

including review of existing studies such as 'WISE UP to Climate'. Valuation and accounting of ecosystem services in the Volta river basin will be conducted, based on:

- (i) Existing studies,
- (ii) mapping and assessment of the state of ecosystems, their services and related socio-economic impacts in the basin,
- (iii) assessment of their value, including economic value, with respect to the gender differentiation
- (iv) promotion of the integration of these values into the reporting, planning and financing tools at the Volta Basin Authority (environmental database, Master Plan, sustainable financing strategy), and
- (v) providing additional prioritization information for the implementation of SAP-related initiatives at country level, as well as an effective parameter for a longer-term planning at national and sub-national level.

The Project intends to go beyond a 'proof-of-concept' or demonstration only. The current interest and investments in the Volta basin over the years have clearly indicated the need to move from development of concepts to concrete implementation modalities and schemes. The currently available instruments and mechanisms will be assessed at the start of the project in order to focus on the implementation of and improving the existing approaches, rather than developing new ones.

The results will be indicator definitions and indicator values in the DSS – the DSS has a component that allows defining and calculating indicators. Indicators are the basis for carrying out multi-criteria-analyses (MCA) and trade-off-analyses to support decision-making in basin management.

#### Execution and key stakeholders of output 1.1.2

This regional study will be managed by the PMU hosted by VBA. A consultant will be hired to carry out the study. The consultant will interact closely with the national institutions (environment, water resources, agriculture, mining, fishery, etc.) while estimating the values of ecosystem services and socio-economic impacts.

#### Targets, indicators and means of verification for output 1.1.2

Environmental values are taken into account when making transboundary water resource planning decisions in the Volta Basin. Environmental values are approved by the basin countries and documented in minutes of meetings.

#### Procurements for output 1.1.2

- Hiring of consultant to carry out the study on environmental values

#### Activities of output 1.1.2

##### **Activity 1.1.2.1: Review of Existing Valuation Instruments**

The methodologies that are to be applied in this work need to be defined and scoped. This requires review and valuation of results from previous works, as well as deriving new ones where necessary and feasible. In particular, the review will build on the results from the recent work under IW:Learn on economic valuation of 'wet' ecosystems, published in the document 'GEF Guidance Documents to Economic Valuation of Ecosystem Services in IW Projects'. This review should highlight the relationships between gender, ecosystems and their services.



A review shall be conducted for studies in the region that relate different types of effects resulting from climatic/hydrologic and socioeconomic drivers and from development interventions with social, economic and environmental impacts. Climatic and hydrologic drivers are phenomena like extreme rainfall or river flows (droughts and floods). Socioeconomic drivers have to do with population growth or changes due to economic development, such as increased per capita demands for water or energy. Development interventions deal with developing water infrastructure, such as dams or irrigation sites, or changed operation of water infrastructure or irrigation practices. The causes, in some context also called 'drivers', lead to different types of impacts such as change in ecosystem functions, loss of biodiversity, decline in local availability of water, flooding, spread of invasive aquatic species, reduction in agricultural production, livestock reduction, affected fisheries, reduction of sources of biological materials and products, reduction in wetlands services. The review will include recent reviews and tools developed under IW:Learn.

The reviews and analyses will focus on understanding and determining the key drivers and impacts in the basin. Impacts that need to be quantified with indicators include increases in poverty levels, food insecurity, loss/reduction of livelihoods, declining health status of the population, reduction in income and revenue, migration with resulting conflicts. It may not be possible to directly quantify such impacts, and the task would even be more challenging to relate such impacts to causes and drivers.

The following questions demonstrate and exemplify the types of issues that will be addressed in this activity:

1. In this region, what are the main natural and human induced drivers that affect the socio-economic-environmental system? E.g. climate variability, expansion of agriculture (more land, modernized techniques), extensive fishing, infrastructure development, such as building dams;
2. What are the relevant socio-economic-environmental effects? E.g. production reliability of rainfed agriculture, land degradation, farmers' and fishermen's livelihoods, environmental health of river reaches;
3. What are the dependencies and interactions between causes and effects? E.g. how does climate variability affect productivity of rainfed agriculture; how does expansion of agricultural land affect land degradation; how do specific catchment management methods reduce land degradation; building dams affecting the hydrological regime downstream, how will the ecological health of river reaches downstream be affected?
4. How are effects to be parametrized and what are candidate indicators that can represent the effects? E.g. ecological health of river reaches can be represented with the occurrence of certain fish species; livelihoods of farmers and hence their incomes depend on land productivity and that again depends on rainfall reliability.

Furthermore, based on the findings, appropriate valuation methods shall be determined for the region. The valuation methods will have to allow quantifying effects and assigning values to these 'non-economic and economic'. Depending on the environmental issues, the values will include economic/monetary indicators. Where appropriate, relationships between the environmental effect and the categories of economic values shall be analysed and derived: Are the values of interest direct or indirect use values or option values (that can be derived on the basis of so-called revealed preference methods)? Or are the values of interest rather non-use values (that can be derived on the basis of so-called stated preference methods)? This would lead to a comprehensive valuation concept that would include determining the 'total economic value' of environmental services, where possible and necessary. Concrete candidate monetary valuation methods include market price-based, travel cost-based, ecosystem service replacement cost as well as contingent valuation methods. Before applying these methods, their suitability for the region and the environmental services of interest shall be analysed and determined.

#### **Activity 1.1.2.2: Derive Socio-Economic and Environmental Indicators**

Based on the reviews and analyses, relationships between drivers and impacts will be created. Consequently the relevant drivers and impacts shall be determined and scoped. With this set of causes and

effects, the way impacts are to be represented with indicators shall be determined, and along with this ?functional relationships? and simplified rules between quantifiable causes and indicators will be established.

The indicators will be quantified in units that relate to the respective phenomenon (e.g. number of displaced persons due to infrastructure development). This is the first level of valuation. In addition, where necessary and possible, economic indicators will be developed as well (e.g. costs or benefits), to represent the economic effects. A monetary quantification of impacts is delicate, as this could easily imply that it would be justifiable to implement interventions with economic/monetary benefits that outweigh ?monetized impacts? on environmental services. Depending on the outcomes of Activity 1.1.2.1, the economic/monetary valuation approach in this context will comprise deductive, revealed preference, declared preference or value transfer methods, where applicable and possible.

The developed ?functional relationships? will represent response/production functions of the different components of environmental services. The types of ?responses? or ?productions? can include non-economic and economic indicators - the methods that will be applied in these analyses will encompass economic and non-economic valuation approaches. The results of the functional analyses and estimations of service values (non-monetary and monetary) will be validated against past observations as far as possible.

With the cause and effect mechanisms determined and formalized, the rules in the indicator component of the DSS shall be integrated. This component is on the one hand an inventory of indicators distinguished by the themes (1) social, (2) economic, and (3) environmental. On the other hand, the inventory includes and has embedded the relationships as functional rules (e.g. response and/or production functions) that allow calculating the respective indicators for given inputs (causes or drivers).

The result of this activity will be a library of indicators in the DSS that allow quantifying the social, economic and environmental impacts due to climatic and economic drivers. This again would be the basis for comparative analyses with the DSS that allow understanding and validating future scenarios. The comparative analyses supported by the Analysis Manager of the DSS using well-established methods for supporting decisions in basin management (such as multi-criteria-analyses (MCA) and trade-off-analyses) will be performed as part of Output 2.2.2. The aim is that with tools for proper validation of environmental capital and ecosystem services embedded in the DSS, natural resources management decisions and trade-offs based on the DSS will take better account of the interests of farmers and others whose livelihoods depend on the sustainability of natural resources.

During implementation of the project, the experiences of IUCN and UNEP within ecosystems valuation will be taken into account (e.g. the WB WAWES methodologies).

## **Component 2. Strengthening of Transboundary Planning, Regional and In-Country Coordination and Capacity, also During Extreme Events Related to Climate Change and Variability**

As identified in the SAP[1], the increasing pressure by individual countries on the basin's water resources, as well as other natural resources, and an increase in the number of floods, led to a realization among the six riparian countries of the basin that a closer and more coordinated approach to managing the basin's resources was needed. The six basin countries recognised the need to strengthen regional collaboration. Within each country, there is also a need for coordination between the different economic sectors that affect water resources and ecosystems in the respective national portions of the Volta basin. Thus, the countries have in 2018 approved the establishment of the National Focal Structures as an important link to the Stakeholder Forum at the basin level. These structures need operational capacities to promote the involvement of different water users in the concerted management of the natural resources of the basin.

This component aims at improving the coordination mechanisms and planning tools within each country (national and local) as well as between the countries (basin-wide) through strengthening the capacity of the stakeholders and their access to information and user-friendly planning tools. The component will therefore promote and/or strengthen the existing coordination platforms at both the country and the basin-

wide levels. It will support information generation and sharing at national and basin levels, as well as activities related to participation in the International Water Learning Exchange and Resource Network. While Component 1 will provide improved knowledge base and develop required Management Tools for informed decision-making process, Component 2 will focus on the access and use of such information and tools in order to benefit the stakeholders at country and regional levels.

### **Output 2.1.1: Functional Regional Formal Dialogue and National Water User Inter-Sectoral/Inter-Ministerial Coordination Committees Established (SAP Priority Action D.2)**

To ensure that national policies and institutions support the sustainable water resource management of the Volta River Basin, the capacities of the regional and national-level governance agencies will be strengthened by the establishment and/or operationalization of inter-ministerial (inter-sectoral, with close engagement of major water users in the countries) committees and the full integration of the integrated national-level planning results and initiatives into a transboundary process of water resource management.

Modelling results on an optimized water resource management process (Component 1) will present a technical basis for supporting various water management decisions in the Volta basin. However, it is imperative that these decisions are a) politically and technically discussed within the countries with relevant water users and b) discussed at the basin level while respecting the regional decision-making process. The basin-level discussions will be facilitated by VBA according to its mandate. This is why, an institutional coordination mechanism needs to be set up, which would allow regional governance bodies, i.e. VBA, as well as regional and national water users, to maintain formal dialogues at all stages of water resource management, from, for instance, monitoring to water allocation and dam operation[2].

The process of the development of an operational tool for water resource management, and also communicating results of and discussing modelling applications under Outputs 1.1.1, will facilitate specific inter-sectoral/inter-ministerial cooperation mechanisms or/and platforms to be developed by the project. An effective decision-making mechanism is to be based on the results of the participatory processes with key governmental and non-governmental water users in the basin.

The World Bank GEF/CIWA programme has funded the Volta Basin Strategic Action Programme Implementation Project (VSIP) which ended in August 2019, which did address some of the issues related to the establishment of a regional consultative dialogue (Component 2[3]<sup>3</sup>). Inputs and lessons learned from the WB-implemented project will be built on and integrated for an effective design of activities under this Output.

The project will support an inclusive, participatory and iterative approach, for the VBA and the basin stakeholders to work through to ensure that the achievement of a truly collaborative process at basin scale become a reality especially in view of the current development of the Basin Water Charter process.

#### Execution and key stakeholders of output 2.1.1

This output will be executed by VBA through the support of the PMU. Key stakeholders will be the basin countries represented by parliamentarians, national institutes and water users participating in national- and basin dialogues and training activities.

#### Targets, indicators and means of verification for output 2.1.1

Six national inter-ministerial coordination committees providing recommendations on project implementation and SAP implementation. To be verified via minutes of meetings.

#### Procurements for output 2.1.1

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Main procurements will be costs in relation to national and basin meetings.

#### Activities of output 2.1.1

Two activities will be supported by the project, as indicated below:

##### **Activity 2.1.1.1: Support the regional dialogue on governance and management of water resources in the Volta Basin**

The VBA already has an annual **Basin Stakeholders Forum**, which is an information, awareness and exchange platform for the main players in the water sector, to improve water governance in the Volta Basin. In order to ensure that national policies and institutions support the sustainable management of water resources in the basin, the project will work to strengthen the current objectives of the Annual Basin Stakeholders Forum so that this platform effectively integrates results and planning initiatives at country level in a process of transboundary management of water resources.

With a view to support continuous dialogue and the strengthening of national and regional governance agencies, the project will support VBA in the establishment and operationalization of the **Inter-parliamentary Committee** of the Volta Basin enshrined in the Basin Water Charter originally programmed to be adopted in 2021 by the summit of Heads of State and Government. From an operational point of view, a capacity building and advocacy plan will be developed and implemented with the support of the VBA and national experts so that the decisions taken by the Council of Ministers are better shared at the appropriate level and their applicability at national and local level is facilitated and effective. Four (4) thematic training sessions will be organized for parliamentarians for their effective involvement on issues related to investments in water infrastructure in the basin, benefit sharing, conflict sensitivity and sustainable financing of the VBA. All of these concerns are challenges that the Volta Basin stakeholders must address on a medium to long term horizon to achieve the objectives of the SAP and the Basin Water Charter.

##### **Activity 2.1.1.2: Establish and Build Capacity of National and Regional Coordinating Committees of Water Users in the Volta Basin**

As in the Niger Basin, the VBA wants to strengthen the effective involvement of all stakeholders in the basin in the national and transboundary governance of water resources. To achieve this, the project will support the VBA in the process of setting up a regional and national coordination of water users in the basin, with the aim of:

? Promoting consultation among stakeholders for sustainable development in the basin, at local, national and regional levels, with the following working areas: food security, the achievement of sustainable development objectives concerning water, poverty, health, education, hydraulic infrastructure, etc.;

? Strengthening the capacities of mobilization, organization, advocacy and sustainable actions of basin actors at the local, national and regional levels.

In concrete terms, the project will support the organization of a regional constitutive forum for natural resource users of the Volta Basin to set up national and regional users coordination structures and to have a regional capacity building plan. The plan will take into account the principles and content of the existing draft Water Charter. In order to facilitate the development of the National Coordination's annual work plans in relation to Action D4 (?To support and reinforce transboundary and regional cooperation for water resource management across the Volta Basin?) of the Strategic Action Program of the basin, the project will organize (6) training sessions on transboundary water cooperation, issues on major hydraulic infrastructures (e.g dams, irrigation schemes), conflict sensitivity, the use of DSS information and regional policies on water and the environment in West Africa (ECOWAS/UEMOA) being important elements of

the Water Charter. Participants to these trainings will include the VBA, the national water agencies and national water users' associations.

#### **Activity 2.1.1.3: Strengthening of VBA Capacities**

This activity is justified by the recent experiences related to the WB CIWA project which was not completed as planned and it is inspired by the Independent Institutional Assessment of VBA made in June 2017.

One of the recommendations of the institutional assessment is 'to strengthen the human, financial and organizational capacities' of VBA in order to achieve a more efficient operation. More specifically, the assessment recommends as follows:

- ? Review existing recruitment procedures
- ? Development of procedures for human resource management
- ? Review of organizational chart and develop staff recruitment plan
- ? Strengthen capacities in mobilizing external funding
- ? Strengthen competences in monitoring and evaluation and in ensuring sustainability of projects
- ? Improve collection of budget contributions from member countries
- ? Identify possible budget savings
- ? Establish payment mechanisms for project management

It is in line with above recommendations that VBA has proposed that capacity building/ institutional support within the following areas shall be funded by the REWarD project:

1. Short term training and retraining of own staff within the areas of governance, communication, administrative management, project planning, management and monitoring-evaluation processes. This includes training foreseen under output 2.2.2
2. Updating of IT hardware and software for VBA and for the National Focal Structures.
3. Initial funding of new recruitments to be part of and trained by the project management unit (Reference section A6) for the REWarD. Funding gradually to be taken over by VBA's own budget.

The budget allocated for the strengthening of the VBA capacity is 580,000 USD over the five year project period (reference Annex F). This corresponds to the amount originally allocated for the project activities related to 'shallow groundwater' and to 'invasive aquatic species', which are no longer part of the project.

The exact planning of the capacity building activities shall be carried out by the project management unit and shall be approved by the Project Steering Committee.

This activity also includes the preparation of a concept note on 'management of shallow groundwater' and on 'mitigation of invasive aquatic species' to be used for seeking funding for future projects. The concept note(s) shall be prepared by the management unit under the supervision of VBA. UNEP and IUCN will be available for providing guidance for the preparation of the concept note(s) as well as for pointing at relevant funding sources. The concept note shall be completed within the first six months after the start of the REWarD project.

#### **Output 2.2.1: Community Oriented Early Warning System(s) for Droughts (SAP Priority Action A.6)**

Implementation and operation of forecasting and early warning systems are cost effective measures to alleviate impacts of extreme events (e.g. droughts) or impacts of extreme incidents (e.g. pollution of water bodies) through involvement of emergency authorities or local community focal points. Based on tailored dissemination systems they can warn communities in risk of being affected and/or initiate disaster mitigation measures through emergency activities and relief programs.

Undertaking climate change estimations is important for the long-term planning of water availability and investment planning, as described under Output 1.1.1, whereas weather forecasting is important for near-future impacts of disasters. IT systems for community-focused drought monitoring, forecasts and early warning may be implemented centrally, but must include appropriate dissemination procedures that support local level warnings based on identified areas under risk and the anticipated level of hazards.

Droughts create hazards affecting multiple sectors to a various degree and the monitoring, forecasting and mitigation aspects must be designed to cover differences in needs throughout the Volta River basin. The basin planning as described under output 1.1.1 may take this into account. From a strategic perspective, output 2.2.1 must consider this in an operational manner.

To deliver output 2.2.1, the project will collaborate with the WMO-implemented project 'Integrating flood and drought management and early warning for climate change adaptation in the Volta basin?', funded by the Adaptation Fund to explore synergies and avoid duplication of effort. The WMO-led project plans to select and implement appropriate End-to-End Early Warning Systems (EWS) for riverine floods allowing integration of short-term to seasonal indicators into the long-term management framework. Specifically, the WMO-led project is ambitioning to pilot test EWS across the basin countries with participants ranging from 20 to 200 people, depending on the country. The WMO-led project identified ten locations for pilot testing of the EWS. While the WMO-led project will mainly focus on riverine floods and national meteorological office counterparts, the REWarD project will focus broadly on droughts, crop and livestock production and interact with environmental and agricultural counterparts and the national level. Therefore it complements the WMO-led project thematically and expands the number of pilot sites. The table below shows the complementarity and expansion of the WMO-led EWS by this project, taking into consideration that the pilot sites for REWarD project should be transboundary.

**Table 4: Complementarity of pilot sites for testing community-based EWS between WMO-led project and the Reward project**

Rivers	Pilot sites	WMO-Led project estimate number of people participating	REWarD estimate number of people participating
Black Volta River	Sourou, Mali	40 - 80	40-80
	Sourou, Burkina Faso	0	40-80
	Upper West Region, Ghana (Bagri)	0	50-100

	Southern Region, Burkina Faso (Manoa)	0	50 - 100
Otti River	Oti River, Togo	20 - 50	20-50
	Oti River, Ghana (Upper East region)	50 - 100	50-100

Note: the ten WMO-led project pilot location are: (1) Ouagadougou, Burkina Faso; (2) Bagré dam, Burkina Faso; (3) Centre-Nord Region, Burkina Faso; (4) Akosombo dam, Ghana; (5) Upper East Region (UER), Ghana; (6) Sourou, Mali; (7) Oti River, Togo; (8) National Part of Volta Basin (NPVB), Benin; (9) Komoé downstream area (Burkina Faso and Togo); (10) Bui region, Côte d'Ivoire.

A collaboration agreement will be developed between the WMO-led project and the REWARD project. It is expected to align with the three phases of the EWS development as identified by WMO-led project, as follows:

- ? Phase 1 : Risk mapping across the Basin, by the WMO-led project;
- ? Phase 2 : Pilot testing and feedback of the flood and drought Early Warning System, by both projects; and
- ? Phase 3 : Capacity development for both agencies at local/national and regional level and communities by both projects.

Given that VBA is also one of the regional executing agency of the WMO-led project and that a technical assistance is already available at the VBA office, a collaboration agreement will be quickly reached. In addition, the day-to-day coordination between the two projects will also be facilitated as the REWARD project management unit will be hosted by VBA.

To ensure the post-project functioning of this community-oriented EWS, it is important to connect it to a centrally located web-based DSS system with pull and push options for notifications and early warnings for local authorities and communities. The development and implementation will seek to address the needs to mitigate potential use conflicts between pastoralist and farmers in certain parts of the basin.

#### Execution and key stakeholders of output 2.2.1

This output will be executed by GWP-WA, working with the PMU. The key stakeholders will be the communities of the six pilot sites and the related national authorities as well as VBA.

#### Targets, indicators and means of verification for output 2.2.1

Local communities benefitting from the Drought Early Warning System (DEWS). To be verified by interviews of target groups.

#### Procurements for output 2.2.1

Hire of consultant to establish DEWS. Procurement expected to be combined with procurement of consultant for output 1.1.1 and output 2.2.2.

#### Activities of output 2.2.1

Output 2.2.1 will include the following activities.

#### **Activity 2.2.1.1. Develop community-based Drought Early Warning Systems (DEWS) in the six pilot sites**

This activity aims at identifying and selecting the appropriate local measures or equipment and developing a set of principles or procedures according to which a community-based early warning system should be established. The project will support community consultations in three sites (Sourou, Burkina Faso; Bagri in the Upper West Region, Ghana; and Manoa in the Southern Region, Burkina Faso) to complement and expand the process of establishing the community-based Early Warning System conducted under the WMO-led project in the three other common sites (Sourou, Mali; Oti River, Togo; Oti River, Upper East region, Ghana).

The pilot sites will be used to validate the DEWS. The validation will test its ability to detect areas previously impacted by droughts. This information is available at national level and will be collected as part of Component 1.

#### **Activity 2.2.1.2: Implementing the DEWS application of the DSS**

This activity will implement and operationalize a dedicated DEWS application taking advantage of the already developed GEF funded Floods and Droughts Portal system, which provides functionalities for linkages between data and variables suitable for drought monitoring.

Under this activity, Information Products (hydrological bulletin, previsions for agricultural activities) will be developed inspired by existing early-warning systems (e.g. the F&D portal) or systems under development (e.g. VoltAlarm) and how they disseminate warnings to local communities. The project will seek to connect with the Early Warning dissemination interface for VoltAlarm being established under the WMO-led project to ensure consistency in the source of information and data to the extent possible. Such Information Products will be based on seasonal drought monitoring and seasonal drought forecasting supporting local communities, including farmers, herdsman, and fishermen, to adapt their activities to the forecasts at short and medium term. The aim will be to produce Information Products complementary to the existing one and tailored to the needs of the recipients.

The project anticipates developing a workflow in the DEWS application, which will be used to disseminate drought-related information through the web portal, where latest satellite products and derived drought indices can be viewed. Furthermore, drought reports will be generated and made available to the respective national authorities being responsible for the actual dissemination to the local communities.

The feasibility of the cloud based DEWS shall be investigated taking into account the reliability and capacity of the internet for the expected users inclusive the VBA.

The project will support the national authorities (e.g. agriculture, disaster management) responsible for providing drought information/warnings to the communities (e.g. farmers, pastoralists). Gender sensitive needs assessments will be conducted and the Drought Early Warnings System will be developed to take into account the features being common and of importance for the socio-economic activities. One example is to provide updated drought information and forecasts to farmers. Existing communication channels and structures will be used to disseminate drought information/warnings to the communities in order to utilise channels that are already working effectively and avoid the multiplication of new channels. If relevant and requested by the end-users, dissemination via mobile app, RSS feed or SMS can for example be considered. Long-term maintenance cost and sustainability shall also be addressed when selecting the appropriate dissemination channels.

The project will also support training sessions for the national authorities on how to interpret and disseminate drought information.



### **Output 2.2.2: The Volta Basin Observatory Capacitated to Manage and Use the Updated Water Use/Balance Models and the DSS (SAP Priority Action D.10)**

The outcomes of this output relate to the data and analytical services provided by the Volta Basin Observatory and the member States to support effective decision making and sustainable basin planning with appropriate attention to the climate risks and the environmental threats throughout the Volta River basin.

This covers the knowledge and monitoring of the various aspects of the basin's natural resources and include:

- ? Development of the basin models for projections of climate change impacts on the water resources and its use;
- ? Decision making processes with the aim to verify the applicability of the DSS and the suitability of the indicators developed;
- ? Reinforcement of the capacities of the national/regional institutions and stakeholders, especially with respect to improve protection, management, monitoring and allocation of Volta Basin land, water and biodiversity;
- ? Support to the operationalization of the Volta Basin Observatory, and
- ? Awareness raising & information sharing and dissemination (Output 4.1.2).

The implemented DSS will only be successful if the necessary skills and institutional and human resources are in place. The capacity building of the Volta Basin Observatory staff will focus not only on providing theoretical knowledge, but also put high emphasis on learning workflows and operate the DSS efficiently and competently. The complete capacity building program therefore includes:

- ? Formal training courses for key staff of VBO who will be operating the DSS on a regular basis as well as practitioners and designated stakeholders, who will use the system occasionally;
- ? E-learning enabling stakeholders to embed the training into their daily activities without having to participate in physical workshops;
- ? Development of case studies to demonstrate the applicability of the developed DSS;
- ? On-the job training of staff through active participation in the development and testing;
- ? Preparation of operational user and reference manuals, online context-dependent help, documented demonstration cases, training materials;
- ? Facilitation of stakeholder workshops, where the system is presented for relevant stakeholders and the public,
- ? Introduction to technical support services;

? Preparation of a continued education plan for long-term sustainability and enhancement of the system.

#### Execution and key stakeholders of output 2.2.2

This output will be executed by GWP-WA, working with the PMU. The key stakeholders will be the staff of the Volta Basin Observatory, but also national authorities and regional research centres will be trained.

#### Targets, indicators and means of verification for output 2.2.2

Volta Basin Observatory able to operate and maintain the Decision Support System including the Drought Early Warning System. To be verified by training reports and sustainability plan for the DSS. (ref. Output 1.1.1)

#### Procurements for output 2.2.2

Cost for consultants to carry out the training activities. Procurement expected to be combined with procurement of consultant for output 1.1.1 and output 2.2.1.

#### Activities of output 2.2.2

Output 2.2.2 will include the following activities:

1. Scenario Analyses with Case Studies
2. Providing operational manuals
3. Training of Volta Basin Observatory and research Centres' staff.
4. Developing supporting procedures for use of the DSS

The activities are described in below sections:

#### **Activity 2.2.2.1: Scenario Analyses with Case Studies**

By using the DSS developed under Output 1.1.1, a set of scenarios will be simulated in collaboration with the principal stakeholders at the regional and national levels.

The scenarios will encompass different anticipations of the future including the impact of climate change. To derive possible future scenarios that include the impact of climate change on water, energy and food sectors, the project will take into account the tools developed during the GEF-financed project *Integrated Solutions for Energy, Water, Energy and Land*?. One of the key outputs of this previous GEF-project is a series of tools that are linked together into a 'systems analysis framework' (SAF) designed to answer major questions on the water-energy-land nexus. The SAF can, for example, be fed with climate change projections to assess the impact on land productivity, water availability, water variability and other resources across the globe.

The scenarios, described as 'what-if questions' will also cover interventions that aim at mitigating certain types of impacts (e.g. poverty alleviation through irrigation development, or environmental protection through catchment management).

The scenarios will be modelled and simulated by use of hydrological/water budget and water allocation models integrated in the DSS (Output 1.1.1). High level what-if questions are expected to include the following types:

1. Assuming population growth, economic development projections and climate change scenarios, what will the land degradation and reliability of yields of rainfed and irrigated agriculture be like in 30 years?
2. If the operation rules of a reservoir are changed to maximize hydropower production how will the flows downstream affect biodiversity, water level fluctuations in the reservoir, fishery yields and water flow fluctuation downstream agricultural practices (and hence livelihoods of farmers)?
3. What will be the impacts of catchment management practices on land degradation and hence on livelihoods of farmers and pastoralists?

The scenarios will be defined and scoped in accordance with well-known and defined methodology for valuing ecosystem services in policy appraisal contexts as described in Output 1.1.2.

Ultimately, indicators should support understanding system behaviour and should inform the decisions: Given a set of scenarios what would be the impacts, which development intervention is the most preferable, and what would be the costs and impacts? The use of various scenario analysis tools (e.g. Cost-Benefit-Analysis (CBA), Multi-Criteria-Analysis (MCA), Robust Decision Making (RDM)) will help to emulate the decision-making process with the aim at verifying the suitability of the indicators developed.

The project will analyse the indicators reflecting (1) social, (2) economic and (3) environmental effects using decision-making methods.

The purpose of this activity is to determine and confirm the scope and validity of the developed indicators and demonstrate the applicability of the DSS with its mathematical models and decision-making methods through a number of case studies.

#### **Activity 2.2.2.2: Providing operational manuals**

Under this activity, the entire system developed for Volta Basin will be documented, including the following:

- ? Overall description of the entire system, with a flow chart setting out the flow of information from the various real-time sources, the processes executed to carry out the forecasting of river flows and reservoir levels, dissemination via various media, and remote entry points to the system;
- ? Demonstration cases of key scenarios to simulate the performance of the system on selected historical hydrological events, with a full description of the system input and outputs;
- ? User Manuals and Short Guides for each component of the DSS system, including simulation and forecasting model codes;
- ? Description of the communication systems including automatic processes for downloading weather forecasts and remote sensing, dissemination of forecasts and alerts, and remote entry to the system from local offices, stakeholders and the public;

? Reference Manuals detailing the scientific theory behind the computations used by the mathematical models;

? Operation and Maintenance Manual for the entire system, detailing backup procedures, system diagnostics, software support and upgrades.

#### **Activity 2.2.2.3: Training of Volta Basin Observatory and research Centres? staff.**

A training program will be defined and conducted for staff at the Volta Basin Observatory (VBO has about seven experts but the training may also include, as appropriate, national-level key stakeholders nominated by national focal points) and relevant research Centres to be able to apply the DSS, including being able to develop and apply specific water resources system models. These models will be used to analyse the impacts of climate change projections on hydrological regimes and produce a map of vulnerable areas (mainly those at risk of drought).

This project will complement other interventions in the region to reinforce the analytical capacity of the Volta Basin Observatory on different aspects: staff skills; availability of technical tool (DSS, models, etc.). The necessary hardware and IT infrastructure to support this is assumed to be in place as a result of previous projects ? this will be verified during the inception phase and, if need be, work plans will be adapted to cope with the actual infrastructure.

#### **Activity 2.2.2.4 Developing supporting procedures for use of the DSS**

This activity will develop procedures for data collection, processing, publication and also reinforcing, where possible, equipment and technical instruments. The definition and selection of procedures will be coordinated with VBA and relevant in-country institutions.

In particular, the work that UNEP is doing for the capacity development, monitoring, information gathering and potential information systems on the global SDG indicators (UNEP is the custodian agency for indicators on IWRM (6.5.1), water quality monitoring (6.3.2) and protection and restoration of water-related ecosystems (6.6.1)) is highly relevant here. The data being gathered for the SDG process could feed into a Volta monitoring system, and potentially vice-versa (data being gathered in the Volta could help countries feed into SDG reporting).

### **Component 3. Conserving and Restoring Ecosystems for Sustainable Livelihoods in The Volta Basin**

This third component aims at supporting the implementation of SAP measures through priority actions that could lead to improvements in ecosystems management and the associated services such as water quality and flows through reduction of sedimentation, increased food production in sustainable manner. Initial selection of actions was done based on their transboundary nature through consultation with the VBA, its National Focal Structures, local communities, as well as representatives of local agencies and organizations in the six countries. Priority actions include restoration of flows through riverbank rehabilitation, reversal of vegetation degradation through reforestation and enhancing of agricultural, livestock and fishery practices through soil and water conservation techniques. Taking into consideration Output 2.1.2 (**Community Oriented Early Warning System(s) for Droughts**) from component 2, the same pilot sites (Table 5) have been selected to implement (i) measures on sustainable use of water for crop and livestock productions and (ii) sustainable fisheries management practices.

**Table 5: Pilot locations for ecosystem-based approach to fishery management**

Outputs	Target sites and sub-basins
Output 3.1.1 Measures on sustainable use of water for crop and livestock productions implemented to improve productivity, food security and incomes.	<p><b>1. Transboundary sub-basins in Burkina, Mali, Togo and Ghana</b></p> <ul style="list-style-type: none"> <li>●Two transboundary pilot sites alongside the Black Volta sub-basin (Sourou between Mali and Burkina Faso; and Bagri/Manoa between Burkina and Ghana)</li> <li>●One transboundary pilot site alongside the Oti sub-basin (between Togo and Ghana)</li> </ul> <p>It is expected that additional 5,000 (of which 40% women) crop and livestock value chain actors will benefit from this and additional 10,000 hectares will be put under sustainable use of water for crop and livestock productions.</p>
Output 3.1.2 Sustainable fisheries management practices implemented to improve productivity, food security and incomes.	<p><b>1. Fisheries in Burkina Faso, Mali, Togo and Ghana</b></p> <ul style="list-style-type: none"> <li>●Two transboundary fish landing pilot sites alongside the Black Volta (Sourou between Burkina Faso and Mali; and Bagri/Manoa between Burkina Faso and Ghana)</li> <li>? One transboundary fish landing pilot site alongside the Oti (between Togo and Ghana)</li> </ul> <p>It is expected that additional 10,000 (of which 50% women) fishery value chain actors will benefit from this, 20,000 hectares of fisheries will be managed using ecosystem-based approach.</p>

This component also build on the experiences of the previous GEF-funded and World bank-led *Volta River Basin Strategic Action Plan Implementation* Project, which failed to implement community-based activities to reduce erosion and sedimentation, restore vegetative cover, and conserve forest ecosystems in and around the tributaries of the Volta River. During the stakeholders' consultation in the six countries, it appeared clearly that such community-based activities have already been implemented in some locations along the River Volta with ecosystem and climate change adaptation lens. In fact, some previous projects have successfully piloted the creation and reforestation of a buffer zone on the White Volta riverbank by local communities in Burkina Faso and Ghana ([Sida-funded project](#)). This was made possible through the integration of the communities' needs and/or livelihood into the riverbank restoration activities.

Taking into consideration the above experiences and the urgent need to reserve the Volta ecosystems degradation that negatively affects the population livelihood, this component will address simultaneously the vulnerability of the populations and ecosystems they depend on with the view of improving their resilience for sustainable livelihood in the Volta basin. It will promote the application of sustainable crop and livestock productions systems and fisheries alongside the river while restoring the riverbank to rebuild the natural infrastructure for sustainable water development at local level. Given that riverine fishing, crop farming and livestock breeding are market-driven; this component will promote value chain approach in order to develop sustainable linkages between the market and the ecosystems that fuel them

***Outcome 3.1: Production systems in key sectors apply integrated water resource management and ecosystem-based approaches at community and sub-basin levels.***

This outcome focuses on the crop, livestock and fish sectors to pilot ecosystem-based approaches at the production level and the value chain approaches to connect the production to the market. Stakeholders selected these sectors on the basis on their importance to community livelihood and their effects on the natural resources within the Volta basin, including water, land and forest resources. In fact, in all six countries, major economic sectors in terms of employment and income are crop, livestock production,

fisheries and forestry. In the Volta basin farming systems, yields are low throughout because of drought and dry spells within the growing season, infertile soils, low inputs, poor infrastructure, and low labour productivity (Lemoalle and De Condappa, 2010)[4]<sup>4</sup>. In their objective to increase their production, local communities have engaged in practices that contribute to the continuous degradation of natural resources. Thus, it is common to see communities cultivating on the banks and even inside the bed of the river in order to take maximum advantage of ecosystem services, such as soil fertility and water availability. The herders drive their cattle to the riverbed for forage and water. Fishermen use prohibited practices to catch as many fish as possible. The main cause of these production practices are that communities are lacking appropriate approaches and capacities to implement sustainable production practices, and the low yields prevent them for securing resources to invest in more sustainable production systems.

This outcome aims at mainstreaming ecosystem-based and value chains approaches into crop, livestock and fishery production systems at basin or sub-basin levels. The ecosystem-based approach is defined as a strategy for the integrated management of land, water and living resources that promotes conservation and sustainable use in an equitable way (CBD COP5 Decision V/6).

### **Output 3.1.1: Measures on sustainable use of water for crop and livestock productions (SAP Priority Action B.4)**

Component B of the Strategic Action Programme (SAP) of the Volta Basin (UNEP, 2014)[5]<sup>5</sup> targets transboundary problems of the ecosystem degradation. The Action B4 focuses on designing and implementing a regional programme on the protection and restoration of riverbank and gallery forests upstream of Lake Volta. The environmental quality objective of this action is to reduce sedimentation in five key hotspots by 20 per cent by 2025. This output is therefore contributing the Volta basin Strategic Action Programme through addressing the degradation of ecosystems, the loss of soil and vegetation cover alongside the river.

This output aims at promoting sustainable use of water and related ecosystem (land and forests) for increased crop and livestock production through ecosystem-based and agricultural value chains approaches and practices associated with the use of community-based early warning system for drought management. The project will support participatory knowledge generation and sharing with communities on the ecosystems and associated services, they depend on, and the relevant ecosystem-based and agricultural value chains approaches. It will promote the adoption of ecosystem-based value chain approaches for crop and livestock productions that are compatible to the national norms and standards for protection of the riparian strip. At crop and livestock production level, smallholders will be trained to adopt ecosystem-based approaches, ensuring that crop and livestock are produced taking into consideration the capacity of the ecosystems they are based on. At the post-production level, actors will be trained to understand the relationship between crop and livestock products and the ecosystems they derive from so that the post-harvest actors are willing to buy the products at the right price to support ecosystems restoration. To ensure compliance with these norms and standards, the project will support the rehabilitation of the riparian strip with local tree and grass species over a width between 100 and 200 meters from the riverbed for effective protection of the waterbody.

#### Execution and key stakeholders of output 3.1.1

VBA as the regional Executing agency will sign agreements with its focal institutions (see Table 9 and Figure 6) in Burkina Faso, Ghana, Mali and Togo for the execution of this output with a view of assuring country ownership of the sustainable use of water for crop and livestock production. This output and Output 3.1.2 will form one work package to be executed by the VBA focal institutions in the four countries. The PMU will be responsible for the oversight and providing guidance on the use of ecosystem-based approach to crop and livestock production alongside the Volta River.

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### Targets, indicators and means of verification for output 3.1.1

Stakeholders' awareness raised on the state of degradation of the ecosystems of the Volta River bank. The key indicator is the number of crop and livestock producers applying ecosystem-based approach alongside the river.

### Procurements for output 3.1.1

VBA focal institutions have been identified as appropriate executing partners for this output. VBA will therefore sign a sub-grant agreement with each of the four target focal institutions (Burkina Faso, Ghana, Mali and Togo) based on agreed workplans.

### Activities of output 3.1.1

To reach Output 3.1.1 the following activities will be carried out.

#### **Activity 3.1.1.1 Assess the state of degradation of the ecosystems of the Volta River banks**

This activity aims to enable communities and their partners to become aware of the current state of degradation of land and the spatial distribution of land tenure types along the banks of the Volta River and the relationship between this state and their livelihoods. It will specifically raise communities' awareness on the influence of their practices on crop and livestock production on the health of ecosystems, taking into consideration the climate change effects. It will also identify community actions and the needs for external support to restore ecosystems and the services they provide.

The project will support participatory assessment workshop at community level in the selected transboundary sites along the banks of the Black Volta and Oti rivers. Prior to the participatory assessment, the project will support a large-scale assessment covering the municipalities or districts of the pilot sites in the selected sub-basins (Black Volta and Oti), using GIS techniques. The objective of the GIS-based large-scale assessment of the ecosystem degradation is to provide an overview of the trend over passed periods and be able to locate the selected pilot sites with a landscape perspective. The outputs of the large-scale assessment will feed into the participatory assessment of the ecosystems degradation to help community refine drivers, pressure, state, impacts and response. The combination of the large-scale and participatory assessment will generate an analytical assessment and map areas that need urgent intervention to prevent negative impacts of crop and livestock activities on the Volta River. It will also provide the project with a reference situation on the impacts of agricultural and pastoral practices on the ecosystems in the basin in general and on water resources in particular.

The implementation of this activities will require hiring consultants (GIS and experts on ecosystem management) to conduct the large-scale assessment, facilitate the participatory assessment workshops at the selected communities level in Burkina Faso, Ghana and Togo and consolidate the findings. It also require organising six workshops at community level for the participatory assessment

#### **Activity 3.1.1.2 Support riparian communities to implement crop and livestock activities compatible to river banks restoration;**

This activity aims at deploying ecosystem-based and value chains development approaches in the selected communities. The most promising crops that are commonly produced and commercialized along the Volta River include sorghum, millet, cowpea and groundnut. Although their importance in terms of area of cultivated land varies from site to site and from year to year, these crops contribute to food security and income generation for communities in the Volta. For livestock, cattle, goat and sheep are the most promising ruminant with strong influence on natural resource management, depending on the size of herd and the grazing practices. It is worth nothing that the production systems in which crops and animals are produced are of the integrated agriculture-livestock type with crops rotation practices, use of crop residues

to feed animals and use of animal dungs to fertilise farmland. Thus, the selected crops constitute a gateway to agro-pastoral value chains whose improvement will lead to that of other value chains in the communities bordering the Volta River.

Taking into consideration, the production systems in the selected pilot sites, the project will support the adoption by communities of sustainable farmland and grassland management practices. At farm level, these will include the use of improved seeds from sorghum, millet and cowpea, associated with a variety of technologies such as soil and water conservation techniques, micro-dosage of fertilisers, compost, agroforestry and forage production techniques. For livestock and in addition to forage production, the project will support the adoption of fattening techniques for ruminants by resident communities and facilitate the delineation of rest areas and corridor to access water resources for transhumant pastoralists that compatible with the national norms and standards for riverbank production. At the post-harvest level, the project will support the organization of grouped sales of agricultural and animal products and connect producers with buyers and local microfinance institutions.

To make these changes successful, the project will support training sessions on agro-pastoral production and marketing technologies and techniques, the acquisition of small equipment and inputs for production and marketing and the management of cooperative organizations. Exchange visits will also be organized to locations where the proposed technologies is being used and where farmers are well organised for marketing.

#### **Activity 3.1.1.3 Develop and implement local convention for the conservation and/or restoration of the riparian forest alongside the Volta River**

This activity aims at establishing locally agreed tools for the joint management of natural resources alongside the Volta River, which are aligned with national norms, and standards for riverbank protection. The project will facilitate participatory processes in all selected pilot sites to enable the emergence of common rules of access and equitable sharing, preservation and sustainable management, control and protection of natural resources alongside the Volta basin. These rules, co-developed and approved by the local communities, including transhumant pastoralists and central and decentralized authorities will be officially published in the form of local conventions, bylaws applicable to all stakeholders, including transhumant pastoralists who frequent these areas to graze and water their cattle.

Overall, the project will provide support to develop and implement six local conventions, taking into account cross-border aspects. For this, consultants will be hired to facilitate the processes at communities and ensure that all identified users of the natural resources are involved and contribute to the development of the common rules for access and equitable sharing and preservation of the natural resources. All conventions will be disseminated through appropriate channels and media accessible to all users of natural resources along the Volta River. Finally, the project will support the implementation of these conventions and the monitoring of the effectiveness of these bylaws on the preservation and sustainable use of the ecosystems alongside the Volta River.

#### **Output 3.1.2: Introduction of Sustainable Fisheries Management Practices (SAP Priority Action B.8)**

Riverine fishing in the Volta is not fish-species oriented. In fact, a recent study on the Fish assemblages in the Upper part of the Volta River in Burkina Faso revealed that catches generally include several species of fish (Mano et al. 2020)[1]. The most occurring fish species are *Enteromius macrops*, *Sarotherodon galilaeus*, *Oreochromis niloticus*, *Coptodon zillii* and *Brycinus nurse*. Others species include *Synodontis schall*, *Clarias anguillaris*, *Enteromius ablabes*, *Schilbe intermedius*, *Hemichromis bimaculatus*, *Clarias gariepinus*, *Marcusenius senegalensis*, *Chelaethiops bibie*, *Rhabdalestes septentrionalis*, *Lates niloticus*, *Hemichromis fasciatus*, etc. The authors also reported the need to improving riverine fisheries management in order to avoid overexploitation of some species that could lead to reduce biological diversity of fishes in the Volta River. In fact, fish species were highly diverse in one of the fishery inside protected areas (Nazinga Protected areas, Burkina Faso) where the ecosystems were relatively less degraded. They conclude that protected areas would be seen as an appropriate refuge for fish species. Thus ecosystem-



based fishery management can help maintain and enrich fish species diversity to the benefit of fish value chain actors. Another study on the fish value chains (Somda et al., 2020)[2] confirmed that fish processors and sellers are not fish-species oriented. In fact, processors and sellers of capture fish collect any species of fish caught. This has repercussions not only on the economic performance of actors in the value chain, but also on the diversity of fish species in fisheries.

In this situation of the riverine fisheries, drivers of the unsustainable fishery management include among other: (i) the destruction of the fishery ecosystem, the lack of information on stocks and sustainable fishing efforts; difficult implementation of regulation or weak institutional setting for fishery management, and poor post harvesting capacity. While men are mostly fishing, women are most dominant at the post-harvest. Therefore addressing sustainable fishery management issues along the fish value chain will benefit both women and men.

Thus, in support to the implementation of the Strategic Action Programme of the Volta basin, Priority Action B.8, this output focuses on riverine fisheries along the Volta River and the related fish value chains. This output aims at improving the knowledge and practices of the actors in fish value chains on sustainable management of riverine fisheries in the Volta River through the promotion of the ecosystem-based approaches and sustainable fish value chains. It will also support farmer-fisher communities in the selected pilot sites to apply ecosystem-based approach to improve the ecological and economic performance of fishing activities, and the organisation of value chains actors (women and men) in order to create conducive environment for the sustainable fisheries management practices along the river.

Specifically, this output will include the generation and sharing of knowledge on the ecological and socioeconomics characteristics of riverine fisheries, the development and implementation of ecosystem-based fishery management plans, the provision of fisheries productivity enhancing technologies and equipment with related capacity development for effective implementation (fishermen); and the development of sustainable fish value chains with provision of equipment and technologies for sustainable the post-harvest activities for women.

Fisheries targeted are shown in Table 5 above and include

- ? Two transboundary fish landing pilot sites alongside the Black Volta (Sourou between Burkina Faso and Mali; and Bagri/Manoa between Burkina Faso and Ghana)
- ? One transboundary fish landing pilot site alongside the Otti (between Togo and Ghana)

#### Execution and key stakeholders of output 3.1.2

VBA as the regional Executing agency will sign agreements with its focal institutions (See Table 9 and Figure 6) in Burkina Faso, Ghana, Mali and Togo for the execution of this output with a view of assuring country ownership of the sustainable fisheries and fish value chain development and management. This output and Output 3.1.1 will form one work package to be executed by the VBA focal institutions in the four countries. The PMU will be responsible for the oversight and providing guidance on approaches to sustainable fisheries management and fish value chain development in the Volta River.

#### Targets, indicators and means of verification for output 3.1.2

Stakeholders' awareness raised on the characteristics of the riverine fisheries and the available options for sustainable management. A key indicator is the number of fish value chain actors applying sustainable management of fisheries and fish value chains in the Volta Basin.

#### Procurements for output 3.1.2

VBA focal institutions have been identified as appropriate executing partners for this output. VBA will therefore sign sub-grant agreement with each the four target focal institutions (Burkina Faso, Ghana, Mali and Togo) based on agreed workplans.

### Activities of output 3.1.2

#### **Activity 3.1.2.1: Conduct a bioeconomic characterisation of the riverine fisheries and identification of sustainable management options**

This activity aims at filling knowledge gaps on the ecological and socioeconomic drivers of the degradation of the riverine fisheries ecosystems and fish stock, set the ecological and economic basis for sustainable fisheries, and fish value chains management. It will be conducted in the selected pilot sites where riverine fishery is currently taking place to complement the activity 3.1.1.1 which has broader scope on the state of degradation of the ecosystems of the Volta River banks. The target groups include fish value chains actors (fishers, processors, sellers, etc.), local and central governments, and civil societies with interest on sustainable fisheries development.

Data will be collected on livelihood strategies of fishing households in response to prevalent vulnerabilities they face within the Volta Basin with the objective of identifying (a) the sustainable livelihood strategies they have evolved among fishery households and (b) the principal factors that influence the choice of those strategies, (c) the impacts of those strategies on fish stock and the fishery ecosystems and (d) actions required for sustainable bioeconomic management options. The knowledge generated will be shared with fishery management actors using the appropriate channels, including documentary and radio broadcasting. Consultants will facilitate stakeholders' workshops, using participatory approach in the selected fisheries in Burkina Faso, Ghana, Mali and Togo.

#### **Activity 3.1.2.2: Develop and implement ecosystem-based riverine fisheries management plan and sustainable fish value chains**

This activity aims at promoting ecosystem-based fisheries management in the selected pilot sites in the Volta Basin and sustainable value chains development with a view of balancing the demand for fish and the capacity of the fisheries. At the fishery level, the activity will facilitate the development and implementation of site-level ecosystem-based management plans in the selected pilot sites. It requires stakeholders (fishers, farmers, livestock breeders, etc.) participation to the process of analysis of the problems and solutions, the identification of common vision for the fisheries and the related activities needed to move towards the common vision. By participating in the process, stakeholders will be more aware of their rights and responsibilities towards fisheries resource management and will tend to comply better with management provisions. Exchange visits will be organized between the ecosystem-based fisheries and the conventional ones to share experience and promote scaling out of the ecosystem-based approach to fisheries in the Volta Basin.

For the sustainable fish value chains (fishers, processors, sellers, etc.), the project will promote sustainable fishing and proper handling and processing of fish to improve the shelf life. It will support the organisation of training sessions to fish value chains actors, (both men at the fishing level and women at post-harvest level), acquisition of appropriate equipment and techniques (gears, fish drying, smoking or cooling techniques and/or any other improved processing), and the organisation of actors into cooperatives. To ensure the overall sustainability of the fish value chains, the project will work to connect actors to micro-finance through awareness raising on the cost-effectiveness of the ecosystem-based fish value chain. Thus, workshops will be organised to share the information with microfinance actors and help develop their engagement to facilitate access to credit.

#### **Activity 3.1.2.3: Support the establishment and operation of an information system on safeguarding the fishing and fishing resources of the basin**

This activity is linked to the Activity 3.1.2.3 and aims at establishing information systems at riverine fishery-level in view of creating a basin-wide information system on the fishery resources to feed in the Observatory of the Volta Basin Authority. It will therefore fill the gap of accurate information and data on small-scale fisheries, which makes it difficult to address the decline of fishery resources. It also contribute to the Volta Basin Strategic Action Program (SAP), through the development and implementation of appropriate methodology and data collection network among the pilot sites. The overarching objective of establishing and operationalising information system at riverine level is to facilitate the participation of fish value chains actors in the information system on safeguarding fishing and fish resources and the associated ecosystems in the basin.

Consultants will be hired to support actors in the pilot sites to develop appropriate methodology, data collection procedures including the flow of data from local to the Observatory of the Volta Basin Authority. The project will therefore support the compilation of existing data collection before identifying resource persons and formalize their collaboration in the implementation of the information system and its operation. The roles and responsibilities of each key actor in the collection and dissemination of information and the procedures for sharing information will be developed and validated. Finally, the project will strengthen the technical capacities and the operational means of the collection, processing and feedback mechanisms of the countries to ensure the effective operation of the information system.

#### **Component 4. Knowledge Management and Sharing, and Effective M&E**

Knowledge management will be key in this project to ensure all stakeholders at local, national and regional have adequate access to the generated knowledge, the project achievements and lessons learned. All knowledge generated by this project will help VBA to develop audience-oriented communication materials to address specific information needs. As the project is contributing to the implementation of the SAP, the purpose of this component is to develop VBA's practical capacities on knowledge management and M&E. It will therefore develop and establish flexible knowledge management and M&E systems for the project which will serve as a basis to set up the VBA knowledge system on environmental and water management in relationship with the Observatory, and a functional M&E system for the implementation of the overall SAP.

This component combines a set of outputs, which will increase knowledge and facilitate exchange of information and best practices in the Volta Basin countries and beyond, and also ensure an effective implementation of activities to achieve the articulated outcomes and impacts on the ground. Being diverse in terms of stakeholders, areas and levels of interventions, as well as nature and thematic focus and targeted audiences, an effective project coordination, M&E plan, and system are considered instrumental for a successful implementation.

##### **Output 4.1.1: Communication Strategy for SAP Implementation**

A communication strategy (?Communication Strategy and Plan for VBA 2018-2020?) was developed under the VSIP Project. The overall objective of this strategy is to strengthen VBA's status as a sub-regional transboundary water resources management institution. The specific objectives of the strategy are:

- ? Facilitate communication and information sharing among VBA stakeholders
- ? Improve VBA visibility or/and credibility in the sub-region
- ? Promote VBA projects/programmes and results
- ? Sensitize the population of the basin on IWRM

The specific objectives are further broken down into 15 operational objectives as follows:

1. Facilitate periodic meetings of the ED staff
2. Organise the sessions of the statutory organs
1. Strengthen the collaboration between VBA and the statutory organs
2. Strengthen the collaboration between VBA and the national focal points
3. Provide the ED with effective communication support tools
4. Build the competence of the communication officer
5. Strengthen the partnership collaboration between VBA and the national, binational or sub-regional IWRM institutions
6. Manage public and press relation
7. Organize VBA's participation in international conferences and symposiums
8. Organise experience sharing meetings with other basin organizations
9. Publish documents on VBA results
10. Organise results dissemination workshops
11. Conduct radio programmes on IWRM good practices
12. Organise information and sensitization meetings on IWRM
13. Organise training workshops on IWRM

The strategy defines the target groups, the themes and key messages and mean/channels of communication.

The communication strategy for the SAP implementation will build on the existing communication strategy for VBA while taking into account the experiences gained by VBA since 2018.

The communication activities to be supported by this project will be managed by the PMU and include:

- ? identify key stakeholders and beneficiaries of the basin resources
- ? identify their information and communication needs
- ? develop key messages considering these needs targeting specific stakeholder groups
- ? identify best channels of information dissemination for each stakeholder group
- ? disseminate information and materials to stakeholders through appropriate channels, particularly through national awareness raising workshops, using good practices and socio-economic benefits
- ? follow up and evaluate.

Communications under this output will differ from similar types of activities under Output 4.2.3, as the main focus will be to communicate messages related to the implementation of the Volta SAP. It is important to assure sustainability of these efforts beyond the project. A series of public awareness campaigns and stakeholder awareness raising workshops will be implemented in the Volta Basin countries to raise the currently insufficient level of environmental awareness in the basin, particularly in a transboundary context.

Based on results of the stakeholder mapping exercise (Output 2.1.1) in each of the six countries, key groups of stakeholders will be identified, as well as government agencies to be involved in the communications and awareness activities, starting from the development of strategies, through the design of individual activities, down to participation in public campaigns. It is vital to engage with stakeholders in each of the countries at every stage to make sure the campaigns and other activities are fully fine-tuned to the need of the Volta Basin and targeted to the key stakeholder groups in the region.

#### **Output 4.1.2: Development of International Water Knowledge Products Using Existing Global Information and Knowledge Sharing Platforms, e.g. GEF IW:LEARN**

The development of the International water knowledge products require the establishment of an effective knowledge management strategy. This help projects learn from successful examples in order to scale up their results or address challenges in implementation. Taking advantage of the established GEF IW Learn system and approaches, this project will set up a learning-based knowledge management plan at the onset. The objective is to assure that relevant experiences across sister projects are used and that from this project are also shared with the sister projects. The project participation in the IW Learn aims at gradually building its capacity to achieve the common IW end and to work with other projects to (i) implement more effective the project; (ii) systematically learn about the conditions under which strategies work best and why; and (iii) improve the capacity of the members of the project team to do adaptive management.

Therefore, lessons learned from this project will be disseminated within, and also beyond the project intervention zone, through the existing information sharing networks and forums. The project will identify and participate, as relevant and appropriate, in scientific, policy-based and/or any other networks, which may be of benefit to project implementation though lessons learned. A more detailed set of activities will be developed within Output 4.2.3. The project will identify, analyse, and share lessons learned that might be beneficial in the design and implementation of similar future projects. Finally, there will be a two-way flow of information between this project and other projects of a similar focus.

Sufficient funding will be provided by the Project to supporting information and knowledge sharing within a broader GEF IW community through supporting adequate participation of the Volta Basin representatives in relevant activities of GEF IW:LEARN. At least 1% of budget of Component 4 will be allocated for pertinent activities. The project will participate in the International Waters Conferences and regional thematic workshops and meetings. It will also carry out information exchange activities with the Niger-ITTAS project, and GCLME project.

#### Execution and key stakeholders of output 4.1.2

The PMU on behalf of VBA will manage this output. Stakeholders will be local communities and national institutions who will contribute with their lessons learned. Also international water and environmental managers can be considered as stakeholders as they will be recipients of the lessons learned (e.g. via publications and/or conferences)

#### Targets, indicators and means of verification for output 4.1.2

Number of knowledge products disseminated through external platforms. To be verified through terminal evaluation report.

#### Procurements for output 4.1.2

Procurement is expected to include consultant to collect lessons learned and produce publication.

#### Activities of output 4.1.2

##### **Activity 4.1.2.1 Identify and document new lessons from local and international water management and governance**

This transboundary project set out three different and complementary levels of intervention: local, national and regional. It is expected to demonstrate that changes in local and national water resources management and governance can contribute to transboundary or international outcomes. The project will support the identification, documentation and sharing of locally and nationally emerging lessons that service the international water governance and management. It will also identify, document and share lessons on what and how regional governance and management mechanisms influence national and local ones. These learning materials shall be user-friendly and applicable to the whole Volta Basin to ensure that successes are replicated, and failures avoided by other stakeholders working in the Basin. They will be made accessible through the iwlearn.net.

#### **Activity 4.1.2.2 Participate in cross-basins International Water lessons learning events at the regional and international level**

Participation in cross-basins learning events will be key to raising the Volta Basin voice at the regional and international level. These events are opportunities to interact with various stakeholders working on the governance and management of transboundary water resources. The project will participate in at least one cross-basin international water lessons learning events per annum to share its experiences and build partnership for scaling out and up innovative solutions on the governance and sustainable management of the Volta Basin resources.

#### **Output 4.2.1: Project Monitoring & Evaluation Plan and System**

The project will follow UNEP standard monitoring, reporting and evaluation processes and procedures. Reporting requirements and templates are an integral part of the UNEP legal instrument to be signed by the executing agencies and UNEP.

The project M&E plan is consistent with the GEF Monitoring and Evaluation policy. The Project Results Framework indicators (Annex A) for each expected outcome as well as mid-term and end-of-project targets. These indicators along with the key deliverables and benchmarks will be the main tools for assessing project implementation progress and whether project results are being achieved. The means of verification and the costs associated with obtaining the information to track the indicators are summarized in Appendix A. Other M&E related costs are also presented in the Costed M&E Plan and are fully integrated in the overall project budget.

The M&E plan will be reviewed and revised as necessary during the project inception workshop to ensure project stakeholders understand their roles and responsibilities vis-à-vis project monitoring and evaluation. Indicators and their means of verification may also be fine-tuned at the inception workshop. Day-to-day project monitoring is the responsibility of the project management team but other project partners will have responsibilities to collect specific information to track the indicators. It is the responsibility of the PMU to inform UNEP of any delays or difficulties faced during implementation so that the appropriate support or corrective measures can be adopted in a timely fashion.

The project Steering Committee will receive periodic reports on progress and will make recommendations to UNEP concerning the need to revise any aspects of the Results Framework or the M&E plan. Project oversight to ensure that the project meets UNEP and GEF policies and procedures is the responsibility to the Task Manager in UNEP-GEF. The Task Manager will also review the quality of draft project outputs, provide feedback to the project partners, and establish peer review procedures to ensure adequate quality of scientific and technical outputs and publications.

Project supervision will take an adaptive management approach. The PMU will develop a project supervision plan at the inception of the project that will be communicated to the project partners during the inception workshop. The emphasis of the PMU supervision will be on outcome monitoring but without neglecting project financial management and implementation monitoring. Progress vis-à-vis delivering the agreed project global environmental benefits will be assessed with the Steering Committee at agreed intervals. Project risks and assumptions will be regularly monitored both by project partners and UNEP. Risk assessment and rating is an integral part of the Project Implementation Review (PIR). The quality of project monitoring and evaluation will also be reviewed and rated as part of the PIR. Key financial parameters will be monitored quarterly to ensure cost-effective use of financial resources.

##### Execution and key stakeholders of output 4.2.1

The PMU will carry out the monitoring and evaluation activities in accordance with the guidelines specified by UNEP. Stakeholders will be PSC, GEF, the implementing agencies and potential financial partners for follow up activities.

#### Targets, indicators and means of verification for output 4.2.1

Fully functional monitoring and evaluation mechanism. To be verified through PSC minutes of meetings and the actual M&E reports

#### Procurements for output 4.2.1

The M&E activities are expected to be carried out by the PMU. However, consultants may be needed for specific M&E tasks (e.g. field visits).

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### **Output 4.2.2: Mid-term and Final Project Evaluations**

In-line with the GEF Evaluation requirements the project will be subject to an independent Terminal Evaluation. Additionally, a Mid-Term Review will be commissioned and launched by the project manager before the project reaches its mid-point.

Terminal Evaluation. This will be managed jointly by UNEP and IUCN Evaluation Offices. The UNEP Evaluation Office will, however, lead the Terminal Evaluation (TE) and will liaise with the IUCN Evaluation Office throughout the process. Key decision points in the evaluation process will be made jointly by both Evaluation Offices in a collaborative manner [finalisation of Evaluation ToRs, Selection of independent evaluation consultants and acceptance of draft and final reports]. The TE will provide an independent assessment of project performance in terms of relevance, effectiveness and efficiency, and determine the likelihood of impact and sustainability. It will have two primary purposes: (i) to provide evidence of results to meet accountability requirements, and (ii) to promote learning, feedback, and knowledge sharing through results and lessons learned among UNEP, IUCN and executing partners. The direct costs of the evaluation will be charged against the project evaluation budget.

The UNEP Task Manager will inform the UNEP Evaluation Office of the approaching Terminal Evaluation one year before the operational completion of the project.

The TE report will be sent to project stakeholders for comment. Formal comments on the report will be shared by the Evaluation Offices in an open and transparent manner. The project performance will be assessed against standard evaluation criteria using a six point rating scheme. The final determination of project ratings will be made by the Evaluation Offices of UNEP and IUCN when the report is finalised. The evaluation report will be publically disclosed and may be followed by a recommendation compliance process

Mid-term Review. An implementation review will be scheduled during the third quarter of the second implementation year. The aim will be to look back on the project implementation mechanisms and progresses, likelihood of achieving project objective and outcomes. In order to improve efficiency of the project implementation, recommendation for improvement of project implementation and execution will be carried out.

#### Execution and key stakeholders of output 4.2.2

UNEP will organise this work in collaboration with IUCN. Stakeholders will be PSC, GEF, the implementing agencies and potential financial partners for follow up activities.

#### Targets, indicators and means of verification for output 4.2.2

Recommendations from mid-term review taken into account and final review shows achievements of project objectives. To be verified by terminal review report.

#### Procurements for output 4.2.2

UNEP may decide to hire consultants for this work. Possible procurements will be managed by UNEP. No involvement from PMU in evaluation procurements.

#### **Output 4.2.3: Awareness Campaigns on Management of Natural Resources**

The REWarD project will contribute to the dissemination of messages on requirements regarding the technical aspects of project implementation as well as messages related to the management of natural resources based on the results of the projects. The messages will be disseminated through several appropriate channels (e.g. radio, Internet, messages in schools) to be defined during the initial phase of the project. The implementing agencies, with their clearly articulated comparative advantages and targeted audiences, will build on their experience in supporting the preparation and dissemination of manuals linked to best practices in the management of environmental resources.

The national institutions to be involved in the communication, awareness strategies and campaigns will be identified among the inventories made as part of the 'National Institutional Diagnosis and Consultations' carried out as part of the preparation for this project. Reference is made to the reports prepared by the national and regional consultants as presented in Annex S.

It is considered critical for the project to establish, from the onset, an effective system of communicating key messages to the project stakeholders and beneficiaries, and to provide required mechanisms for timely feedback.

The PMU will lead this output, which will be closely coordinated with output 4.1.1.

One (1) percent of the GEF budget for the outputs 4.1.1, 4.1.2, 4.2.1 and 4.2.3 will be allocated to IW:Learn related activities. Reference is made to the overall budget for the GEF Budget in Annex F.

#### **4. Incremental/Additional Cost Reasoning and Expected Contributions from the baseline, the GEFTE, LDCF, SCCF, and co-financing;**

As mentioned in the beginning of Section 3 on the proposed alternative scenario, there are a number of actions under the SAP that have not yet been substantially addressed and thus remain challenges and contribute to the continued pressure on the environmental resources of the Volta basin. This Project will pick up and implement some of these priority actions. Likewise, other actions have been addressed but remain challenges in some cases because available resources have been insufficient to deal with all relevant issues. This Project will strengthen and consolidate achievements towards the SAP already obtained by the baseline.



In the framework of implementing the SAP, the GEF funding will enable the consolidation of country and VBA efforts to reverse the trends of degradation of the Volta Basin resources through the adaptive ecosystem-based management by implementing a full range of sectoral interventions and establishing financial mechanisms contributing to the sustainable use and the maintenance of freshwater, ecosystem and biodiversity resources. The GEF resources will support incremental activities including:

? ? Component 1 will strengthen knowledge management and support the development and installation of a transboundary decision support system to *deliver up-to-date information for effective decision making and sustainable basin planning* to respond to environmental threats at basin, national, and local levels through: the development of water resource management and use models in the basin and related analytical tools investigating the climate change impacts within the VB-ISS, improved knowledge on values of the environmental capital, the ecosystem services and functions and the socio-anthropological impacts in the Volta basin.

? Component 2 has been designed to *support strengthening of transboundary governance*, planning, and capacity, also during extreme events related to climate change and variability. This will be achieved through: the establishment of an effective regional platform(s) for inter-ministerial dialogue, capacity building of the Volta Basin Observatory and key national stakeholders on the VB-ISS modeling tools, information products delivered by early-warning systems aiming at strengthening local communities' preparedness and resilience.

? Component 3 will *implement practical measures on sustainable ecosystem management and alternative livelihoods* and will focus on activities directed at strengthening of resilience of vital ecosystems for sustainable livelihoods in the Volta basin, as well as a series of sectoral interventions, namely: minimization of climate risks posed to sustainable use of water for crop and livestock productions (through the Drought Early Warning system), as well as direct measures for sustainable fisheries management.

? Component 4 will work on *knowledge management and sharing, as well as effective M&E provisions* and systems. This will be achieved through the development and implementation of SAP-related and project-related communication strategies, an effective system of Project monitoring and evaluation, including mid-term and terminal evaluations, and the development and dissemination of International Water knowledge products using existing global information and knowledge sharing platforms, e.g. GEF IW: LEARN.

The GEF funding will work in synergy with and complement Government baseline programs and programs funded by other sources as described in the section 2b) of the Baseline Scenario.

National initiatives, strategies and projects have been discussed with the GEF National Focal Points to ensure that these processes were recently finalized, or under execution, or they will be executed over the lifespan of the REWarD project. In all cases, the outputs and outcomes of these processes will be contributing to and reinforcing the environmental benefits generated by REWarD. The contribution of co-financing is described in section C of Part 1 (page 4) of this document.

The required total co-financing from the basin countries is 4,2 mill USD. VBA will be in charge of coordinating this co-financing among the basin countries as per their normal procedures.

## 5. **Global environmental benefits (GEFTF) and/or adaptation benefits (LDCF/SCCF)**

The Global Environmental Benefits to be gained through the project are:

- ? Enhanced cooperation between Volta Basin Member States to reduce threats to transboundary water resources;
- ? Sustained freshwater ecosystems goods and services;
- ? Increased resilience to the adverse impacts of climate change and variability.

Under the guidance of the proposed project, it is expected that improvements in transboundary waters management will be realized. The implementation of the proposed SAP actions will contribute to the reduction of stress on the Volta basin's water and ecosystem resources and the improvement of the basin's environmental and water resources status. Implementing policy, legal and institutional reforms agreed to under the Volta Basin SAP, and providing VBA and riparian countries relevant, information, capacity and management tools, would facilitate achievement of these stress reductions and environmental status improvements. National budgets will increase to allow VBA to implement restoration and management actions already planned. This will help countries to meet relevant commitments under the relevant components of the SAP and increase the viability of the basin's ecosystems through sustainable harvesting of environmental resources and good management of changes in climatic trends.

## **6. Innovativeness, sustainability and potential for scaling up. ?**

The project is designed to strengthen the VBA and riparian countries to enable implementation of the SAP and the longer-term goals of ecosystem-based management within the basin. It will support the functioning of the VBA through the implementation of selected SAP actions.

In recognition of the significant investments needed to fully implement the SAP, the project will, as an innovative first step, support studies to identify Volta Basin investment opportunities and pilot possible elements of these investments through demonstration project and small grant programmes to facilitate community stress reduction activities. These actions will demonstrate to the countries and VBA technical and financial partners' effective means within the region to initiate the significant SAP investments and provide both a potential for sustaining the support (and strengthening local livelihoods) for the SAP.

In addition, the project is supporting the VBA to implement a coherent monitoring, data and information system to strengthen decision making for the management of Volta Basin. This will be developed to assist the process of disseminating environmental information to stakeholders within the region, where information is currently limited. By improving access to information, the local community projects and management activities will be better understood and, the sustainability of the project interventions ensured.

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[1] UNEP-GEF Volta Project, 2014. Volta Basin Strategic Action Programme UNEP/GEF/Volta/RR, 1/2014, p. 24.

[2] Optimization of operation of infrastructure, e.g. dams, is beyond the scope of the current project.

[3] GEF WB Volta River Basin Strategic Action Programme Implementation Project, GEF ID 6964, Project Document, p.20.

[4] Lemoalle, J. and De Condappa, D. 2010. Farming systems and food production in the Volta Basin, Water International, 35:5, 655-680, DOI: 10.1080/02508060.2010.510793

[5] UNEP, 2014. Strategic Action Programme of the Volta.

## **A.2. Child Project?**

**If this is a child project under a program, describe how the components contribute to the overall program impact.**

Not applicable

## **A.3. Stakeholders**

**Please provide the Stakeholder Engagement Plan or equivalent assessment.**

A part of the project is to support the dialogue between ?water stakeholders? in the basin. As described under activity 2.1.1.1 VBA has an annual Basin Stakeholders Forum, which is an information, awareness and exchange platform for the main players in the water sector, to improve water governance in the Volta Basin. In order to ensure that national policies and institutions support the sustainable management of water resources in the basin, the project will work to strengthen the current objectives of the Annual Basin Stakeholders Forum so that this platform effectively integrates results and planning initiatives at country level in a process of transboundary management of water resources.

The project will also support VBA in the establishment and operationalization of the Inter-parliamentary Committee of the Volta Basin enshrined in the Basin Water Charter adopted in May 2019 by the 7<sup>th</sup> Ordinary Session of the Council of Ministers of the VBA. Reference is made to activity 2.1.1.1 for more detailed information on this support.

? The principal stakeholders of this Project are identifiable at three major levels (regional, national, and local):

? The primary stakeholder is the VBA and its organs in charge of managing the basin water resources along with identifying, designing and implementing related regional projects; At the regional level, the Water Resources Coordination Centre of ECOWAS and the Global Water Partnership for West Africa are also the relevant partners,

? At the national level, the principal stakeholders include the six national governments, the six ministries responsible for water resource management, the six ministries responsible for environmental protections and sustainable development, the six national VBA Focal Structures, the civil society organizations and the research institutions and universities,

? At the local level, the stakeholders include the local authorities, local decision-makers, and rural communities including organizations dedicated to advancing the agendas of vulnerable groups.

Stakeholder engagement started during the PIF preparation and culminated in the course of the project preparation. During the PIF, VBA lead the organisation of several meetings with the potential stakeholders of the project, including the Ministers in charge of water resources in the Volta Basin countries. Thus in June 2016, the Ministers issued in Cotonou, Benin, a resolution to political support the development of the project to address the information gaps in the Basin and development of national and regional actors capacity to sustainably manage the Volta basin natural resources. They further asked VBA to coordinate with all stakeholders and work with IUCN and UNEP to bring this project alive. VBA then organised several stakeholders meeting for the project identification with technical support from UNEP and IUCN.

During the project preparation phase, VBA organised and facilitated several meetings with stakeholders at countries and regional levels. Thus, the project design process benefited from a participatory approach. Regional, national and local stakeholders from the national institutions, the private sector and the civil society provided the project preparation team with ideas, needs and expectations about the project, during the inception of the project preparation, the bilateral meetings, and the regional validation workshop. Four regional consultants assisted VBA in conducting this process in all six countries. A multitude of stakeholders with various levels of involvement and interest in the sustainable management of natural resources in the Volta basin contributed to the project design. Their capacities to contribute to the delivering of the project and their willingness to engage which were assessed against the different expected outputs of the project. Table 6, Table 7 and Table 8 show the identified stakeholders and their possible involvement in the project.

Table 6: List of identified stakeholders and their possible involvement in the project-component 1

Output	Potential national executing partners	Potential national participating institutions
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1.1.1	<p>? <b>Burkina Faso:</b> General Directorate of Water Resources (DGRE).</p> <p>? <b>Benin:</b> Direction G�n�rale de l'Eau (DGEau)</p> <p>? <b>C�te d'Ivoire:</b> Direction G�n�rale des Ressources en Eau (DGRE)</p> <p>? <b>Ghana:</b> Water Research Institute (WRI)</p> <p>? <b>Mali:</b> Direction Nationale de l'Hydraulique (DNH)</p> <p>? <b>Togo:</b> Direction des Ressources en Eau (DRE)</p>	<p>? <b>Burkina Faso:</b> National Agency of Meteorology (ANAM), Mouhoun basin Water Agency (AEM), and the Nakanb� basin Water Agency (AEN) ; local communities</p> <p>? <b>Benin:</b> M�t�o-B�nin, Institut National de l'Eau (INE), WASCAL Benin; local communities</p> <p>? <b>C�te d'Ivoire:</b> Direction de l'Hydrologie (DH), Agence Nationale de l'Environnement (ANDE), Centre Universitaire de Recherche et d'Application en T�l�d�tection (CURAT), Comit� National de T�l�d�tection et d'Information G�ographique (CNTIG), Centre d'Information G�ographique et du Num�rique (CIGN) du BNETD, Directions Techniques R�gionales, Soci�t� d'Exploitation et de D�veloppement A�roportuaire, A�ronautique et M�t�orologique (SODEXAM) ; local communities</p> <p>? <b>Ghana:</b> Hydrological Services Department (HSD); Ghana Meteorological Authority (GMet); KNUST-Department of Civil Engineering; Volta River Authority (VRA); Ghana Water Company Ltd. (GWCL); Ghana Irrigation Development Authority (GIDA); Bui Power Authority (BPA); and Water Resources Commission (WRC) ; local communities</p> <p>? <b>Mali:</b> Bureau Sahel de Wetlands International Mali (WIS), Agence pour l'Environnement et du D�veloppement Durable (AEDD), Ecole Nationale d'Ing�nieurs (ENI-ABT), Direction Nationale de l'Agriculture (DNA), Direction Nationale du G�nie Rural (DNGR) ; local communities</p> <p>? <b>Togo:</b> Direction G�n�rale de la M�t�orologie Nationale (DGMN), WASCAL Togo, Universit�s; local communities</p>
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1.1.2	<p><b>Burkina Faso:</b> Directorate General for Water and Forests</p> <p><b>Benin:</b> Direction g�n�rale de l'Environnement et du climat (DGECE)</p> <p><b>C�te d'Ivoire:</b> Direction G�n�rale des Eaux et For�ts (DGEF)</p> <p><b>Ghana:</b> Environmental Protection Agency (EPA);</p> <p><b>Mali:</b> Direction Nationale des Eaux et For�ts (DNEF)</p> <p><b>Togo:</b> Direction de l'environnement</p>	<p>? <b>Burkina Faso:</b> General Directorate of Water Resources (DGRE); the Institute of Environment and Agricultural Research (INERA) ; local communities</p> <p>? <b>Benin:</b> Agence B�ninoise de l'Environnement (ABE), Centre National de Gestations des R�serves de Faune (CENAGREF), Centre National de T�l�d�tection (CENATEL), Direction G�n�rale Des Eaux, For�ts Et Chasse (DGEFC), African Parks Network (APN) ; local communities</p> <p>? <b>C�te d'Ivoire:</b> Soci�t� de D�veloppement des For�ts (SODEFOR), Collectivit�s Territoriales du Bassin de la Volta, Directions Techniques R�gionales des Minist�res; local communities</p> <p>? <b>Ghana:</b> WRI; Centre for African Wetlands (CAW); Forestry Commission; MESTI; and WRC; local communities</p> <p>? <b>Mali:</b> Collectivit�s Territoriales du Bassin de la Volta, Comit� de Bassin du Sourou (Portion Malienne), Comit� Locaux de l'Eau (CLE), Care International Mali; local communities</p> <p>? <b>Togo:</b> Direction des ressources foresti�res (DRF), Inspection des Ressources Foresti�res (IRF) ; Agence Nationale de Gestion de l'Environnement (ANGE) ; Office de D�veloppement et d'Exploitation des For�ts (ODEF). Conservateurs des Parcs et R�serves de Faunes (CPRF) ; local communities</p>
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Table 7: List of identified stakeholders and their potential involvement in the project ? component 2

Output	Potential national executing partners	Potential national participating institutions
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2.2.1	<p>? <b>Burkina Faso:</b> National Agency of Meteorology (ANAM) or DGRE</p> <p>? <b>Benin:</b> Direction G�n�rale de l'Eau (DGEau)</p> <p>? <b>C�te d'Ivoire:</b> Direction de l'Hydrologie (DH)</p> <p>? <b>Ghana:</b> Ghana Meteorological Agency (GMet)</p> <p>? <b>Mali:</b> Agence Nationale de la m�t�orologie (Mali M�t�o)</p> <p>? <b>Togo:</b> Direction des Ressources en Eau (DRE)</p>	<p>? <b>Burkina Faso:</b> Directorate General for the Promotion of the Rural Economy (DGPER), National Emergency Relief and Rehabilitation Council (CONASUR), GWP/West Africa; local communities</p> <p>? <b>Benin:</b> Direction g�n�rale de l'Environnement et du climat (DGEC), Agences Territoriales de D�veloppement Agricole Zones 3 &amp; 4 (ATDA 3 &amp;4), Institut National de l'Eau (INE), M�t�o-B�nin, WASCAL B�nin, Agence nationale de Protection civile (ANPC), Mairies concern�es, Union R�gionale des Producteurs de Riz Atacora-Donga (URPR-AD; local communities</p> <p>? <b>C�te d'Ivoire:</b> Soci�t� d'Exploitation et de D�veloppement A�roportuaire, A�ronautique et M�t�orologique (SODEXAM), Office National de la Protection Civile (ONPC), Directions Techniques R�gionales; local communities</p> <p>? <b>Ghana:</b> WRI; HSD; National Disaster Management Organization (NADMO); LGS; and WRC; local communities</p> <p>? <b>Mali:</b> Direction G�n�rale/R�gionale de la Protection Civile (DGPC/DRPC/SLPC), Direction R�gionale de l'Hydraulique (DRH) ; local communities</p> <p>? <b>Togo:</b> Direction de l'environnement, Agence Nationale de Gestion de l'Environnement (ANGE), Direction G�n�rale de la M�t�orologie Nationale (DGMN), WASCAL Togo, Universit�s, Agence nationale de la Protection civile (ANPC), Pr�fectures concern�es, Direction de l'Elevage (DE), Direction des Fili�res V�g�tales (DFV), ONG (Rafia, SA-Afrique, Padex, Soungou-man, Odiae, Cidap, Arej, Centre Carto) ; local communities</p>
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2.1.1. & 2.2.2	<p>? <b>Burkina Faso:</b> General Directorate of Water Resources (DGRE)</p> <p>? <b>Benin:</b> Direction G�n�rale de l'Eau (DGEau)</p> <p>? <b>C�te d'Ivoire:</b> Direction G�n�rale des Ressources en Eau (DGRE)</p> <p>? <b>Ghana:</b> KNUST-Department of Civil Engineering</p> <p>? <b>Mali:</b> Direction Nationale de l'Hydraulique (DNH)</p> <p>? <b>Togo:</b> Direction des Ressources en Eau (DRE)</p>	<p>? <b>Burkina Faso:</b> Water Agencies (AEN &amp; AEM) ; local communities</p> <p>? <b>Benin:</b> Institut National de l'Eau (INE), WASCAL B�nin; local communities</p> <p>? <b>C�te d'Ivoire:</b> Direction de l'Hydrologie (DH), Organisations Non Gouvernementales (ONG), Directions Techniques R�gionales, Bureaux d'�tudes, Consultants; local communities</p> <p>? <b>Ghana:</b> HSD; WRI; GMet; VRA; BPA; GWCL; GIDA; and WRC</p> <p>? <b>Mali:</b> Bureaux d'�tudes, Consultants; local communities</p> <p>? <b>Togo:</b> WASCAL Togo; local communities</p>
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Table 8: List of identified stakeholders and their potential involvement in the project ? component 3

outputs	Potential national executing partners	Potential national participating institutions
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3.1.1	<p>? <b>Burkina Faso:</b> General Directorate of Crop Production (DGPV)</p> <p>? <b>Benin:</b> Agence de Promotion des Aménagements Hydroagricoles (APAH)</p> <p>? <b>Côte d'Ivoire:</b> Direction Générale des Ressources en Eau (DGRE)</p> <p>? <b>Ghana:</b> Ministry of Food and Agriculture (MOFA);</p> <p>? <b>Mali:</b> Direction Nationale de l'Hydraulique (DNH)</p> <p>? <b>Togo:</b> Direction de l'Aménagement et des Pistes Rurales (DAPR)</p>	<p>? <b>Burkina Faso:</b> Directorate General of Landscaping and Irrigation Development (DGADI), Mouhoun basin Water Agency (AEM), Institute of Environment and Agricultural Research (INERA), and the General Directorate of Water (DGRE); local communities</p> <p>? <b>Benin:</b> Direction Générale de l'Eau (DGEau), Agences Territoriales de Développement Agricole Zones 3 &amp; 4 (ATDA 3 &amp;4), Union Régionale des Producteurs de Riz de l'Atacora-Donga (URPR-AD), Union Régionale des Coopératives de Producteurs Maraichers de l'Atacora-Donga (URCoopMa-AD), Institut National de l'Eau (INE) ; local communities</p> <p>? <b>Côte d'Ivoire:</b> Ministère des Ressources animales et halieutiques, Ministère de l'Agriculture et du Développement Rural, Directions Techniques Régionales ; local communities</p> <p>? <b>Ghana:</b> EPA; WRI; GIDA; Crops Research Institute (CRI); Animal Research Institute (ARI); and WRC; local communities</p> <p>? <b>Mali:</b> Direction Nationale de la Production Industrielle et Animale (DNPIA), Direction Nationale de l'Agriculture (DNA) ; local communities</p> <p>? <b>Togo:</b> Direction des Ressources en Eau (DRE), Direction de l'Élevage (DE), Direction des Filières Végétales (DFV), Universités ; local communities</p>
3.1.2	<p>? <b>Burkina Faso:</b> General Directorate of Fisheries Resources</p> <p>? <b>Benin:</b> Direction de la Production Halieutique (DPH)</p> <p>? <b>Côte d'Ivoire:</b> Ministère des Ressources animales et halieutiques</p> <p>? <b>Ghana:</b> Ministry of Fisheries and Aquaculture Development (MOFAD);</p> <p>? <b>Mali:</b> Direction Nationale de la Pêche</p> <p>? <b>Togo:</b> Direction des Pêches et de l'Aquaculture (DPA)</p>	<p>? <b>Burkina Faso:</b> Institute of Environment and Agricultural Research (INERA) ; local communities</p> <p>? <b>Benin:</b> Direction Générale de l'Eau (DGEau), Agences Territoriales de Développement Agricole Zones 3 &amp; 4 (ATDA 3 &amp;4), Institut National de l'Eau (INE) ; local communities</p> <p>? <b>Côte d'Ivoire:</b> Ministère de l'Agriculture et du Développement Rural, Ministère de l'Intérieur et de la Sécurité- Association, ONG, Directions Techniques Régionales; local communities</p> <p>? <b>Ghana:</b> Fisheries Commission (FC); EPA; WRI; VRA; and WRC; local communities</p> <p>? <b>Mali:</b> Direction Nationale de l'Agriculture, Association et ONG ; local communities</p> <p>? <b>Togo:</b> Direction des Ressources en Eau (DRE), Universités ; ; local communities</p>

# Documents

Title	Submitted
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**In addition, provide a summary on how stakeholders will be consulted in project execution, the means and timing of engagement, how information will be disseminated, and an explanation of any resource requirements throughout the project/program cycle to ensure proper and meaningful stakeholder engagement.**

From the above stakeholders analysis, it was agreed that the effective way of engaging them in the execution will be to strengthen the relationship between VBA and its country focal structures, which in turn will engage stakeholders (governmental and nongovernmental organisations) for national and local levels activities. In fact, the VBA country focal strcutures have been engaged in the project identification and preparation, and have started disseminating information on this project in their respective country. VBA has also kept its Council of Ministers updated on the process. The project is regularly communicated to the VBA Council of Ministers, thus keeping the political engagement up-to-date. It was agreed that VBA and its country focal structures will lead the stakeholders engagement respectively at the regional and country/local communities levels to ensure proper and meaningful stakeholders engagement. Table 9 summarises the roles and relationship between VBA and its country focal structures during the project implementation.

Table 9: Roles and relationships between VBA and its focal structure for stakeholders engagement in the project implementation

Key project stakeholders	Main roles
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<p>? Volta Basin Authority (VBA)</p>	<p><b>At the regional and international level</b></p> <ul style="list-style-type: none"> <li>? Maintain regular communication with the Council of Ministers of the Volta basin</li> <li>? Maintain good communication and information sharing with the countries and the project implementation agencies (UNEP/IUCN)</li> <li>? Inform/involve other regional and international partners with interest in the natural resources of the Volta basin</li> </ul> <p><b>At the country level</b></p> <ul style="list-style-type: none"> <li>? Sign sub-contracts with the country focal structure for the implementation of national/local level activities;</li> <li>? Make resources available to country focal structure for the implementation of the national/local level activities</li> <li>? Coordinate and provide technical guidances to the development and implementation of the the country work plans and budgets;</li> <li>? Coordinate and provide support to country technical and financial reporting;</li> <li>? Facilitate the sharing lessons learned among countries to simulate good performance of the project at all levels</li> </ul>
<p>? Burkina Faso: Direction G?n?ale des ressources en eau (DGRE)</p> <p>? Benin: Direction G?n?rale de l'Eau (DGEau)</p> <p>? C?te d'Ivoire: Direction G?n?rale des Ressources en Eau (DGRE)</p> <p>? Ghana: Water Resource Commission (WRC)</p> <p>? Mali: Direction Nationale de l'Hydraulique (DNH)</p> <p>? Togo: Direction des Ressources en Eau (DRE)</p>	<p><b>At the national level</b></p> <ul style="list-style-type: none"> <li>? Provide support to the implementation of the regional activities (basin-wide) organise by the VBA</li> <li>? Liase with VBA to plan and implement the project activities in their espective portion of the basin in compliance with the sub-contract ;</li> <li>? Promote the engagement of the identified stakeholders in the country level activities</li> <li>? Coordinate national stakeholders inputs to the project planning and implementation at regional and country level</li> <li>? Ensure that project technical and financial reports are timely sent to VBA.</li> </ul> <p><b>At local level</b></p> <ul style="list-style-type: none"> <li>? Engage local stakeholders (decentralised governemental agencies, national research institutes, local NGOs, farmers association, local communities) for the implementation of field activities</li> <li>? Keep VBA informed on the local stakeholders engagement</li> </ul>

**Select what role civil society will play in the project:**

**Consulted only; Yes**

**Member of Advisory Body; Contractor;**

**Co-financier;**

**Member of project steering committee or equivalent decision-making body;**

**Executor or co-executor;**

**Other (Please explain)**

#### **A.4. Gender Equality and Women's Empowerment**

**Please briefly include below any gender dimensions relevant to the project, and any plans to address gender in project design (e.g. gender analysis).**

A commonly used indicator is the World Economic Forum's (WEF) Global Gender Gap Index (GGGI). It measures the size of the gender inequality gap in four key areas: health and survival, educational attainment, economic participation and opportunity and political empowerment. It is clear that there is a wide array of socio-economic conditions among the participating VBA countries, with several shared challenges in regards to gender equality and women's empowerment. The VBA countries also have gaps in gender equality. The biggest disparities are in education outcomes, followed by health. However, economic participation is considered to be more gender equal than any other field. This suggests that women make a significant contribution to economic activities and income generation.

### **Documents**

Title	Submitted
<b>Gender Mainstream Strategy</b>	

**Does the project expect to include any gender-responsive measures to address gender gaps or promote gender equality and women empowerment?**

**Yes**

**If yes, please upload document or equivalent here**

**If possible, indicate in which results area(s) the project is expected to contribute to gender equality:**

**Closing gender gaps in access to and control over natural resources;**

**Improving women's participation and decision making** Yes

**Generating socio-economic benefits or services or women** Yes

**Will the project's results framework or logical framework include gender-sensitive indicators?**

Yes

During the project development phase, a dedicated Gender Mainstream Strategy was prepared, describing gender action points for each project output. The Strategy is annexed as Annex U.

Gender mainstreaming will be promoted at the earliest stages of the project cycle (e.g. implementation of water management measures, participation in VBA stakeholder fora, contribution in policy development, etc.). Men and women will participate in the initial stages of project conception, approval and implementation. The needs assessment will be done at the project inception phase and be used to define the roles of women and men early in the project. This will help to minimize conflict among different stakeholders during and after the project cycle with respect to roles in project activities and sharing of project benefits. It is planned to document the contribution of women to project activities in key areas where women already figure prominently.

Field activities/initiatives will be developed and implemented taking into consideration gender equality and disparities aspect. Furthermore, the socioeconomic benefits and gender mainstreaming will serve to strengthen the impacts of the interventions on the management of the Volta basin. There is a mutually reinforcing effect between and among the objectives of improving the environment, optimizing economic benefits and improving the role of women in project formulation and implementation. In practice, each component will be implemented using a gender-sensitive approach.

Thus, the first component of the project is expected to improve the knowledge base and develop management tools for informed decision-making process. The generated knowledge and developed management tools should be accessible to both men and women groups within the Volta with the aim of improving women's participation in decision making. To do this, the generated information will be made accessible and user-friendly. It will communicate to appropriate local language to facilitate their use by both men and women.

In component 2, the project is aiming at strengthening the transboundary planning, and regional and in-country coordination and capacity. This is to ensure stakeholders at regional, national and sub-national have enough capacity to plan development taking into consideration the transboundary nature of the available resources in the basin. Efforts will be made to ensure that in the various regional and country level dialogue, both men and women are represented to ensure gender-sensitive deliberations from these dialogues. It is the responsibility of the executing agencies and partners to ensure balanced representation of men and women in the regional and national dialogues, and that deliberations are gender-sensitive.

Under component 3, the project intends to conserve and restore ecosystems for sustainable livelihoods in the Volta Basin. This is critical for both women and men who depend on healthy ecosystems to sustain their livelihood. The project will provide women and men with knowledge on ecosystem-based approach to crop, livestock and fishing activities. It will also ensure that women and men have access to ecosystem-based practices and technologies for cropping, livestock rearing and fishing activities. In doing so, the project will support women and men to generate socioeconomic benefits from restored ecosystems, improving their livelihood.

In order to achieve this, the following steps will be taken during the Inception phase:

- (i) During design of individual activities of the Project a special effort will be put into including men and women from the beginning of project design, and throughout development approval and implementation. This will bring out the different perspectives and roles and responsibilities with regard to water use and water management at regional, national, sub-national, and community level. Furthermore, this will provide a better understanding on how these roles will impact or have impacted on the interventions for managing the Volta basin.
- (ii) Given that a needs assessment will be carried out, a gender and water experts will be involved as a part of the assessment team. These experts will guide and assist in collecting the relevant sex disaggregated data and analysing it so as to provide a better understanding of the gender dynamics in water management. The information gathered and analysed will feed into Component 3 (Conserving and restoring ecosystems for sustainable livelihoods in the Volta basin).
- (iii) Most countries in the Volta basin are committed to promoting gender issues. The project will build on the existing national strategies and actively ensure that all deliveries are complying with and create appropriate framework for gender-sensitive transboundary management of the Volta river and its natural resources.

During implementation, the project team will address, among others, the four criteria of the Corporate Gender Marker and visibly reflect gender perspectives in 1) context analysis, 2) implementation and individual actions, 3) indicators, and 4) budget, if possible.

#### A.5. Risks

**Elaborate on indicated risks, including climate change, potential social and environmental risks that might prevent the project objectives from being achieved, and, if possible, the proposed measures that address these risks at the time of project implementation.**

RISK	PROBABILITY	RISK MITIGATION

<b>RISK</b>	<b>PROBABILITY</b>	<b>RISK MITIGATION</b>
A lack of political will to implement the legislation (a Master Plan, a Regional Invasive Species Programme, etc.) in the basin countries and to integrate basin-wide management/ monitoring frameworks and administrative procedures.	Low	Through VBA, countries have a history of coordination and willingness to implement joint management activities. The proposed activities of developing basin-wide frameworks are proposed by the countries themselves and have involved stakeholders from key sectors to be engaged with in the Project. The project will provide the necessary technical support to strengthen these frameworks through the enhanced institutional capacity of VBA, as well as national institutions in the countries.
Poor coordination among various projects supported by different entities, leading to sub-optimal results delivery or duplication or work.	Low	VBA has demonstrated a strong programme coordination capacity since the establishment and continues to coordinate the various projects and regional initiatives in its portfolio. The project will maintain close collaboration and coordination with all relevant initiatives under the guidance of VBA, as well as other international and national interventions in the Volta Basin.
There is a risk of unintended negative impact on fragile ecosystems, since the project area is a site of global significance in terms of biodiversity, particularly in Component 3, within which restoration activities and sectoral interventions (pilots) are planned.	Low to medium	Project team will give special care for restoration and sustainability of the ecosystem in order not to bring ?unintended? or ?indirect? negative consequences to the fragile ecosystems. A corresponding analysis and environmental impact assessment will be carried out during the design of measure but prior to implementation. Social surveys will also be conducted.
Basin states not willing to release their data and be subjected to the quality assurance measures that have been proposed to ensure confidence in the quality of the data in the database(s).	Low to medium	The countries have a long-standing history of joint coordination, including data exchange in a number of previous projects, also evidenced by their contributions of data to the VBA. The project will provide the technical support to further strengthen the information sharing and data exchange. The process of strengthening the Volta Basin Observatory will provide additional capacity and engagement of individual countries. Also the political commitment to the Water Charter, and the promotion of it through Component 2, will contribute to mitigating this risk.
Delays/obstacles to project implementation due to the regional nature of the project and involvement of 6 countries	Medium	Special efforts will be put into close engagement with national-level authorities and stakeholders, including private sector and grass-root community-based organizations. By working directly with and through the VBA national focal points, the project will minimise the risk of obstacles. Timely engagement and an effective communication strategy will be designed to assure buy-in and ownership of key stakeholder and beneficiary groups.

<b>RISK</b>	<b>PROBABILITY</b>	<b>RISK MITIGATION</b>
Limited institutional coordination and unclear institutional responsibilities at regional, national, sub-national, and local level	Low to medium	National institutions of the Volta Basin countries are relatively consolidated with defined powers. The project design also provides activities that will support institutional strengthening, and training of human resources for the implementation of the SAP, as well as a series of communications and public awareness activities. The project will work with the VBA national focal point structure as executing partners at the national level which will enhance the coordination at national level and between regional and national level.
Population growth and unregulated industrialization might result in additional pollution loads to the Volta River so that the implementation of SAP will not result in improvement of the ecosystems status	Medium	Constant monitoring of the progress in the implementation of the activities coordinated by VBA and constant monitoring of the status of the Volta Basin during the project will provide an assessment of whether SAP implementation will result in the desired improvement of ecosystem status. Under adaptive management, the SAP needs to be updated to take increased pollution loads into due consideration. This would be done hand in hand with the incorporation of climate variability and change issues into the SAP.
Low level of environmental awareness in the basin, particularly in a transboundary context	Medium	The project will promote the participation of interested stakeholders through cultural and educational activities and improve environmental communication with Volta Basin communities. A series of public awareness campaigns will support strengthening of environmental knowledge among stakeholders.
The security situation in some parts of the basin will not allow for the planned field work to take place.	Medium	The selection of locations for field work shall take into account the security aspects.  The security situation for the selected pilot sites /field work shall continuously be monitored.
The staff trained in the operation and maintenance of the water resource tools will be promoted or leave their respective organisations (VBA or national ministries) without being replaced by trained staff.	Medium	A sustainability plan addressing this risk shall be prepared and adopted by VBA and the national ministries.
The project activities will be delayed or have to be adapted/modified due to the Covid-19 pandemic.	Medium to high	The Implementing Agencies and Executing Agencies, VBA and relevant stakeholders, beneficiaries, key officials will be regularly consulted to follow up on the impact of COVID 19 and relevant adaptive management measures will be put in place, such as strengthening communication across online platforms, regular exchange of information on national measures and protocols. The COVID 19 pandemic can also provide opportunity to improve project management by using different software tools and online platforms that will enhance data sharing and monitoring.



## A.6. Institutional Arrangement and Coordination

**Describe the Institutional arrangement for project implementation. Elaborate on the planned coordination with other relevant GEF-financed projects and other initiatives.**

The proposed institutional set-up to implement the project activities is depicted in the organisational flow provided in figure 6 and is described in the following sub-sections.

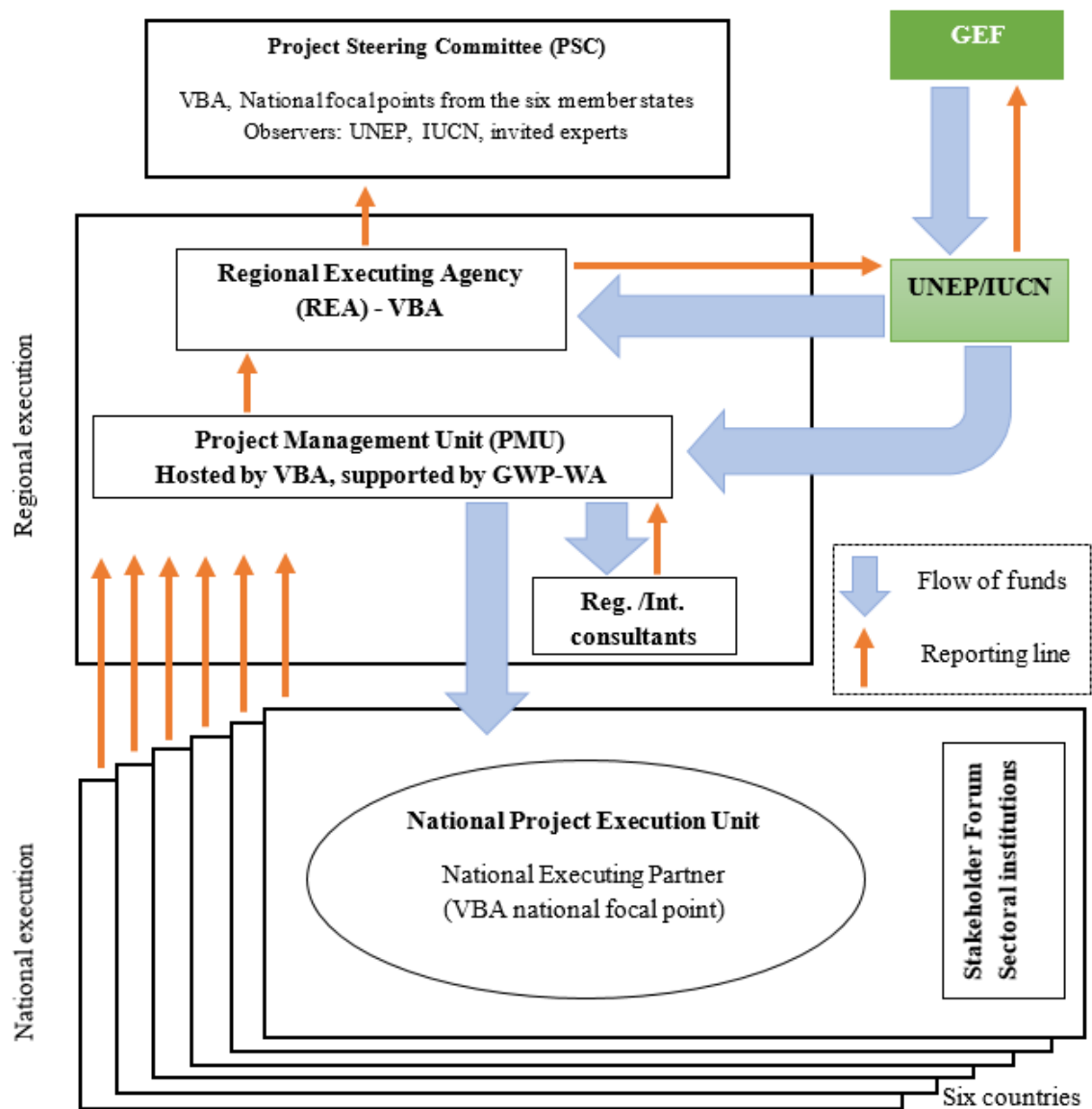


Figure 6 : Project organisational chart with indications of flow of funds and reporting lines

### A6.1. Regional decision making and planning

**Implementing Agencies:** UNEP and IUCN are the implementing agencies for the Project. UNEP and IUCN will support VBA to ensure execution of administrative and financial matters and will assist in key technical and scientific issues. Wherever possible, the project will take advantage of the opportunities for synergy and complementarities with other project or other GEF Agencies. Especially, the opportunities for involving the World Bank (WB), the African Development Bank (AfDB), the World Meteorological Organisation (WMO) and other relevant technical and financial partners in potential investment opportunities will be explored during project implementation to have a partner for follow up investments for on-the-ground activities. Specifically, UNEP and IUCN will be responsible for the following tasks:

- ? Supervise project implementation
- ? Monitor and evaluate project performance, prepare implementation review
- ? Provide strategic project support to executing agencies at national and regional level
- ? Review the project workplans, budget and reports

**The Project Steering Committee (PSC):** The project will set up a PSC to guide and oversee the project implementation. Proposed Steering Committee members would include the VBA Executive Directorate as the Secretariat of the committee, VBA national focal points, and high level government representatives from participating countries. UNEP and IUCN, and invited experts as needed, will participate, as observers. The Volta Basin Authority will finalize the list of Steering Committee members during the project inception phase, but no later than three months after project start. The Steering Committee will meet annually to monitor past progress in project execution, and to review and approve annual work plans and budgets. When feasible, Steering Committee meetings will be held back-to-back with the WMO-led project steering committee meetings to ensure consistent decisions on both project and cost-effectiveness. Key members will meet as needed (online or physically) for activity-specific guidance and will:

- ? Align the Project with other Basin-wide initiatives;
- ? Monitor Project progress and take timely actions to resolve implementation constraints;
- ? Liaise with different national Project coordination units within the riparian countries to ensure that the national units and the regional PMU act in harmony;
- ? Receive and review annual substantive and financial reports on project activities;
- ? Review and approve annual work plans and budgets;
- ? Ensure monitoring and evaluation of project activities.

**Regional Executing Agencies:** VBA and Global Water Partnership West Africa (GWP-WA) will share the executing role at regional/basin level, with GWP-WA supporting the PMU. Based on its mission, among others 'guarantee effective international cooperation for the equitable and sustainable management of the basin's water resources for socio-economic development and improvement of the livelihoods of riparian countries', the VBA is mandated and has the comparative advantage to serve as a Regional Executing Agency. Its core function will be the facilitation of the project activities at country level and the implementation of activities at regional level. Given that one of its mandates is to promote joint solutions between member states, the VBA will be supported by its national focal institutions at country level (National Executing Partners), for project activities to be implemented in the field at the national level.

GWP-WA advocate, build capacity, communicate knowledge and support countries in better water management which is at the core of the REWarD project. Moreover, GWP-WA has current and relevant experience in this role: They are executing partner in the Integrated Flood and Drought Management and Early Warning project for the Volta Basin, financed by the Adaptation Fund. Potential synergies between that project and REWarD might be easier to pursue with GWP-WA being an executing partner for both. Furthermore, GWP-WA is based in Ouagadougou like VBA which will ease day-to-day interactions and capacity building towards the strengthening of VBA.

In order to ensure appropriate implementation and monitoring of the project, and taking into consideration VBA's recent experience with the World Bank-led project, the capacity of the VBA will be strengthened (Ref. activity 2.1.1.3) with the aim of bridging the existing technical and institutional gaps. Previous experiences have pointed to some constraints regarding the capacity of VBA for project coordination and procurement, not least in terms of recruiting specialists and consultants. Therefore, the REWarD project will seek to strengthen the execution capacity and capabilities of the VBA secretariat by working directly with the secretariat during execution of the project and have its project management office at the VBA. The project will adopt a strategy of execution and channeling of funds that allows for regional/local execution and management and at the same time reduces the burden on and strengthens the VBA procurement system:

- Activities that are related to DSS and early warning systems and link to the WMO project (Components 1 and 2) will mainly be executed by GWP-WA. VBA will execute activities of these components that do not involve procurement of services, such as stakeholder meetings, capacity building workshops, training events, etc.
- Activities that draw on the VBA National Focal Points will be executed through VBA. This is largely Component 3.
- VBA will execute Component 4 on knowledge sharing and M&E.

For this purpose, three overall contracts will be signed: one between the VBA Secretariat and UNEP, and one between the VBA Secretariat and IUCN, plus one between GWP-WA and UNEP. UNEP and IUCN will collaborate to harmonise, if need be, the contract standards in order to avoid confusion during the implementation and reporting. The VBA Executive Directorate will ensure close coordination and harmonization with other on-going projects, especially ensuring information exchange and coordination within the context of the SAP Implementation.

For the project implementation at regional level, a Project Management Unit (PMU), hosted at VBA Secretariat, shall assist VBA. VBA shall undertake coordination with regional institutions, governments,

national executing agencies, and UNEP and IUCN. In close collaboration with UNEP and IUCN, VBA will undertake the:

- ? Recruitment of regional and local project staff;
- ? Management of PMU regional staff
- ? Financial control and management of project budget and expenditures
- ? Arrangement of training component;
- ? Periodic reporting to UNEP and UICN as required;
- ? Administrative, accounting, financial and auditing arrangements will be finalized with UNEP and IUCN prior to any disbursement:
- ? Assessment of the financial management system with timetable for any improvements required;
- ? Agreement with project on financial and accounting standards.

**The Project Management Unit (PMU)** will be established with the help of the Implementing Agencies (UNEP and IUCN) and will provide a management structure for the development and implementation of the project in accordance with the rules and procedures of GEF/UNEP/IUCN and consistent with directions provided by the Project Steering Committee. The PMU will be hosted by the Volta Basin Authority Secretariat in Ouagadougou, Burkina Faso, and will consist of four staffs plus a resource pool:

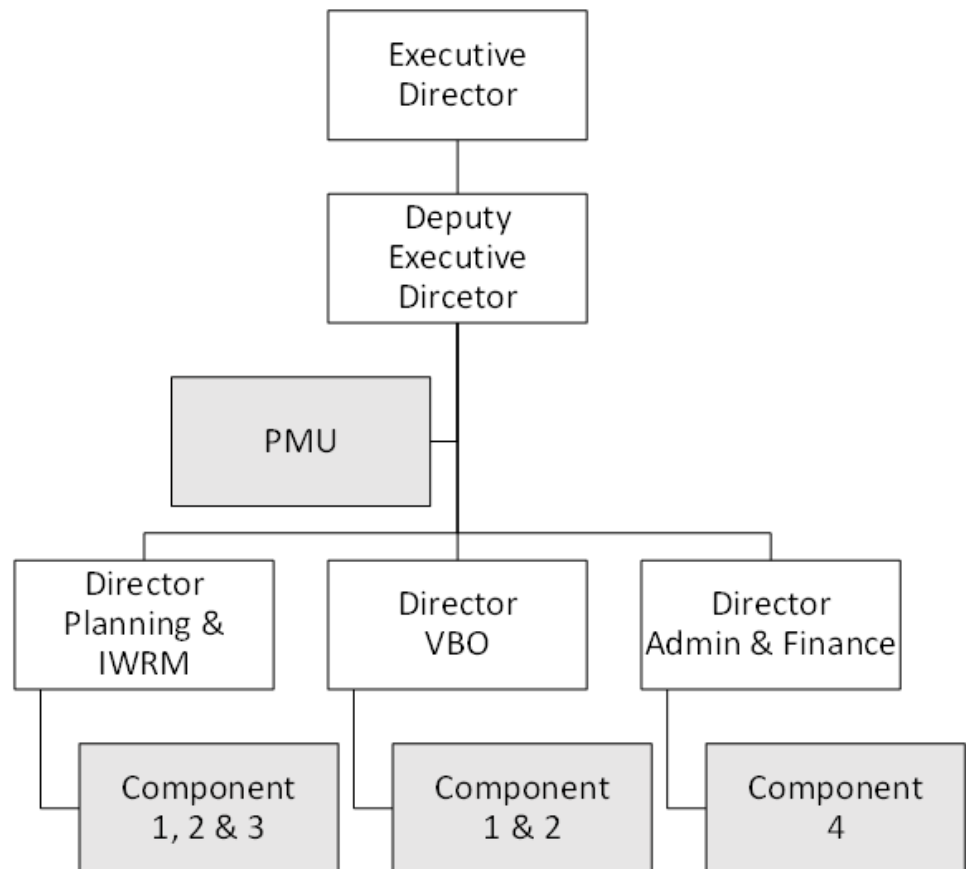
- ? Regional Project Coordinator/IWRM specialist (full time),
- ? Administration assistant (full time),
- ? Procurement Officer (part time), and
- ? M&E and Social Safeguard Specialist (part time).

The PMU will work closely with the VBA Executive Directorate and relevant other units within VBA, e.g. the VBA Observatory, the Tehnical Assistant of the WMO/adaptation Fund project, the communication and the administration and Finance units, to help develop capacity even further and insure smooth implementation. GWP-WA will provide support and capacity building for the VBA Secretariat through its support to the PMU. The tasks and responsibilities of the PMU will include:

- ? Provide technical guidance to regional and national project management units for the annual workplan and budget preparation;
- ? Ensure proper M&E and communication of the project progress and achievements;
- ? Ensure proper financial management and reporting of the project resources;

- ? Ensure fluid communication between the executing and implementing agencies;
- ? Ensure compliance with GEF, UNEP and IUCN project management procedures and standards;
- ? Consolidate regional workplan, budget and reports from national project management units
- ? Preparation of bid documents for the regional technical component of the project;
- ? Procurements for the project;
- ? Regional contract administration
- ? Prepare progress reports as needed;

**The REWarD project will link to the VBA institutional structure** through several channels (see Figure 7). The PMU, led by the Regional Project Coordinator, will report to the VBA Deputy Executive Director.



**Figure 7** Institutional anchoring of REWarD (grey boxes) in VBA's structure

## A6.2. National decision making and planning

**National Executing Partners:** The project is owned by the six Volta Basin riparian countries. In each country, there will be a lead agency representing the government. During the project preparation phase, it was agreed that the VBA National Focal Institutions/Points are the most appropriate entry point in each country to ensure ownership of the project activities and effective coordination of field activities. The VBA national focal institutions/points will help establishing the intersectoral coordination of the project activities in their country, as a step towards sustainability. The National Focal Point will represent the *National Executing Partner* in the project steering committee meetings at regional level. The institution of the National Focal Point should therefore acts as the *National Executing Partner*, gathering the different sectorial institutions involved in the project activities at regional, national and local levels in each country. During the project design phase, the stakeholders agreed that the following institutions are the *National Executing Partners*, which VBA will sub-contract with respect to the activities at field level in each country and collaborate with the activities at regional and national level:

- ? Burkina Faso : Direction Générale des Ressources en Eau (DGRE),
- ? Benin : Direction Générale de l'Eau (DGEau)
- ? Côte d'Ivoire: Direction Générale des Ressources en Eau (DGRE)
- ? Ghana: Water Resource Commission (WRC)
- ? Mali : Direction Nationale de l'Hydraulique (DNH)
- ? Togo : Direction des Ressources en Eau (DRE)

National Executing Partners, in close collaboration with VBA, will lead the network of national/regional, governmental and non-governmental agencies and organizations in implementing the project at the national level.

Given that sites for field demonstration are remote and far from the country capitals and that national agencies in charge of water, agriculture, fisheries and livestock are not always operational on sites in every countries, there is need for two consultants (one expert on ecosystem-based crop-livestock, and one expert on ecosystem-based fishery), funded through the Component 3 budget. The Project Management Unit at VBA will issue the contracts to these experts, based on approved terms of reference. They will be part of the national project implementing committee and be involved in every activity of the component 3, linking up with and contributing to activities of the other components where relevant.

**National Stakeholder Forum:** The National Executing Partner together with the sectorial institutions involved in the project in each country will form the *National Stakeholder Forum*. This forum will comprise a network of national governmental and non-governmental agencies and organizations, which will act as a sounding board for the National Executing Partner in implementing project activities at national and local levels, according to a common workplan, and act as a forum for coordination with other

related activities at national level. The National Stakeholder Forum will meet annually prior to the regional Project Steering Committee meeting to monitor past progress in the country portion of the project execution, and to review and advise on annual work plans and budgets at country level. Key members will meet as needed for activity specific guidance and will:

- ? Align the Project with other Basin agencies and coordinate with other national initiatives;
- ? Monitor Project progress at country level and take timely actions to resolve implementation constraints;
- ? Ensure the country portion of the project is still relevant with the overall project at basin level and that the national units and the regional PMU act in harmony;
- ? Receive and review annual technical and financial reports on project activities to be validated at the Regional Steering Committee;
- ? Review annual work plans and budgets to be validated at the regional steering committee;
- ? Monitor and evaluate project activities to ensure that the country portion is on track with the overall project;
- ? Identify project achievements that are relevant for mainstreaming into the Volta Basin policy and actions.

**National Project Execution Units, composed of VBA national focal points and two fields experts.**

With the project support, the national executing agency in each participating government shall establish a National Project Execution Unit (NPEU), located at the VBA national focal institution/point. The NPEU will work closely with the PMU and VBA, and will be responsible for implementing the Project at the national and field level. The NPEU provides a critical link between the PMU, other project resource persons and the various national specialists, technical services, and organizations involved in implementing the various project components within the respective countries. Each NPEU will be constituted of three experts, paid by the project resources as consultants :

- ? 1 National Project Coordinator, water resources expert on secondment from the National focal Institution/Point,
- ? 1 expert on ecosystem-based crop-livestock and
- ? 1 expert on ecosystem-based fishery.

The two experts on ecosystem-based crop-livestock and on ecosystem-based fishery, respectively, will participate in all six NPEUs.

The national executing partner, in collaboration with VBA, UNEP and IUCN, will appoint the National Project Coordinator (NPC) on secondment. The NPC will therefore lead the NPEU, and undertake all day-to-day interventions, inputs, and communications at the respective national level. The NPC will serve as a

Secretary, reporting to the National Executing Partner. The experts on ecosystem-based crop-livestock production and on ecosystem-based fishery management will assist him. The role of the NPEC is to ensure effective implementation of field activities at the national level through:

- ? Preparation of national workplan and budget;
- ? Preparation of bid document for national component of the project;
- ? Procurements for national component of the project;
- ? National contract administration;
- ? Prepare national component reports.

### **Coordination with other relevant GEF-financed projects and other initiatives.**

The project will link with ongoing and future initiatives to be undertaken by key donors by supplying necessary knowledge and tools on adaptive ecosystem-based management. In the inception phase, partnerships and practical modalities will be established for linking and collaborating with the relevant initiatives so that the GEF resources build on the already available achievements.

A strategy and plan for collaboration with relevant ongoing and planned initiatives will be prepared during the initial phases of the project, including defining the roles and responsibilities of critical stakeholders.

The project will also collaborate and share information with other ongoing related initiatives (see list in Project Justification section) to avoid duplication, and maximise synergies. The REWarD project will seek to learn from the experiences gathered by other projects. Also, MoUs or collaboration frameworks will be pursued with other initiatives (mainly WISE-UP, WACDEP, WASCAL, GWP/WA, OSS and the Integrated Flood and Drought Management and Early Warning Project) in view of the coordination and implementation of joint activities.

Several projects are being implemented or developed by IUCN in the Volta Basin. Among the ongoing projects led by IUCN, the world bank-funded Dedicated Grant Mechanism to support forest dependent communities in Burkina Faso (PAPF). This project runs from 2015 to 2020 and cover five administrative regions, of which four are in the Volta Basin. The objective of this project is to strengthen the capacity of targeted local communities (CLs) to facilitate their participation in the forest investment programme and other REDD + programs at local, national and global levels. In Ghana, IUCN is implemented a project on Stabilising Land use (PLUS) whose objective is to demonstrate conservation and development benefits in landscapes. This project runs from 2017 to 2020; and is funded by the German Federal Ministry for the Environment, Nature Conservation and Nuclear Safety (BMU). The European Union funded Global project Biodiversity and Protected Area Management (BIOPAMA II) is implemented by IUCN from 2017 to 2023. Its overall objective is to contribute to improving the long-term conservation and sustainable use of biodiversity and natural resources in Africa, Caribbean and Pacific regions in protected areas and surrounding communities through better use and monitoring of information and capacity development on management and governance. Its covers all protected areas within the Volta, and other African protected areas. The project on Regional Governance and Security of Protected Area is being implemented by IUCN from 2019-2023 and funded by the European Commission. This project focus on protected areas, including those in the Volta Basin and aims at contributing to the integrated protection of diversity and fragile ecosystems and enhanced resilience to climate change in West Africa. IUCN is also implementing a project on West African Mangrove ecosystems, including Ghana, Benin and Togo as Volta Basin Member countries. This project est funded by the European Commission and run from 2019-2023 with the objective



of achieving integrated protection of the diversity and fragile ecosystems of Mangrove in West Africa and enhanced their resilience to climate change. The portion of the intervention areas in Ghana for this project entitled 'Management of mangrove forests from Senegal to Benin' is linked the REWARD Project. Finally, IUCN is about to start the implementation of a project funded by the Embassy of Sweden in Burkina Faso from 2020-2023. This project entitled 'Regional Partnership on Water and Environment in West and Central Africa-PREE' aims at strengthening institutional capacities of sub-regional basin authorities, including the Volta Basin Authority to effectively implement the Integrated water resources management approaches in order to reduce natural resources related conflicts and climate change effects.

**Additional Information not well elaborated at PIF Stage:**

#### **A.7. Benefits**

**Describe the socioeconomic benefits to be delivered by the project at the national and local levels. How do these benefits translate in supporting the achievement of global environment benefits (GEF Trust Fund) or adaptation benefits (LDCF/SCCF)?**

Socio-economic benefits for the target communities in the riparian countries will be realized from a number of interventions proposed in the project. By promoting adaptive management and providing opportunities for livelihood improvement, it is envisaged that the Project will contribute to improve living conditions of the inhabitants of the Volta Basin countries. The Project will also contribute to countries' progress towards achieving several of the Sustainable Development Goals (SDG). Through innovative actions on water management, the project will increase opportunities for improving livelihoods and provide concrete benefits to smallholder farmers and pastoralists, both men and women. By enhancing access to water and ecosystem goods and services and using them in a sustainable manner, local communities will benefit from increased food production, enhancing food security and restoring productive natural resources.

Because of this project, the productivity of crop, fishing and pastoral activities in the basin (Component 3) will increase along with the associated socioeconomic returns, including food security and income generation. In addition to the anticipated increase in income and food to accrue to targeted local communities, the project activities will provide rural and sub-regional markets with increased supply in agro-sylvo-pastoral products. The use of ecosystem-based approaches to farming, livestock rearing and fishing will support actions pertaining to reforestation, agroforestry development and stabilization of selected riverbanks. This will yield significant environmental benefits, including: reduced soil erosion in critical areas, increased vegetal cover along the targeted riversides, reduced river siltation, etc. Finally, it is expected that the project activities under component 1, 2 and 4 will contribute to strengthening dialogue for improved governance of the Volta basin and effective dissemination of information on ongoing and planned initiatives in the Volta basin for coordination and monitoring purposes. This will catalyse stakeholders' synergies to envision and develop strategies for sustainable economic development and use of natural resources in the Volta basin.

## A.8. Knowledge Management

**Elaborate on the knowledge management approach for the project, including, if any, plans for the project to learn from other relevant projects and initiatives (e.g. participate in trainings, conferences, stakeholder exchanges, virtual networks, project twinning) and plans for the project to assess and document in a user-friendly form (e.g. lessons learned briefs, engaging websites, guidebooks based on experience) and share these experiences and expertise (e.g. participate in community of practices, organize seminars, trainings and conferences) with relevant stakeholders.**

It is suggested to develop a detailed knowledge management and communication plan during the inception phase of the project. To facilitate knowledge exchange and establish network between the project partners and basin stakeholders and, links will be established with the IW-Learn Project and Volta Basin Observatory activities. Project documents, including policy briefs, briefing notes lessons learnt, good practices, policy, planning and management tools, training materials, studies and workshops reports will be widely disseminated, primarily through the project website, project information leaflets, stickers and brochures, and presentation of the project at different international and regional meetings as well as during courtesy visits to project partners. Several radio and TV interviews will be conducted, and documentaries prepared in collaboration with the VBA during various regional and national workshops.

Also, various workshops, trainings and awareness creation sessions planned in the framework of the project will offer the opportunity to share and disseminate knowledge with basin's stakeholders at all levels. In addition to that, the project will establish mechanism for experience and knowledge sharing with; i-) ongoing initiatives related to international waters and climate change, ii-) transboundary river basin authorities, African network of basin organizations, International network of basin organizations, iii-) national, regional and international institutions and, civil society.

The project will study and learn from the lessons learned during the previous GEF-supported project to the Volta Basin: 'Addressing Transboundary Concerns in the Volta River Basin and its Downstream Coastal Area', implemented 2007-13. The design of the REWarD project has benefited from the lessons learned from that project in at least the following aspects:

- *'Engaging an existing regional basin organization (VBA) in the execution of project activities and for future SAP implementation is a very effective strategy to help achieve the objectives, strengthen country ownership, and sustain project outcomes following project closure?':* VBA is a key executing partner of the REWarD project.

- *'In projects that have a strong technical focus (development of TDA and SAP in the case of the GEF Volta project) provisions must be made to ensure the availability of adequate technical support in addition to managerial capacity?':* REWarD has a strong technical focus (particularly the DSS development) and to support this aspect, DHI is available for technical assistance to the REWarD project.

• *Unrealistic co-finance pledges particularly cash co-finance, and overestimation of countries' ability to mobilize funds can seriously threaten progress at the national level, with potential repercussions on overall achievement of project objectives.*: Countries have pledged co-financing to the tune of almost USD 80 million, but all in the form of in-kind support by other projects, i.e. the implementation does not hinge on availability of cash funding from national governments.

• *The time required for completion was under estimated. Regional projects of this scope and complexity require many adjustments, revisions, and, ultimately, extensions, etc. during implementation, which can have significant cost implications even though extensions are labelled 'no-cost'.*: The duration of the REWarD project (five years) is estimated to be on the safe side for most outputs and activities.

• *Demonstrating that concrete benefits to stakeholders could be derived from specific management measures greatly increases stakeholder buy-in during project implementation and the prospects for uptake and sustainability of results after the project ends.*: Particularly component 3 adopts this approach in engaging stakeholders and local communities.

## **B. Description of the consistency of the project with:**

### **B.1. Consistency with National Priorities**

**Describe the consistency of the project with nation strategies and plans or reports and assessments under relevant conventions such as NAPAs, NAPs, ASGM NAPs, MIAs, NBSAPs, NCs, TNAs, NCSAs, NIPs, PRSPs, NPFE, BURs, INDCs, etc.**

The ratification of the Convention on the Status of the Volta River and the Establishment of the Volta Basin Authority and the on-going development process of a Water Charter for the Volta river basin are clear indications of the basin's riparian countries willingness to promote international cooperation for the rational and sustainable management of the water resources of the Volta Basin and for socioeconomic integration between the neighbouring countries. The proposed IW project will enhance this cooperation among the Volta basin countries by supporting reform of regional and national water governance, strengthening national inter-ministerial coordination, building national and regional capacities, and improving public participation for better achievement of the Volta Basin environmental stewardship.

Developed in the framework of the UNEP-GEF Volta Project entitled Addressing Transboundary Concerns in the Volta Basin and its Downstream Coastal Areas, the Volta Basin Strategic Action Programme (SAP) was endorsed by riparian countries in 2014. The SAP is the final output of a regional consultation process, which involved the Volta Basin riparian countries, the VBA and International Partners, together with contributions from academics and members of various NGOs active in the region. The SAP evolved from the goals and objectives that are articulated in the basin vision, as stated in the VBA Strategic Plan (2010-2014): 'a basin shared by willing and cooperating partners managing the water resources rationally and sustainably for their comprehensive socioeconomic development'.

The proposed project is anchored firmly in the priorities identified in the SAP and will address the following Environmental quality objectives (EQO):

? EQO 1: water is optimized among primary users (domestic, agricultural, ecosystem and hydroelectric power) so that they receive adequate and sustainable supplies

? EQO 3: the proliferation of invasive aquatic species is contained, especially in five priority biodiversity hotspots (This will be addressed by assisting VBA in preparation of a concept note with the aim of obtaining additional separate funding for a full scale project on invasive aquatic species)

? EQO 4: sedimentation in five key hotspots is reduced by 20 per cent by 2025

? EQO 5: critical ecosystem functions are conserved, restored and managed for sustainable use in at least five priority areas

The most important international agreements applicable to the management of water resources in the Volta Basin are the Convention on Biological Diversity, the United Nations Framework Convention on Climate Change, the United Nations Convention to Combat Desertification and the Convention on Wetlands (the Ramsar Convention). All six basin countries are signatories to these conventions. Another key convention is the Convention on the Law of Non-Navigational Uses of International Watercourses but of the six basin countries, only Benin and Burkina Faso and Cote d'Ivoire have ratified it.

All six basin nations are also members of ECOWAS. The mission of ECOWAS is to promote economic integration in "all fields of economic activity, particularly industry, transport, telecommunications, energy, agriculture, natural resources, commerce, monetary and financial questions, and social and cultural matters". Three major documents adopted by ECOWAS are particularly pertinent: the policy document of water resources in West Africa (2007), the West Africa IWRM Action Plan and the ECOWAS Environment Policy (2008). ECOWAS has also developed a regional agricultural policy for West Africa (2008), and a sub-regional program of actions to reduce the vulnerability of West Africa to climate change (PASR-RV-AO) under the auspices of ECOWAS. These provide guidance and a framework for necessary regional cooperation.

Riparian countries have completed their National Adaptation Programmes of Actions (NAPA), National Adaptation Plan (NAP), Intended Nationally Determined Contributions (INDCs), National action plan to combat desertification, IWRM action plans and other tools related to biodiversity conservation/restoration and climate change, and projects are on-going to ensure the resilience of livelihoods. The project will support countries to meet their commitments. Linkages with Poverty reduction strategies and Sustainable development goal are expected in the view of investment aiming to demonstrate sustainable ecosystem management and alternative livelihood approaches. Further clarification on linkages will be done at CEO Endorsement.

This project is consistent with GEF's International Waters as described in the Final GEF-6 Programming Document. The project focuses on the implementation of the Volta Basin SAP which is anchored on integrated, ecosystem-based approaches to the sustainable management of the basin. It will establish conditions for adaptive ecosystem-based management. Through (i) the improvement of knowledge and information on natural resources at basin scale, (ii) the promotion of investments that improve water quality and quantity, protect biodiversity, restore ecosystem functions and services and sustain livelihoods, the project aims at reversing ecosystem and water degradation and supporting integrated ecosystem-based development in the Volta River Basin. Based on priorities identified in the SAP and existing regional Plans, the project will implement innovative transboundary actions to improve water efficiency use and promote IWRM, including through local, community-based actions. The potential impacts of climate change will be embedded in the management actions directed towards ecosystem carrying capacity as the central theme of the project. The project will also deliver additional outputs such as enhanced public awareness and strengthened stakeholder capacity to carry out actions.

#### C. Describe The Budgeted M & E Plan:

Type of M&E activity	Responsible Parties	Budget from GEF	Time Frame
Inception Meeting	Project Management Unit	See PSC meetings below	Within 3 months of project start-up

Inception Report	Project Management Unit	Part of Project Management Costs	1 month after project inception meeting
Measurement of project indicators (outcome, progress and performance indicators, GEF tracking tools) at national and global level	UNEP & IUCN based on reports prepared by the Project Management Unit	Covered by fees for Implementing Agencies	Outcome indicators: start, mid and end of project  Progress/perform. Indicators: annually
Project technical support, monitoring and quality control and associated travel (Implementing Agencies)	UNEP & IUCN based on quality control and M&E related requirements	Covered by fees for implementing Agencies	As required
Semi-annual Progress/ Operational Reports to UNEP and IUCN	Project Management Unit	Part of Project Management Costs	Within 1 month of the end of reporting period i.e. on or before 31 January and 31 July
Project Steering Committee (PSC) meetings including inception meeting	VBA with support from PMU	96,000 USD per PSC meeting = 48,000 USD	Once a year / 5 years
Reports of PSC meetings	VBA with support from PMU	Part of Project Management Costs	Annually
PIR	Project Management Unit	Part of Project Management Cost	Annually
Monitoring visits to field sites	Project Management Unit	Part of Project Management Costs	As appropriate
Mid Term Review/Evaluation	UNEP and IUCN possibly via external consultants	30,000 USD	At mid-point of project implementation
Terminal Evaluation	UNEP and IUCN possibly via external consultants	60,000 USD	Within 6 months of end of project implementation
Audit	UNEP & IUCN to monitor this is done by external auditor booked by the PMU	Part of Project Management Costs	Annually

Project Final Report	Project Management Unit based on TA inputs from the project components	Part of Project Management Costs	Before the project completion date
Co-financing report	Project Management Unit	Part of Project Management Costs	Within 1 month of the PIR reporting period, i.e. on or before 31 July
Publication of Lessons Learnt, Guidelines and other Project Documents	Project Management Unit based on TA reports	Part of budget for knowledge products	As per implementation schedule of the technical tasks
<b>Total M&amp;E Plan Budget</b>		<b>138,000 USD</b>	To be covered by budget for component 4.

**PART III: Certification by GEF partner agency(ies)**

**A. GEF Agency(ies) certification**

<b>GEF Agency Coordinator</b>	<b>Date</b>	<b>Project Contact Person</b>	<b>Telephone</b>	<b>Email</b>
Henrik Slotte	7/21/2021	Christine Haffner-Sifakis	25420764583	christine.haffner-sifakis1@un.org
Sheila Aggarwal-Khan, IUCN	12/18/2019	Jacques Somda	22625313154	Jacques.somda@iucn.org

**ANNEX A: PROJECT RESULTS FRAMEWORK (either copy and paste here the framework from the Agency document, or provide reference to the page in the project document where the framework could be found).**

TO be found on Page 3 to 13 in the Annexes

<b>Component 1: Improvement of knowledge base and development of management tools for informed decision making</b>					
Outcomes	Outcome indicators	Baseline	End of project targets	Means of verification	Assumptions
<b>Outcome 1.1</b>  The transboundary network of data collection/processing/modelling delivers up-to-date information for decision making and basin planning to respond to environmental threats at basin, national, and local levels.	Existence of Decision Support Tools being used to support the transboundary dialogue and planning decisions (e.g. water allocation/sharing, environmental concerns, water efficiency)	Insufficient tools and guidelines to support decision making in relation to water resource management and environmental protection in the basin.  Lack of common and trusted tool(s) shared by all basin countries	VBA and national beneficiaries are trained in and use the developed water resource tool(s) to support the basin dialogue and decision making.	Functional Decision Support Tools.  Reports from training sessions on use of water resource model and Decision Support Tools.  Study Report on Values of Environmental Capital  See details under output 1.1.1 and 1.1.2.  Minutes of high-level meetings in VBA making (positive) reference(s) to the Decision Support Tools and/or its results.	Support and commitment from national authorities.  See details under output 1.1.1 and 1.1.2.
Outputs	Output Indicators	Baseline	End of project targets	Means of Verification	Assumptions



<p><b>Output 1.1.1</b></p> <p>Annual surface water resources models and Decision Support Tools made available to support optimization of water use and flows to minimize negative environmental impacts (link to output 2.2.1)</p>	<p>The developed water resource models and Decision Support Tools are validated by VBA as capable of addressing high priority transboundary water resource and environmental issues. .</p>	<p>Lack of operational transboundary water resource Decision Support Tool to assist national and basin authorities in their water resource management including serving the purpose of ?common reference? for discussions and decisions</p>	<p>At least two staff members of VBA have demonstrated that they are able to operate and maintain the Decision Support Tool. (via output 2.2.2)</p> <p>At least one staff member of the national water resource authorities in each basin country has demonstrated that they are able to operate and maintain the Decision Support Tool. (via output 2.2.2)</p> <p>Sustainability plan for maintaining the DSS and the knowledge within the respective institutions (e.g. training of new employees, maintenance costs) has been developed.</p>	<p>Training reports including modelling of test cases to be verified by Final Review Team.</p> <p>Minutes of meetings from VBA high-level meetings or similar documents reveal that the decision support tool is supporting the dialogue between the basin countries and the decisions taken.</p> <p>VBA's own monitoring and evaluation of the sustainability plan.</p>	<p>Countries are willing to collect and share relevant national data, information and plans (e.g. Master plans for the various water depending sectors)</p> <p>Basin countries will allocate staff with sufficient technical skills for the training events.</p> <p>Allocated national staff will have the aspects of transboundary water management as part of his/her job description.</p> <p>Resources will be allocated to maintain knowledge level at the basin and at the national level (e.g. training of new staff)</p>
Outputs	Output Indicators	Baseline	End of project targets	Means of Verification	Assumptions

<b>Output 1.1.2</b>  Indicators (linked to the Decision Support Tool) taking into account the environmental capital, ecosystem services and functions. Socio-anthropological impact analysis methods developed, tested and integrated into the Decision Support Tool.	Existence of well documented indicators tested/calibrated and proven valid and robust as results indicators for the Decision Support System (e.g. when comparing development scenarios).	Studies that relate to environmental and socio-economic impacts caused by climatic/hydrologic and socioeconomic drivers or from development interventions have in the past been carried out in the basin/region, but the results have not been adapted to Decision Support Tools.	Well documented indicators related to the value of ecosystem services in selected sub-basins systematically developed and integrated into the Decision Support System.  Calculated results for indicators on environmental capital, ecosystem services and socio-economics included in report(s) on outputs from the Decision Support Tool.	Systematic storage of data, models and indicators (including rules and heuristics) in the established DSS.  Interviews of staff trained in the use of the DSS.  Report documenting the methodologies and results of output 1.1.2.  Output files from the Decision Support Tool.  DSS manual	Requested data for modelling and scenario analysis purposes will be made timely available for the project team.  Key ecosystem services in the basin can be modelled as rules/heuristics.
<b>Component 2. Strengthening of transboundary planning, regional and in-country coordination and capacity</b>					
Outcomes	Outcomes Indicators	Baseline	End of Project Targets	Means of verification	Assumptions

<p><b>Outcome 2.1</b></p> <p>Transboundary coordination improved due to the capacity strengthening, development and installation of modern decision support tools for water resources planning and management in accordance with the Priority Actions of the SAP.</p>	<p>Number of basin-wide dialogue events discussing and taking decisions related to transboundary water resource management and environmental issues based on commonly accepted data, tools and methods.</p>	<p>Limited possibilities for constructive transboundary and national dialogue events due to lack of funding and funding for capacity building of stakeholders (e.g. national authorities, water users)</p>	<p>At least 4 basin wide dialogue events have taken place.</p> <p>Procedures for constructive dialogue events among the basin countries have been established including securing funding mechanisms for continued dialogue.</p> <p>At least 20 representatives from each basin country have been trained in transboundary water resource management and environmental aspects. At least 25% female participants are expected.</p>	<p>Reports from transboundary and national dialogue events including work plans and decisions</p> <p>Training reports.</p>	<p>The basin countries support the initiative and allocated required staff and resources</p> <p>Decisions taken at the basin level will be respected at the national level</p>
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<b>Outcome 2.2</b>  Capacity of VBA and national authorities strengthened through the development and implementation of a capacity building programme and early warning system(s) at basin, national, and local levels	Number of national authorities applying the developed systems (DSS and drought early warning system) resulting in improved efficiency and quality of their work.	Lack of updated water resource management tools to support VBA and national authorities in their work.	At least 2 staff members of VBA and at least two staff members of the national authorities are able to operate and maintain the developed water resource tools (DSS and drought early warning system) to the benefit of local end users.	System manuals  Testing results / Demonstrations by trained staff  Training workshop reports.  Interview of end users	Basin countries will support this initiative by providing qualified staff and resources.
<b>Outputs</b>	<b>Output Indicators</b>	<b>Baseline</b>	<b>End of Project Target</b>	<b>Means of Verification</b>	<b>Assumption</b>
<b>Output 2.1.1</b>  Functional regional coordination and national water user inter-sectoral/inter-ministerial committees established to assure formal dialogue between countries and sectors	Number of national inter-ministry coordination mechanisms that can be proven to be functional.  Number of VBA staff trained in implementation of projects.	During the previous GEF project national inter-ministry committees were developed. However, they are currently dormant.  Lack of VBA capacity as project implementer.	Six national inter-ministerial coordination committees are functional and make recommendations on the project implementation and SAP implementation  At least 3VBA staff capacitated in project implementation	Reports/minutes of meeting from the national coordination committees.  Minutes of meetings from basin meetings.  Progress and quality of project outputs. Regular project monitoring reports.	Ministries related to water resources and catchment management in the six basin countries are willing to collaborate on the implementation of the SAP.  Trained staff remains with VBA after project completion.
<b>Outcomes</b>	<b>Outcomes Indicators</b>	<b>Baseline</b>	<b>End of Project Targets</b>	<b>Means of verification</b>	<b>Assumptions</b>

<p><b>Output 2.2.1</b></p> <p>Community oriented early-warning system(s) for droughts developed and operational</p>	<p>Existence of drought early warning system validated by VBA.</p> <p>Stakeholders in the basin countries (e.g. farmers, hydropower, environment) able to plan/optimize their socio-economic activities based on the results from the drought early warning system.</p>	<p>Drought is occurring with increased frequency and impact within the basin.</p> <p>National organisations are lacking proper tools for drought monitoring and warning as well as for making impact assessment.</p>	<p>At least 2 organisations per basin country (e.g. farmers, hydropower, environment) benefit from the drought early warning system.</p>	<p>Existence of operational and validated web-based early-warning system for droughts.</p> <p>Interview of national organisations and local communities in pilot areas.</p> <p>Training reports and manuals.</p>	<p>National and local authorities will participate in planned training events.</p> <p>The developed systems are efficiently used by the national and local authorities.</p> <p>The system will rely on existing dissemination systems in the basin countries (e.g. via farmers organisations).</p>
Outcomes	Outcomes Indicators	Baseline	End of Project Targets	Means of verification	Assumptions

<p><b>Output 2.2.2</b></p> <p>Staff of the Volta Basin Observatory capable of operating the Decision Support System including Drought Early Warning System</p>	<p>VBA produces assessments and analyses based on results from the DSS including the Drought Early Warning System</p>	<p>No basin wide Decision Support System including drought early warning is in place today and thus no VBA staff or staff from national organisations are trained in operation and maintenance of the systems.</p>	<p>At least two Volta Basin Observatory staff are capacitated for efficient operation and maintenance of Decision Support System including Drought Early Warning System.</p> <p>At least two staff members per national water resource authority has been trained in using the Decision Support System including Drought Early Warning System.</p> <p>Sustainability plan for maintaining the capacity at VBA and at national organisations in operation and maintenance of the DSS including the drought early warning system. .</p>	<p>Documented training sessions.</p> <p>Training course evaluations</p> <p>Number of staff members trained in the operation and maintenance of the DSS including Drought Early Warning System.</p> <p>Existence of approved sustainability plan</p>	<p>Volta Basin Observatory to support by providing staff to participate in training sessions and take responsibility for maintaining the DSS including Drought Early Warning System.</p> <p>VBA to take lead in securing sustainability.</p> <p>National organisations to provide qualified staff to be trained.</p>
<p><b>Component 3. Strengthening of resilience of ecosystems for sustainable livelihoods in the Volta basin.</b></p>					
<p>Outcomes</p>	<p>Outcomes Indicators</p>	<p>Baseline</p>	<p>End of Project Targets</p>	<p>Means of verification</p>	<p>Assumptions</p>

<b>Outcome 3.1</b>  Production systems in key sectors apply integrated water resource management and ecosystem-based approaches at community and sub-basin levels	I3.1.1: Number of sectors (crop, livestock and fishery) where ecosystem-based approaches are developed for	No previous similar activities  I3.1.1: 0	I3.1.1: 3 sectors (crop, livestock and fishery) with ecosystem-based approach developed	Evaluation reports	Countries willing to mainstream ecosystem-based approach into their sectoral policy
	I3.1.2: Additional number of sub-basins and communities where ecosystem-based approaches are applied to reduce pollution and increase water use efficiency	I3.1.2: 0	I3.1.2: 4 sub-basins and 12 riverine communities applying ecosystem-based approach		Communities are committed to apply ecosystem-based approach in their production activities
Outputs	Output Indicators	Baseline	End of Project Target	Means of Verification	Assumption

<b>Output 3.1.1</b>  Measures on sustainable use of water for crop and livestock productions implemented to improve productivity, food security and incomes          Transboundary sites identified in sub-basins: ? Sourou sites between Mali and Burkina Faso ? Otti sites between Togo and Ghana ? Bagre sites in the black Volta between Burkina and Ghana	I3.1.1.1: Additional number of crop and livestock producers implementing selected measures on sustainable use of water in the intervention communities, disaggregated into men and women          I3.1.1.2: Additional number of hectares with the applied measures on sustainable use of water	No previous similar activities          I3.1.1.1: 0          I3.1.1.2: 0	I3.1.1.1: 5,000 crop and livestock producers (of which 40% are women) applying measures on sustainable use of water          I3.1.1.2: 10,000 hectares with applied measures on sustainable use of water	Baseline and Monitoring reports.          Final Review Report	Crop and livestock producers are engaged in selected measures on sustainable use of water          Relevant national authorities will support the initiate
Outputs	Output Indicators	Baseline	End of Project Target	Means of Verification	Assumption



<b>Output 3.1.2</b>  Sustainable fisheries management practices implemented to improve productivity, food security and incomes  Transboundary sites identified ? Sourou sites between Burkina Faso and Mali ? Bagre sites in the black Volta between Burkina and Ghana	I3.1.2.1: Additional number of fisheries actors trained in sustainable fisheries practices	No previous similar activities	I3.1.2.1: Additional 10,000 fishery actors (of which 50% are women) trained on sustainable fisheries management	Baseline and Monitoring reports	Fisheries actors and fish farmers are committed to sustainable fishery management  Relevant national authorities will support the initiate
	I3.1.2.2: additional number of hectares of fisheries under sustainable fishing practices	I3.1.2.2: 0	I3.1.2.2: Additional 15,000 hectares of fisheries applying sustainable fishing practices		
<b>Component 4. Knowledge management and sharing, and effective M&amp;E</b>					
Outcomes	Outcomes Indicators	Baseline	End of Project Targets	Means of verification	Assumptions

<b>Outcome 4.1</b>  Knowledge on environmental and water management aspects of governance improved through the development of targeted visual materials and public awareness campaigns	Documented collaborations and resource sharing.  Regular results of effective transboundary water governance.  Community involved sustainable water management awareness conducted and behaviour change.  Publications and communications material of progress made in transboundary water governance.	Present communication activities are insufficient regarding the project objectives and activities.	Agreed communication strategy approved and implemented.	Minutes of PSC meetings.  Existence and status of:  Website Quarterly newsletters Weekly news round-up Publications Events/Campaigns Social Media/Infographics Traditional media (press releases, news articles, radio, television etc.) Partner newsletters Videos, project posters, drawings, cartoons etc.	Active involvement from basin countries in relation to identification of a wide range of national stakeholders
<b>Outcome 4.2</b>  Project implementation based on RBM and lessons learned/best practices documented and disseminated	Project implemented according to the workplan agreed at the regional project steering committee	Ongoing baseline activities implemented but not under overall SAP implementation framework	The project achieves its objectives and is successfully completed according to the workplan	Project Implementation Reports, mid-term review and terminal evaluation	The project monitoring mechanisms, particularly the project steering committee functions.
Outputs	Output Indicators	Baseline	End of Project Target	Means of Verification	Assumption

<b>Output 4.1.1</b>  Communication strategy for SAP implementation is developed and implemented, also through a series of public awareness campaigns	a) Existence of Communication Strategy for SAP implementation  b) Number of awareness campaigns executed	a) There is no communication strategy for SAP  b) There is ongoing water related awareness campaigns in the basin	The communication strategy is fully implemented, and more stakeholders informed and engaged in the project related activities	a) Communication strategy adopted and implemented  b) Project reports	There are effective and functioning networks of stakeholders that are used for awareness raising purposes.
<b>Output 4.1.2</b>  International Waters knowledge products are generated and disseminated using existing global information and knowledge sharing platforms, e.g. GEF IW: LEARN	I4.1.2.1: Number of knowledge products disseminated through external platforms	I4.1.2.1: 0	I4.1.2.1: 4	Inventory of relevant platforms	Relevant knowledge is generated and shared by the project stakeholders
<b>Output 4.2.1</b>  Project Monitoring & Evaluation Plan and system developed and in place	Existence of approved M&E plan	There is no project Monitoring and Evaluation mechanism in place.	The Monitoring and Evaluation mechanism is functional through the regional project steering committee and national inter-ministry coordination committees	Steering Committee reports and Mid-term and terminal evaluation reports	There is sufficient participation of the relevant stakeholders in the Monitoring and Evaluation activities.
<b>Output 4.2.2</b>  Mid-Term and Final Project Evaluations	Existence of Mid-Term and Final evaluations	No Mid-term review or terminal evaluation of the project	Mid-term review recommendations are fully incorporated into the project implementation and the terminal evaluation shows achievement of the project objective	Mid-Term and Final evaluation reports	Both midterm review and terminal evaluations are organized in timely manner involving relevant project stakeholders .

Outputs	Output Indicators	Baseline	End of Project Target	Means of Verification	Assumption
<b>Output 4.2.3</b>  Awareness Campaigns on Management of Natural Resources (related to 4.1.1)	Reduced number of cases where the natural resources are unsustainably exploited or contaminated	Frequent cases of unsustainable use of natural resources.  Limited public awareness with respect to the importance of the natural resources	Increased awareness on protection and sustainable use of the natural resources by the general public and by the water users in particular	Number of authorities/institutions/ water users/persons reached through the various channels.  Feedback from target groups	Optimal and qualified selection of target groups, messages, channels and timing in order to maximise impact.  Collaboration from relevant partners (e.g. educational institutions, ministries, water user associations).

**ANNEX B: RESPONSES TO PROJECT REVIEWS (from GEF Secretariat and GEF Agencies, and Responses to Comments from Council at work program inclusion and the Convention Secretariat and STAP at PIF).**

**Response to GEFSEC comments at the time of the PIF approval**

GEF ID:	<b>9910</b>		
Country/Region:	<b>Regional (Burkina Faso, Benin, Cote d'Ivoire, Ghana, Mali, Togo)</b>		
Project Title:	<b>Reversing Ecosystem and Water Degradation in the Volta River Basin (REWarD-Volta River Basin)</b>		
GEF Agency:	<b>UNEP and IUCN</b>	GEF Agency Project ID:	
Type of Trust Fund:	<b>GEF Trust Fund</b>	GEF Focal Area (s):	<b>International Waters</b>
GEF-6 Focal Area/ LDCF/SCCF Objective (s):	<b>IW-1 Program 1; IW-2 Program 3;</b>		
Anticipated Financing PPG:	<b>\$200,000</b>	Project Grant:	<b>\$7,122,566</b>
Co-financing:	<b>\$79,665,636</b>	Total Project Cost:	<b>\$86,788,202</b>
PIF Approval:		Council Approval/Expected:	
CEO Endorsement/Approval		Expected Project Start Date:	
Program Manager:	<b>Astrid Hillers</b>	Agency Contact Person:	<b>Takehiro Nakamura</b>

PIF Review			
Review Criteria	Questions	Secretariat Comment	Agency Response
<b>Project Consistency</b>	2. Is the project consistent with the recipient country's national strategies and plans or reports and assessments under relevant conventions?	<p>BY ENDORSEMENT:</p> <p>Please provide details on alignment with specific country level policies and strategies and governance frameworks especially as relevant to on the ground investments, e.g. on groundwater and conjunctive management, efficient use of water and regulations on water abstractions, land and livestock management, freshwater fisheries and aquaculture, and invasive species.</p>	<p>Being a regional project involving six countries, the most comprehensive and coordinated strategic policy document to align with is the Strategic Action Programme (SAP) for the Volta Basin. The SAP is endorsed by all six governments and thus represents the best possible and available match with national priorities, strategies and plans. It has been made clear and explicit in the description of project objectives how the current project contributes to implementation of the SAP.</p>

Project Design	<p>3. Does the PIF sufficiently indicate the drivers<sup>2</sup> of global environmental degradation, issues of sustainability, market transformation, scaling, and innovation?</p>	<p>AT ENDORSEMENT:</p> <ul style="list-style-type: none"> <li>- We appreciate that national agencies now have been indicated as being among executing agencies in some of the measures to be funded. During project design, please provide additional detail on how the project will involve the relevant national agencies as well as build on and strengthen local government and traditional mechanisms for resource management (incl. those involving pastoralist groups and interaction with sedentary farming communities).</li> </ul> <p>As indicated in the PIF, it will be important during project design to take stock in more detail on related investments on national level (both GEF and non-GEF) on which the national and regional investments can build on both in terms of lessons to take on during the design and coordination and/or cooperation in their implementation.</p>	<p>Particularly Component 3 addresses direct involvement of local stakeholders and communities in activities on the ground. Activity descriptions under outputs 3.1.1 (sustainable use of water for crop and livestock production) and 3.1.2 (sustainable fisheries management practices) have been amended to describe approaches for stakeholder involvement. One example of a tool that will be applied in order to both protect the environment and acknowledge traditional resources management mechanisms is local conventions. Local conventions are legitimate agreements negotiated between multiple stakeholders from the perspective of regulating natural resources (control, access, appropriation, use and exploitation) and the environment.</p> <p>The baseline section has been updated to provide more detail on related investments and activities at national level.</p>
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	<p>5. Are the components in Table B sound and sufficiently clear and appropriate to achieve project objectives and the GEBs?</p>	<p>BY ENDORSEMENT:</p> <ul style="list-style-type: none"> <li>- Please define 'hotspots' (components 1 and 2)</li> <li>- Please take note of the WMO Volta Hycos among the regional initiatives. The cooperation noted with WMO is appreciated.</li> <li>- Groundwater: please take note of ongoing country level investments (e.g. such as the large IDA loan to Burkina Faso on groundwater; and a number of other) as well as regional investments (such as the WB Sahel Irrigation Initiative which is baseline for the WB water security and groundwater project (submitted for WP inclusion)). In terms of pollution, please note considerable existing knowledge of likely pollution (natural and anthropogenic) that will aid to narrow down possible type and location of pollution/pollution hotspots.</li> <li>- Please eliminate the confusion in wording under component 2 with regard to drought early warning systems. Bullet 2 on page 21 appears to restrict access to early warning, while we clearly understand from discussion and the overall description that this to mean the projects effort to make special efforts to address/include specific vulnerable groups (but not to exclude others).</li> </ul>	<p>Hotspots have been defined in Section A.1.</p> <p>The ?Integrating Flood and Drought Management and Early Warning for Climate Change Adaptation in the Volta basin (VFDM; funded by the Adaptation Fund)?, implemented by WMO and executed by WMO and VBA (2018 to 2021), has been included in the baseline description. Also output 2.2.1 description makes explicit reference to linkages with that project.</p> <p>Under activity 1.1.3.1 it is mentioned that the selection of pilot sites and the definition of activities to be carried out shall be made taking into account other existing and planned activities related to groundwater in the respective countries being Burkina, Ghana and Togo. (The validation workshop, Nov 2019, concluded that Burkina should be part of the groundwater assessment in order to be able to cover the Sahelian part of the basin.)</p> <p>Wording has been changed to avoid implicit exclusion of any groups from the warning system alerts.</p> <p>Text has been amended and now specifically addresses this issue for the sections requested.</p>
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Responses to the STAP review comments at the time of PIF approval



**AGENCY RESPONSE TO:  
GEF SCIENTIFIC AND TECHNICAL ADVISORY PANEL (STAP) REVIEW,  
31 May 2018 (Virginia Gorsevski)**

GEF ID:	9910		
Country/Region:	Regional (Burkina Faso, Benin, Cote d'Ivoire, Ghana, Mali, Togo)		
Project Title:	Reversing Ecosystem and Water Degradation in the Volta River Basin (REWARD-Volta River Basin)		
GEF Agency:	UNEP and IUCN	GEF Agency Project ID:	
Type of Trust Fund:	GEF Trust Fund	GEF Focal Area (s):	International Waters
GEF-6 Focal Area/ LDCF/SCCF Objective (s):	IW-1 Program 1; IW-2 Program 3;		
Program Manager:	Astrid Hillers	Agency Contact Person:	Takehiro Nakamura

STAP review	
STAP Comment	Agency Response
1. Provide clear and plausible project targets for contribution to corporate targets 1 (management of landscapes for biodiversity and ecosystem goods and services), 2 (sustainable land management in production systems), and 3a (transboundary river basin management). Further specification of the rationale underpinning the quantitative estimate of the scale of benefits is expected during the next stage of project development.	We have included project indicators and contributions to corporate targets in section E.
2. Though fisheries in some parts of the basin are characterized as not over-exploited, during further project development it would be good to consider whether there is a quantified estimate that can be targeted with regard to corporate target 3b (% of globally over-exploited fisheries brought to more sustainable levels). The value may not be large in global terms, but quantification could help improve political will towards transboundary protection of ecosystem services at regional and national levels. (Note this relates as well to the project output 1.1.2 on valuation.)	We have not been able to quantify and commit to a concrete target for contribution to reducing globally over-exploited fisheries.
3. The M&E approach gives appropriate attention to specifying links between ecosystem change and livelihood outcomes/vulnerabilities. This aspect is likely critical in building awareness and sustaining commitment to implementation beyond the project period. The project could consider whether any further explicit framing around livelihood security/environmental security goals would further contribute to stakeholder commitment.	We take note of the importance of securing livelihoods in order to ensure stakeholder commitment. Component 3 to a high degree builds on this approach.
4. Among risks, consider the appropriateness of including general risks related to political stability and security, along with appropriate monitoring measures during project implementation.	We have amended the risk assessment to include political stability and security issues.

STAP review	
STAP Comment	Agency Response

1. Provide clear and plausible project targets for contribution to corporate targets 1 (management of landscapes for biodiversity and ecosystem goods and services), 2 (sustainable land management in production systems), and 3a (transboundary river basin management). Further specification of the rationale underpinning the quantitative estimate of the scale of benefits is expected during the next stage of project development.	We have included project indicators and contributions to corporate targets in section E.
2. Though fisheries in some parts of the basin are characterized as not over-exploited, during further project development it would be good to consider whether there is a quantified estimate that can be targeted with regard to corporate target 3b (% of globally over-exploited fisheries brought to more sustainable levels). The value may not be large in global terms, but quantification could help improve political will towards transboundary protection of ecosystem services at regional and national levels. (Note this relates as well to the project output 1.1.2 on valuation.)	We have not been able to quantify and commit to a concrete target for contribution to reducing globally over-exploited fisheries.
3. The M&E approach gives appropriate attention to specifying links between ecosystem change and livelihood outcomes/vulnerabilities. This aspect is likely critical in building awareness and sustaining commitment to implementation beyond the project period. The project could consider whether any further explicit framing around livelihood security/environmental security goals would further contribute to stakeholder commitment.	We take note of the importance of securing livelihoods in order to ensure stakeholder commitment. Component 3 to a high degree builds on this approach.
4. Among risks, consider the appropriateness of including general risks related to political stability and security, along with appropriate monitoring measures during project implementation.	We have amended the risk assessment to include political stability and security issues.
<b>Comments from GEF Council Members</b>	
<b>Comment</b>	<b>Agency Response</b>

<p><b>Germany's comments:</b></p> <p>Germany approves the following PIFs in the work program but asks that the following comments are taken into account:</p> <p>Germany appreciates the detailed PIF addressing transboundary water management in the Volta River Basin.</p> <p>Suggestions for improvements to be made during the drafting of the final project proposal:</p> <p>Germany remarks that the indicative Focal Areas in Table A, namely, IW1-1 and IW2-3 are not consistent with the Focal Areas stated in the project justification, which are IW2-3+4 and IW3-7. Although, the project addresses some aspects of IW2-4 (WEF-Nexus) and IW3-7 (sustainable fisheries), Germany evaluates that the presented framework corresponds most to IW1-1 (transboundary water management) and IW2-3 (management of surface and groundwater resources).</p>	<p>We acknowledge that there is some ambiguity between Table A and the text in the justification which could be interpreted as an inconsistency. The indicative Focal Areas mentioned in Table A are IW1-1 and IW2-3 whereas the justification states that the project is consistent with IW2-3, IW2-4 and IW3-7.</p> <p>We concur with the comment that the main link with the GEF Focal Areas are actually IW1-1 (transboundary water management) and IW2-3 (management of surface and groundwater systems). The text on page 19-20 has been amended to reflect this</p>
<p><b>U. S's Comments:</b></p> <p>In response to a previous question posed by the United States government (There does not seem to be a project-level framework for Multilateral Environmental Agreement (MEA) reporting, is that accurate?), part of the agency response stated Finally, the project could also support the countries (coordinated by VBA) with SDG-reporting. We would like both the agency and the GEF to confirm that no project money will be spent on SDG reporting within this project, as the GEF is the financial mechanism of the MEAs, and not the SDGs.</p> <p>We would appreciate further information on how the project will support reporting to the relevant GEF MEAs (e.g. CBD, UNFCCC, UNCCD) by the member states as coordinated by the Volta Basin Authority.</p>	<p>We confirm that no project funds will be spent for SDG reporting.</p> <p>The project does not include direct support to reporting to MEAs although data and information created by the project may be used for such reporting by other processes and initiatives.</p>

## ANNEX C: STATUS OF IMPLEMENTATION OF PROJECT PREPARATION ACTIVITIES AND THE USE OF FUNDS.

**A. Provide detailed funding amount of the PPG activities financing status in the table below:**

PPG Grant Approved at PIF: 100,000 (UNEP) and 100,000 (IUCN)			
<i>Project Preparation Activities Implemented</i>	<i>GEF/LDCF/SCCF Amount (\$)</i>		
	<i>Budgeted Amount</i>	<i>Amount Spent To Date</i>	<i>Amount Committed</i>
Expert travel (UNEP)	13,000	11,656	0
PPG coordinator consultant (UNEP)	30,000	22,902	7,098
Conference support (translation and interpretation) (UNEP)	17,000	8,809	8,191
Regional workshop ? support to country participants (UNEP)	40,000	20,242	19,758
Project preparation consultants and national consultation (IUCN)	60,000	46,697	12,622
Regional Workshop (IUCN)	40,000	8,590	11,426
<b>Total</b>	200,000	118,896	59,095

**ANNEX D: CALENDAR OF EXPECTED REFLOWS (if non-grant instrument is used)**

**Provide a calendar of expected reflows to the GEF/LDCF/SCCF/CBIT Trust Funds or to your Agency (and/or revolving fund that will be set up)**

Not applicable

**ANNEX E: GEF 7 Core Indicator Worksheet**

Use this Worksheet to compute those indicator values as required in Part I, Table G to the extent applicable to your proposed project. Progress in programming against these targets for the program will be aggregated and reported at any time during the replenishment period. There is no need to complete this table for climate adaptation projects financed solely through LDCF and SCCF.

<b>Core Indicator 1</b>	<b>Terrestrial protected areas created or under improved management for conservation and sustainable use</b>				<b>(Hectares)</b>
		<i>Hectares (1.1+1.2)</i>			
		<i>Expected</i>		Achieved	
		PIF stage	Endorsement	MTR	TE

Indicator 1.1	Terrestrial protected areas newly created					
Name of Protected Area	WDPA ID	IUCN category	Hectares			
			Expected		Achieved	
			PIF stage	Endorsement	MTR	TE
		Sum				
Indicator 1.2	Terrestrial protected areas under improved management effectiveness					
Name of Protected Area	WDPA ID	IUCN category	Hectares	METT Score		
				Baseline		Achieved
					Endorsement	MTR TE
		Sum				
<b>Core Indicator 2</b>	<b>Marine protected areas created or under improved management for conservation and sustainable use</b>					<b>(Hectares)</b>
			Hectares (2.1+2.2)			
			Expected		Achieved	
			PIF stage	Endorsement	MTR	TE
Indicator 2.1	Marine protected areas newly created					
Name of Protected Area	WDPA ID	IUCN category	Hectares			
			Expected		Achieved	

			PIF stage	Endorsement	MTR	TE
		Sum				
Indicator 2.2	Marine protected areas under improved management effectiveness					
Name of Protected Area	WDPA ID	IUCN category	Hectares	METT Score		
				Baseline		Achieved
				PIF stage	Endorsement	MTR TE
		Sum				
Core Indicator 3	Area of land restored					(Hectares)
				Hectares (3.1+3.2+3.3+3.4)		
				Expected		Achieved
				PIF stage	Endorsement	MTR TE
Indicator 3.1	Area of degraded agricultural land restored					
			Hectares			
			Expected		Achieved	
			PIF stage	Endorsement	MTR	TE

Indicator 3.2	Area of forest and forest land restored					
			Hectares			
			Expected		Achieved	
			PIF stage	Endorsement	MTR	TE
Indicator 3.3	Area of natural grass and shrublands restored					
			Hectares			
			Expected		Achieved	
			PIF stage	Endorsement	MTR	TE
Indicator 3.4	Area of wetlands (including estuaries, mangroves) restored					
			Hectares			
			Expected		Achieved	
			PIF stage	Endorsement	MTR	TE
Core Indicator 4	Area of landscapes under improved practices (hectares; excluding protected areas)					(Hectares)
			Hectares (4.1+4.2+4.3+4.4)			
			Expected		Expected	

			PIF stage	Endorsement	MTR	TE
			0	20,000		
Indicator 4.1	Area of landscapes under improved management to benefit biodiversity					
			Hectares			
			Expected		Achieved	
			PIF stage	Endorsement	MTR	TE
			0	15,000		
Indicator 4.2	Area of landscapes that meet national or international third-party certification that incorporates biodiversity considerations					
Third party certification(s):			Hectares			
			Expected		Achieved	
			PIF stage	Endorsement	MTR	TE
Indicator 4.3	Area of landscapes under sustainable land management in production systems					
			Hectares			
			Expected		Achieved	
			PIF stage	Endorsement	MTR	TE
			0	5,000		
Indicator 4.4	Area of High Conservation Value Forest (HCVF) loss avoided					



Include documentation that justifies HCVF			Hectares			
			Expected		Achieved	
			PIF stage	Endorsement	MTR	TE
<b>Core Indicator 5</b>	<b>Area of marine habitat under improved practices to benefit biodiversity</b>					<i>(Hectares)</i>
Indicator 5.1	Number of fisheries that meet national or international third-party certification that incorporates biodiversity considerations					
Third party certification(s):			Number			
			Expected		Achieved	
			PIF stage	Endorsement	MTR	TE
Indicator 5.2	Number of large marine ecosystems (LMEs) with reduced pollution and hypoxial					
			Number			
			Expected		Achieved	
			PIF stage	Endorsement	MTR	TE
Indicator 5.3	Amount of Marine Litter Avoided					
			Metric Tons			
			Expected		Achieved	

			PIF stage	Endorsement	MTR	TE
<b>Core Indicator 6</b>	<b>Greenhouse gas emission mitigated</b>					<i>(Metric tons of CO<sub>2</sub>e)</i>
		Expected metric tons of CO <sub>2</sub> e (6.1+6.2)				
			PIF stage	Endorsement	MTR	TE
	Expected CO <sub>2</sub> e (direct)					
	Expected CO <sub>2</sub> e (indirect)					
<b>Indicator 6.1</b>	<b>Carbon sequestered or emissions avoided in the AFOLU sector</b>					
			Expected metric tons of CO <sub>2</sub> e			
			PIF stage	Endorsement	MTR	TE
	Expected CO <sub>2</sub> e (direct)					
	Expected CO <sub>2</sub> e (indirect)					
	Anticipated start year of accounting					
	Duration of accounting					
<b>Indicator 6.2</b>	<b>Emissions avoided Outside AFOLU</b>					
			Expected metric tons of CO <sub>2</sub> e			
			Expected		Achieved	
			PIF stage	Endorsement	MTR	TE
	Expected CO <sub>2</sub> e (direct)					
	Expected CO <sub>2</sub> e (indirect)					

	Anticipated start year of accounting					
	Duration of accounting					
Indicator 6.3	Energy saved					
			MJ			
			Expected		Achieved	
			PIF stage	Endorsement	MTR	TE
Indicator 6.4	Increase in installed renewable energy capacity per technology					
		Technology	Capacity (MW)			
			Expected		Achieved	
			PIF stage	Endorsement	MTR	TE
<b>Core Indicator 7</b>	<b>Number of shared water ecosystems (fresh or marine) under new or improved cooperative management</b>					<b>(Number)</b>
Indicator 7.1	Level of Transboundary Diagnostic Analysis and Strategic Action Program (TDA/SAP) formulation and implementation					
		Shared water ecosystem	Rating (scale 1-4)			
			PIF stage	Endorsement	MTR	TE
		<i>1</i>	<i>4</i>	<i>4</i>		
Indicator 7.2	Level of Regional Legal Agreements and Regional Management Institutions to support its implementation					

		Shared water ecosystem	Rating (scale 1-4)			
			PIF stage	Endorsement	MTR	TE
		1	3	3		
Indicator 7.3	Level of National/Local reforms and active participation of Inter-Ministerial Committees					
		Shared water ecosystem	Rating (scale 1-4)			
			PIF stage	Endorsement	MTR	TE
		1	2	2		
Indicator 7.4	Level of engagement in IWLEARN through participation and delivery of key products					
		Shared water ecosystem	Rating (scale 1-4)			
			Rating		Rating	
			PIF stage	Endorsement	MTR	TE
		1	2	2		
Core Indicator 8	Globally over-exploited fisheries Moved to more sustainable levels					(Metric Tons)
Fishery Details			Metric Tons			
			PIF stage	Endorsement	MTR	TE
Core Indicator 9	Reduction, disposal/destruction, phase out, elimination and avoidance of chemicals of global concern and their waste in the environment and in processes, materials and products					(Metric Tons)
			Metric Tons (9.1+9.2+9.3)			

			Expected		Achieved	
			PIF stage	PIF stage	MTR	TE
Indicator 9.1	Solid and liquid Persistent Organic Pollutants (POPs) removed or disposed (POPs type)					
POPs type			Metric Tons			
			Expected		Achieved	
			PIF stage	Endorsement	MTR	TE
Indicator 9.2	Quantity of mercury reduced					
			Metric Tons			
			Expected		Achieved	
			PIF stage	Endorsement	MTR	TE
Indicator 9.3	Hydrochlorofluorocarbons (HCFC) Reduced/Phased out					
			Metric Tons			
			Expected		Achieved	
			PIF stage	Endorsement	MTR	TE
Indicator 9.4	Number of countries with legislation and policy implemented to control chemicals and waste					
			Number of Countries			

			Expected		Achieved	
			PIF stage	Endorsement	MTR	TE
Indicator 9.5	Number of low-chemical/non-chemical systems implemented particularly in food production, manufacturing and cities					
		Technology	Number			
			Expected		Achieved	
			PIF stage	Endorsement	MTR	TE
Indicator 9.6	Quantity of POPs/Mercury containing materials and products directly avoided					
			Metric Tons			
			Expected		Achieved	
			PIF stage	Endorsement	PIF stage	Endorsement
Core Indicator 10	Reduction, avoidance of emissions of POPs to air from point and non-point sources					(grams of toxic equivalent gTEQ)
Indicator 10.1	Number of countries with legislation and policy implemented to control emissions of POPs to air					
			Number of Countries			
			Expected		Achieved	
			PIF stage	Endorsement	MTR	TE

Indicator 10.2	Number of emission control technologies/practices implemented					
			Number			
			Expected		Achieved	
			PIF stage	Endorsement	MTR	TE
Core Indicator 11	Number of direct beneficiaries disaggregated by gender as co-benefit of GEF investment					(Number)
			Number			
			Expected		Achieved	
			PIF stage	Endorsement	MTR	TE
		Female	0	5,000		
		Male	0	10,000		
		Total	0	15,000		

#### ANNEX F: Project Taxonomy Worksheet

Use this Worksheet to list down the taxonomic information required under Part1 by ticking the most relevant keywords/topics//themes that best describes the project

Level 1	Level 2	Level 3	Level 4
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Influencing Models	<p>Transfrom policy and regulatory environments</p> <p>Strengthening institutional capacity and decision making</p> <p>Convene multi-stakeholder alliances</p> <p>Demonstrate innovative financial instruments</p>		
Stakeholders	<p>Private Sector</p> <p>Beneficiaries</p> <p>Local Communities</p> <p>Civil Society</p> <p>Type of Engagement</p> <p>Communications</p>	<p>SMEs</p> <p>Community based organisations</p> <p>Non-government organisations</p> <p>Academia</p> <p>Information Dissemination</p> <p>Partnership</p> <p>Consultation</p> <p>Participation</p> <p>Awareness raising</p> <p>Education</p> <p>Public Campaigns</p> <p>Behavior change</p>	



Capacity, Knowledge and Research	Capacity Development  Knowledge Generation and Exchange  Learning   Knowledge and Learning    Stakeholder Engagement Plan	Adaptive Management    Knowledge Management Innovation Capacity Development Learning	
Gender Equality	Gender Mainstreaming   Gender Result Areas	Beneficiaries Women Groups   Access and control over natural resources Participation and Leadership Capacity Development Awareness raising Knowledge generation	
Focal Area/Theme	International Waters         Climate Change	Fresh Water   Fisheries  Pollution    Strategic Action Plan   Climate Change Adaptation	Aquifer River Basin Lake basin   Nutrient pollution from all sectors except wastewater    Climate Resilience Climate information Adaptation Tech Transfer

Rio Markers

## ANNEX G: Project Budget Table

Please attach a project budget table.

Project No: GEF ID/0010

Project Name: Reversing Ecosystem Water Degradation in the Volta River Basin (REWARD – Volta River Basin)

Project Short Name: REWARD – Volta River Basin

Programmatic Approach: IW-1: Foster cooperation for sustainable use of transboundary water systems and economic growth; IW-2: Advance conjunctive management of surfacewater and groundwater resources

Implementing Agencies: UNEP and IUCN

Executing Agency: Volta Basin Authority (VBA)

Version: 16Nov2021

UN Environment UNEP Sponsored Dates/Object of the Budget	BUDGET BY COMPONENTS						BUDGET BY YEAR						ADMIN. OFF FUNDS			
	COMP 1	COMP 2	COMP 3	COMP 4	Project Management	Sub-Tot	2021	2022	2023	2024	2025	Total	VBA	GWP-WA	IUCN	UNEP
	kUSD	kUSD	kUSD	kUSD	kUSD	kUSD	kUSD	kUSD	kUSD	kUSD	kUSD	kUSD	kUSD	kUSD	kUSD	kUSD
<b>PROJECT STAFF AND PERSONNEL</b>																
1101 REWARD PMU - Project Coordinator / IWRM Specialist*	20	30	40	45	100	235	54	54	54	38	35	235				
1120 REWARD PMU - Admin Assistant	-	-	-	-	50	50	10	10	10	10	10	50				
1121 REWARD PMU - Resource Pool	-	20	-	-	75	95	29	29	29	10	-	95				
<b>Component Total</b>	<b>20</b>	<b>50</b>	<b>40</b>	<b>45</b>	<b>225</b>	<b>380</b>	<b>93</b>	<b>93</b>	<b>93</b>	<b>57</b>	<b>45</b>	<b>380</b>				
<b>TRAVEL</b>																
1601 PMU Staff Travel	-	-	-	-	20	20	4	6	4	4	2	20				
1604 SC Member Travel	-	-	-	-	30	30	6	9	6	6	3	30				
<b>Component Total</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>50</b>	<b>50</b>	<b>10</b>	<b>15</b>	<b>10</b>	<b>10</b>	<b>5</b>	<b>50</b>				
<b>CONSULTANT / SUB-CONTRACTS</b>																
1201 Basin/regional activities																
1.1.1 Surface Water Resources Model	386	-	-	-	-	386	154	154	77	-	-	386				
1.1.2 Value of Env. Capital	327	-	-	-	-	327	131	131	65	-	-	327				
2.1.1 Regional dialogues	-	196	-	-	-	196	39	59	59	20	20	196				
2.1.1 VBA Capacity Building	-	560	-	-	-	560	112	140	140	84	84	560				
2.2.1 Drought Early Warning System	-	386	-	-	-	386	154	154	77	-	-	386				
2.2.2 VBO Capacity Building	-	424	-	-	-	424	170	170	85	-	-	424				
4.1.1 SAP Communication Strategy	-	-	-	188	-	188	47	75	47	19	-	188				
4.1.2 Water Knowledge Products	-	-	-	227	-	227	23	45	45	68	45	227				
1202 National activities																
2.1.1 National Dialogues	-	527	-	-	-	527	105	132	132	79	79	527				
3.1.1 Sustainable use of water	-	-	1,039	-	-	1,039	208	312	312	104	104	1,039				
3.1.2 Sustainable fisheries	-	-	2,089	-	-	2,089	418	627	627	209	209	2,089				
<b>Component Total</b>	<b>713</b>	<b>2,093</b>	<b>3,128</b>	<b>415</b>	<b>-</b>	<b>6,349</b>	<b>1,561</b>	<b>1,999</b>	<b>1,666</b>	<b>582</b>	<b>541</b>	<b>6,349</b>				
<b>OPERATING AND OTHER DIRECT COSTS</b>																
3301 Steering Committee Meetings	-	-	-	18	30	48	10	10	10	10	10	48				
3302 Support to IW-LEARN - 1% allocation	7	22	32	7	3	71	7	7	14	18	25	71				
4101 Office supplies, communication, consumables	-	-	-	-	31	31	6	6	6	6	6	31				
5201 Publication, Translation, Dissemination, reporting	-	-	-	39	-	39	4	8	16	8	4	39				
5301 Monitoring & Evaluation	-	-	-	39	-	39	4	12	8	8	8	39				
5302 Mid-Term Evaluation	-	-	-	30	-	30	-	-	30	-	-	30				
5303 Terminal Evaluation	-	-	-	60	-	60	-	-	-	-	60	60				
Annual Audits	-	-	-	-	25	25	5	5	5	5	5	25				
<b>Component Total</b>	<b>7</b>	<b>22</b>	<b>32</b>	<b>193</b>	<b>99</b>	<b>343</b>	<b>36</b>	<b>47</b>	<b>88</b>	<b>54</b>	<b>117</b>	<b>343</b>				
<b>TOTAL COSTS IN kUSD</b>	<b>740</b>	<b>2,165</b>	<b>3,200</b>	<b>653</b>	<b>364</b>	<b>7,122</b>	<b>1,699</b>	<b>2,154</b>	<b>1,857</b>	<b>704</b>	<b>709</b>	<b>7,122</b>	<b>5,095</b>	<b>2,027</b>	<b>-</b>	<b>-</b>