GEF-6 PROJECT IDENTIFICATION FORM (PIF)

PROJECT TYPE: Full-sized Project
TYPE OF TRUST FUND:GEF Trust Fund

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PART I: PROJECT INFORMATION

Project Title:	Reversing Ecosystem and Water Degradation in the Volta River Basin (REWarD-Volta River Basin)		
Country(ies):	Benin, Burkina Faso, Côte d'Ivoire, Ghana, Mali, Togo	GEF Project ID:[1]	**9910**
GEF Agency(ies):	UNEP IUCN	GEF Agency Project ID:	01608
Other Executing Partner(s):	Volta Basin Authority, Ministries in charge of water resources in Countries, other relevant National Authorities	Resubmission Date:	September 29, 2017
GEF Focal Area(s):	International Waters	Project Duration (Months)	60
Integrated Approach Pilot	IAP-Cities ☐ IAP-Commodities ☐ IAP-Food Security ☐	Corporate Program: SGP ☐	
Name of parent program:	UNEP/GEF Volta River Basin Project	Agency Fee ($)	658,934

A. INDICATIVE FOCAL AREA STRATEGY FRAMEWORK AND OTHER PROGRAM STRATEGIES[2]

Objectives/Programs (Focal Areas, Integrated Approach Pilot, Corporate Programs)	**Trust Fund**	**(in $)**	
		GEF Project Financing	**Co-financing**
IW-1 Program 1 (select) (select)	GEFTF	4,182,566	13,380,000
IW-2 Program 3 (select) (select)	GEFTF	2,940,000	8,420,000
Total Project Cost		**7,122,566**	**21,800,000**

B. INDICATIVE 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 Components	**Financing Type[3]**	**Project Outcomes**	**Project Outputs**	**Trust Fund**	**(in $)**	
					GEF Project Financing	**Co-financing**
Component 1. Improvement of knowledge base and development of management tools for informed decision making process	TA	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[4] made available to support the optimization of water use and flows to minimize negative environmental impacts (links to Output 2.1.1)	GEFTF	1,090,000	5,500,000

[1] Project ID number will be assigned by GEFSEC and to be entered by Agency in subsequent document submissions.
[2] When completing Table A, refer to the excerpts on GEF 6 Results Frameworks for GETF, LDCF and SCCF and CBIT guidelines.
[3] Financing type can be either investment or technical assistance.
[4] 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.

Project Components	Financing Type[5]	Project Outcomes	Project Outputs	Trust Fund	(in $)	
					GEF Project Financing	Co-financing
Component 1. (continued)			Output 1.1.2 Valuation of environmental capital, ecosystem services and functions completed and socio-anthropological impacts in the Volta basin assessed. Output 1.1.3 Shallow ground water aquifers inventorized, water quality assessed and measures for addressing pollution hot-spots are developed.			
Component 2. Strengthening of transboundary planning, regional and in-country coordination and capacity, also during extreme events related to climate change and variability	TA	Outcome 2.1 Transboundary coordination improved through the capacity strengthening, development and installation of modern tools 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 Output 2.1.2 A Regional Programme to fight against invasive species in the Volta Basin is developed and implemented[6].	GEFTF	960,000	3,800,000
	TA	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 2.2.1 Community oriented early-warning system(s) for droughts developed and put into operation[7]. Output 2.2.2 The Volta basin Observatory is capacitated to manage and use the updated water use/balance models through a series of trainings[8] (feeds into Output 2.1.1).	GEFTF	850,000	2,500,000

[5] Financing type can be either investment or technical assistance.

[6] SAP Priority Action B.3 – There are a number of invasive species that have multiplied rapidly to cover extensive ares of the Volta Basin's boundaries (see p. 15)

[7] 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)

[8] SAP Priority Actions B10, C1, C4.

Project Components	Financing Type[9]	Project Outcomes	Project Outputs	Trust Fund	(in $)	
					GEF Project Financing	Co-financing
Component 3. Strengthening of resilience of ecosystems for sustainable livelihoods in the Volta basin.	Inv	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. Output 3.1.2 Sustainable fisheries management practices implemented to improve productivity, food security and incomes.	GEFTF	3,200,000	8,400,000
Component 4. Knowledge management and sharing, and effective M&E	TA	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.	GEFTF	450,000	420,000
		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. A Project communication strategy is developed and implemented.	GEFTF	233,396	141,905
			Subtotal		6,783,396	20,761,905
			Project Management Cost (PMC)[10]	GEFTF	339,170	1,038,095
			Total Project Cost		**7,122,566**	**21,800,000**

For multi-trust fund projects, provide the total amount of PMC in Table B, and indicate the split of PMC among the different trust funds here: ( )

[9] Financing type can be either investment or technical assistance.

[10] For GEF Project Financing up to $2 million, PMC could be up to10% of the subtotal; above $2 million, PMC could be up to 5% of the subtotal. PMC should be charged proportionately to focal areas based on focal area project financing amount in Table D below.

C. INDICATIVE SOURCES OF CO-FINANCING FOR THE PROJECT BY NAME AND BY TYPE, IF AVAILABLE

Sources of Co-financing	Name of Co-financier	Type of Co-financing	Amount ($)
GEF Agency	IUCN	In-kind	8,000,000
GEF Agency	UNEP	In-kind	3,000,000
Donor Agency	World Bank	In-kind	2,000,000
Donor Agency	DFID - Austria	In-kind	2,600,000
Others	ESA	In-kind	2,000,000
Recipient Government	Governments of 6 countries	In-kind	4,200,000
Total Co-financing			**21,800,000**

D. INDICATIVE TRUST FUND RESOURCES REQUESTED BY AGENCY(IES), COUNTRY(IES), FOCAL AREA AND THE PROGRAMMING OF FUNDS a)

GEF Agency	Trust Fund	Country/ Regional/ Global	Focal Area	Programming of Funds	(in $)		
					GEF Project Financing (a)	Agency Fee (b) b)	Total (c)=a+b
UNEP	GEFTF	Regional	International Waters	(select as applicable)	3,580,500	340,148	3,920,648
IUCN	GEFTF	Regional	International Waters	(select as applicable)	3,542,066	318,786	3,860,852
Total GEF Resources					**7,122,566**	**658,934**	**7,781,500**

a) Refer to the Fee Policy for GEF Partner Agencies.

E. PROJECT PREPARATION GRANT (PPG)[11]

Is Project Preparation Grant requested? Yes ☒ No ☐ If no, skip item E.

PPG AMOUNT REQUESTED BY AGENCY(IES), TRUST FUND, COUNTRY(IES) AND THE PROGRAMMING OF FUNDS

Project Preparation Grant amount requested: **$200,000**				PPG Agency Fee: **$18,500**			
GEF Agency	Trust Fund	Country/ Regional/Global	Focal Area	Programming of Funds	(in $)		
					PPG (a)	Agency Fee[12] (b)	Total c = a + b
UNEP	GEF TF	Regional	International Waters	(select as applicable)	100,000	9,500	109,500
IUCN	GEF TF	Regional	International Waters	(select as applicable)	100,000	9,000	109,000
Total PPG Amount					**200,000**	**18,500**	**218,500**

F. PROJECT'S TARGET CONTRIBUTIONS TO GLOBAL ENVIRONMENTAL BENEFITS[13]

[11] PPG requested amount is determined by the size of the GEF Project Financing (PF) as follows: Up to $50k for PF up to$2m (for MSP); up to $100k for PF up to $3m; $150k for PF up to $6m; $200k for PF up to $10m; and $300k for PF above $10m. On an exceptional basis, PPG amount may differ upon detailed discussion and justification with the GEFSEC.

[12] PPG fee percentage follows the percentage of the Agency fee over the GEF Project Financing amount requested.

[13] Provide those indicator values in this table to the extent applicable to your proposed project. Progress in programming against these targets for the projects per the *Corporate Results Framework* in the *GEF-6 Programming Directions*, will be aggregated and reported during mid-

Provide the expected project targets as appropriate.

Corporate Results	Replenishment Targets	Project Targets
1. Maintain globally significant biodiversity and the ecosystem goods and services that it provides to society	Improved management of landscapes and seascapes covering 300 million hectares	*50,000 Hectares*[14]
2. Sustainable land management in production systems (agriculture, rangelands, and forest landscapes)	120 million hectares under sustainable land management	*10,000 Hectares*[14]
3. Promotion of collective management of transboundary water systems and implementation of the full range of policy, legal, and institutional reforms and investments contributing to sustainable use and maintenance of ecosystem services	Water-food-ecosystems security and conjunctive management of surface and groundwater in at least 10 freshwater basins;	*1 (entire Volta River Basin, including its sub-basins) Number of freshwater basins*
	20% of globally over-exploited fisheries (by volume) moved to more sustainable levels	*%*
4. Support to transformational shifts towards a low-emission and resilient development path	750 million tons of CO_{2e} mitigated (include both direct and indirect)	*metric tons*
5. Increase in phase-out, disposal and reduction of releases of POPs, ODS, mercury and other chemicals of global concern	Disposal of 80,000 tons of POPs (PCB, obsolete pesticides)	*metric tons*
	Reduction of 1000 tons of Mercury	*metric tons*
	Phase-out of 303.44 tons of ODP (HCFC)	*ODP tons*
6. Enhance capacity of countries to implement MEAs (multilateral environmental agreements) and mainstream into national and sub-national policy, planning financial and legal frameworks	Development and sectoral planning frameworks integrate measurable targets drawn from the MEAs in at least 10 countries	*Number of Countries:*
	Functional environmental information systems are established to support decision-making in at least 10 countries	*Number of Countries:*

PART II: PROJECT JUSTIFICATION

1. *Project Description.* Briefly describe: 1) the global environmental and/or adaptation problems, root causes and barriers that need to be addressed; 2) the baseline scenario or any associated baseline projects, 3) the proposed alternative scenario, GEF focal area[15] strategies, with a brief description of expected outcomes and components of the project, 4) incremental/additional cost reasoning and expected contributions from the baseline, the GEFTF, LDCF, SCCF, CBIT and co-financing; 5) global environmental benefits (GEFTF) and/or adaptation benefits (LDCF/SCCF); and 6) innovation, sustainability and potential for scaling up.

1) The Global Environmental Problems, Root Causes and Barriers That Need to Be Addressed

The Volta Basin (400,000 km^2) is one of the major West African river basin that drains into the Gulf of Guinea (Figure 1[16]). Its resources are shared by six countries: Benin, Burkina Faso, Côte d'Ivoire, Ghana, Mali, and Togo, of which Burkina Faso and Ghana have the major part.

Figure 1 The Volta River Basin

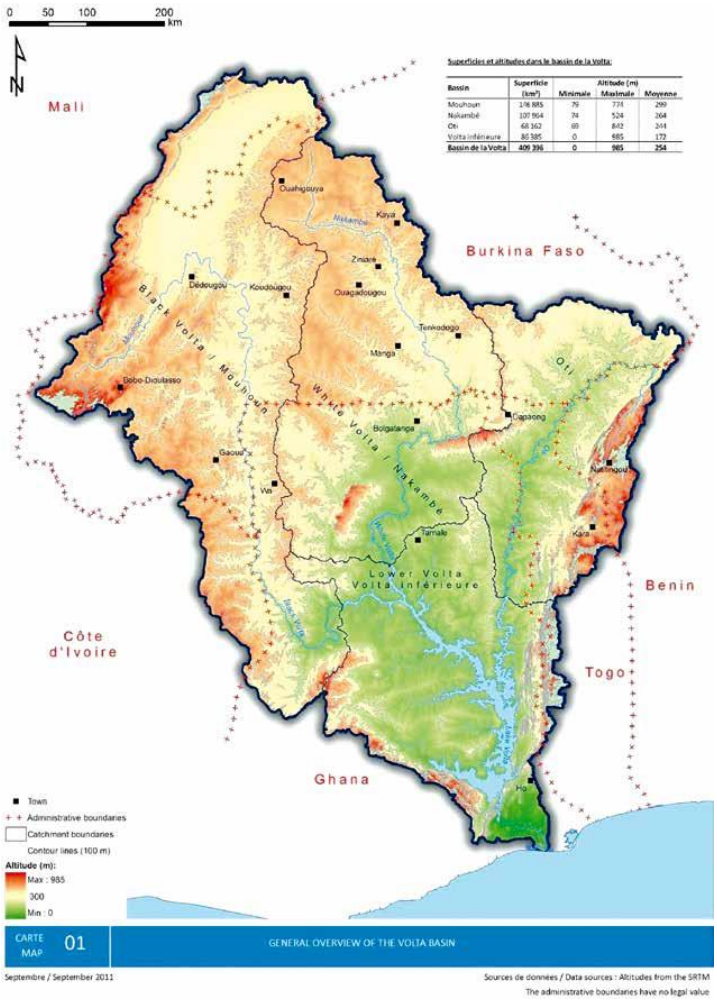
The Volta Basin contains a rich set of ecosystems, many of them globally significant. These diverse

term and at the conclusion of the replenishment period. There is no need to complete this table for climate adaptation projects financed solely through LDCF, SCCF or CBIT.

[14] # of ha were estimated using the figures provided by the Volta Basin Authority, Volta TDA, and SAP and applying a budget ratio with account of the budget allocation in this project. These estimates could be updated during PPG.

[15] For biodiversity projects, in addition to explaining the project's consistency with the biodiversity focal area strategy, objectives and programs, please also describe which Aichi Target(s) the project will directly contribute to achieving.

[16] Re-printed from UNEP-GEF Volta Project, 2013. Volta Basin Transboundary Diagnostic Analysis. UNEP/GEF/Volta/RR 4/2013, p.3.



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. 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.

All sectors depend on the natural resources of the region, and all 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, 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)[17], with a subsequent Strategic Action Programme (SAP)[18] 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).

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, 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, 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.

2) <u>Baseline scenario or any associated baseline projects</u>

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

- Existing inadequate political structures, institutional, legal and regulatory frameworks will hamper the ability of riparian countries to implement IWRM at sub-basin level;
- Inadequate support of riparian countries to the VBA in view of the effectiveness of its role;
- 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;

[17] UNEP-GEF Volta Project, 2013. Volta Basin Transboundary Diagnostic Analysis. UNEP/GEF/Volta/RR, 4/2013.
[18] UNEP-GEF Volta Project, 2014. Volta Basin Strategic Action Programme UNEP/GEF/Volta/RR, 1/2014.

- Increased pressures on natural resources for various purposes (agriculture, livestock, fisheries, etc.) due to low and unsustainable productivity of the natural ecosystems;
- Weak involvement of local stakeholders and communities in the sustainable management of basin's resources

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.

Some other major recent, ongoing and planned initiatives, which the project will build on and coopdinate with include the following (see Table 1):

• Improvement of Water Supply in the Volta and Eastern Regions, Ghana (completed), also known as the Eastern and Volta Region Assistance Program (EVORAP), in Ghana. The programme was a cooperation initiative in conjunction with the Kreditanstalt für Wiederaufbau (KfW). The technical cooperation component was overseen largely by RODECO Consulting GmbH, commissioned by GTZ. This project was concentrating on the continual supply of safe drinking water to the populations of selected small towns in the Volta and Eastern regions, in accordance with their requirements.

• Water Supply Project (WSP) from the Ghana Infrastructural Fund to complete Water Supply Project that will provide potable water to five districts in the Volta Region, being started. The beneficiary Districts, according to him, include the Adaklu Anyigbe, North Tongu, Central Tongu, Ho East and Ho West. The project is estimated to serve a total population of 150,000 inhabitants by the year 2030 in 397 communities when completed.

• 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 expected 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) will support: 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

• 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.

Table 1 Selected Major Interventions in the Volta Basin and Their Relevance To SAP

Projects (donors)	Coun-tries	SAP Priority Actions																																
		A							B									C				D													
		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
EVORAP	Ghana																			■														
WSP	Ghana	■																		■														
BFP Volta	All				■							■	■			■																		
VSIP (CIWA/GEF)	All		■	■								■			■								■		■	■								
GLOWA	All					■																												
UNEP-GEF Volta	All																						■	■	■	■								
PAGE (Asdi)	All																						■			■				■		■		
WISE-UP (BMU)	All	■						■								■										■							■	
Flood & Drought (GEF)	All	■				■	■	■																		■						■		
WACDEP (DFID-Austria)	All	■														■										■			■		■			
OTI Hazard Assessment (WB)	All						■																											
TIGER-NET (ESA)	All																															■		
WASCAL	All	■											■	■																				
Sustainable Use of Water and Fish	BF																			■	■													

• 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) supports 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 Agency (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 is being implemented from 2014 - 2018, and three pilot basins (Volta, Lake Victoria and Chao Phraya) have been identified for development and testing of the Decision Support 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 is being 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 is being 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).

• UICN-Burkina Faso: Sustainable Management of Water and Fish Resources in Burkina Faso, 2016-2018, € 218 207 (eq.) Main actions include scientific knowledge generation and capacities development on water and fishery resources endowment and diversity, value chains, governance and management in the Volta, Niger and Comoe basins.

A more comprehensive analysis of interventions will be carried out at PPG phase to identify possible new projects, which were not started or not being developed during the current analysis to update the list of key project partners and stakeholders.

3) <u>The proposed alternative scenario, with a brief description of expected outcomes and components of the project</u>

This initiative, jointly prepared by UNEP and IUCN, will be leading a process of supporting 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. This process will be gathering the main stakeholders and partners (donors, IFIs private sector, and civil society in the Basin around the implementation of the

SAP with particular emphasis on building a sustainable financing platform for the basin's SAP). 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 floods and 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 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.

The Project includes a wide range of specific technical activities with large geographic scope, a detailed presentation of activities could not be developed at the PIF stage. On contrary, the scales of the Projects pose certain challenge to provide exclusive specifics at the project design phase. It is planned, therefore, wherever possible during PPG phase, or in early Inception Phase, to implement a series of baseline assessments and/or more detailed elaboration of planned activities from both technical design point of view and geographic focus. It is planned to undertake this work in a participatory manner with engagement of key stakeholder groups. Such an approach is considered critical for a success of the Project and sustainability of outcomes and impacts.

For activities to be conducted at country level, the National Executing Agencies, notably: the VBA National Focal Structure (NFS), will be closely involved into the project design already at PPG phase. However, capacities of these but also other relevant national bodies (both public and private) will be assessed during the PPG phase or early Inception phase to develop a capacity baseline to be used for the design of a Capacity Development Programme (CDP) under the Project. A special Capacity Assessment Score Card will be designed and the future capacity assessment results will help to develop a targeted CDP. The identification process will include screening potential organizations against competencies and their experiences to work in selected sub-basins. The selected national executing agencies will report directly to the National Focal Structure (NFS), which is the national coordination

body for activities within the national portion of the Volta basin. It is, therefore, expected that service contracts will be singed between the NFS and the VBA for the implementation of the activities at the national level, while VBA will implement the regional level activities.

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 proposed actions are categorized into the following 4 components to address the proposed project objective above:

- 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 work closely with 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 1) 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 basin's resources.

Specific attention will be given to the coordinated and sustainable financing of the SAP implementation with emphasis on the creation of synergies and building on the existing best practices avoiding duplication of efforts and resources.

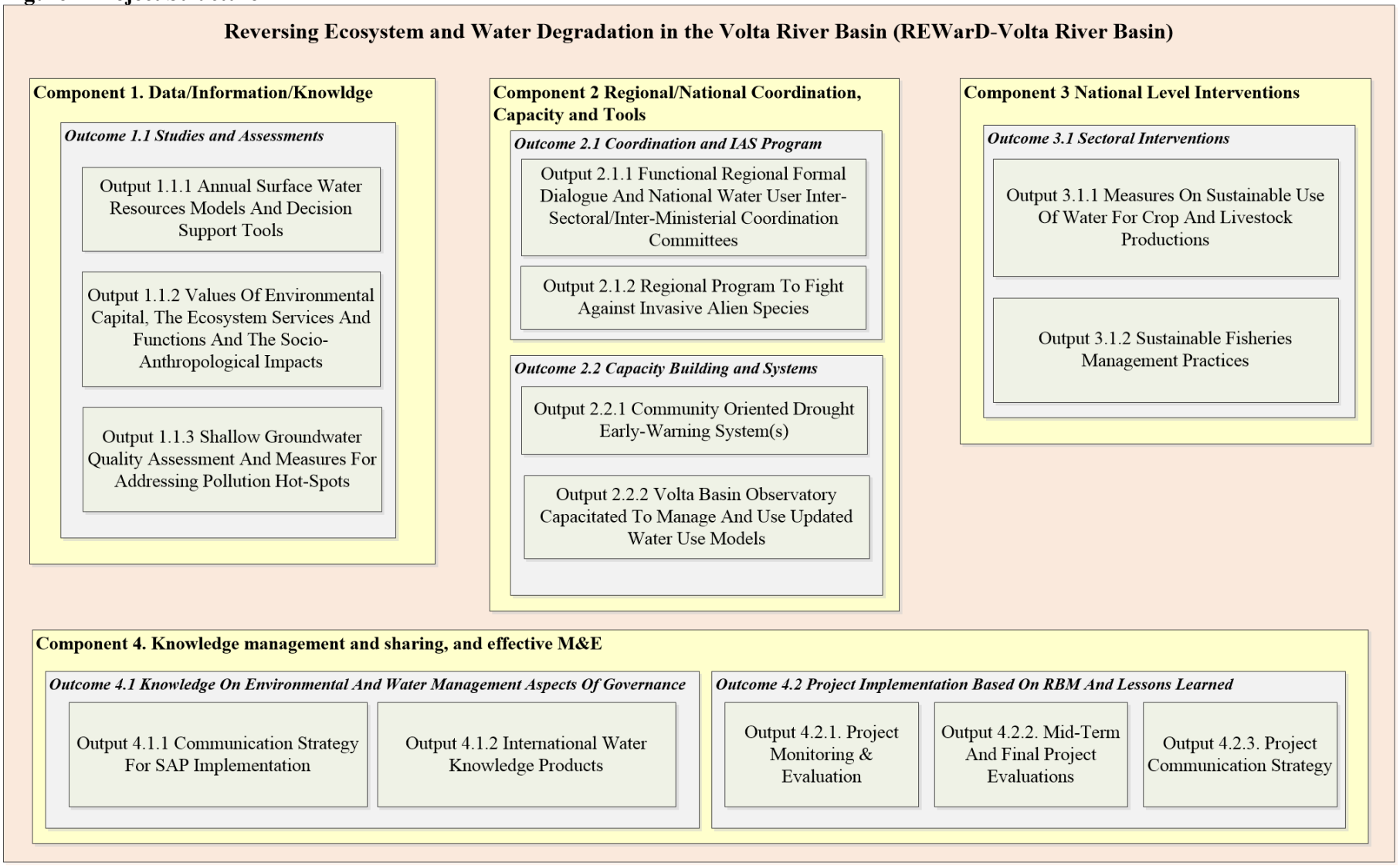
Component 1. Improvement of Knowledge Base and Development of Management Tools for Informed Decision Making Process

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 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 has shown that:

- The currently 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 a clear 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 new creation and, therefore, needs strengthening of its capacities and 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.

Figure 2 Project Structure



Component 1 provides a knowledge and informational basis for the implementation of the majority of activities within the Project. Component 1 will deliver within three key outputs:

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

Importance of the application of a water resource modeling in the Volta Basin has been recognised in the SAP in its Priority Action A.5[19]. This is equally relevant to both international players, such as UNEP-GEF Flood and Drought Management Tools Project, and national institutions in the region. For instance, the Government of Ghana (CSIR under MESTI) are actively involved in this work and very likely to support this initiative. Involvement of local institutions and governments into this work will positively contribute to the capacity strengthening in the region, and also capacitate future upscaling and sustainability.

The main focus within this Output will be, as already mentioned above, to develop a Decision Support Tool or a knowledge base for the informed decision making process within the Volta basin. This includes the following steps:

- Improved knowledge base through integration of Earth Observations, establishment of an online data platform and integration into the existing Volta Basin Information Sharing System
- Update and operationalize the existing water resource models for the entire basin. The water use models aim at supporting regional and national organizations in decisions related to water uses, water rights, development and implementation of new investments, impacts related to climate change, etc.

The model will be based on the improved knowledge base and will be a central tool supporting the informed decision making process. It is imperative that all key water uses, e.g. hydro-power, domestic and rural water supply, agriculture (including livestock and crop production, fisheries, etc.), etc., are included in this work. The decision making process will utilize the water use models through an indicators based approach using the water distribution (including distribution of benefits) model and external information. The GEF funded Floods and Droughts management tool will be a central project as the linkage between data, indicators, models and decision process are already established and supported by developed tools within this project.

The required information for the informed decision-making process will be integrated into the existing Volta Basin Information Sharing System (VB-ISS), and will adopt the existing and known database format. The required information is to a large extent already available in the national organizations, but further efforts needs to be made in order to collect and process these.

The modalities for strengthening the knowledge base and for supporting national institutions, as mentioned in the previous paragraph, will be established through the update, finalization and implementation of (VB-ISS), which was initiated during the previous phase of the UNEP-GEF Volta Project. The goal of the VB-ISS is to improve the coordination and participation of the basin riparian countries in the management of their environmental and water resources. In view of the development of the VB-ISS, the project will, first of all, initiate an update or an inventory and analysis of the existing national/regional data and information about water resources availability, current and future water uses and demands and hydraulic regime of the Volta River, existing and planned hydro-constructions and irrigation infrastructure. This inventory will also include an institutional analysis and identification of training gaps, the establishment of a mechanism for the circulation of data and information at national and regional levels to ensure that the Volta Basin Observatory (VBA/VBO) is in full capacity to operate in a sustainable manner and duly maintaining the developed database and modeling tools.

The proposed architecture of the VB-ISS is the following:

- Rely on the hydrological database available at VBA/VBO (gathering hydrological data of the key gauging stations up to 2008) and update it with available hydrological data in the national hydrological services;
- Develop a simple Abstraction and Water Uses database, gathering data and projections about sectoral water uses in the basin;

[19] UNEP-GEF Volta Project, 2014. Volta Basin Strategic Action Programme UNEP/GEF/Volta/RR, 1/2014, p. 56.

- Develop a simple Hydraulic Infrastructure database, gathering key data (dam design, operation rules, etc.) on existing and planned infrastructure in the basin;
- Update, refine and operationalize the existing surface-water models for integrated and sustainable water use in the Volta River Basin. The existing surface water use models (WEAP 2008, WEAP 2012 and MIKE HYDRO BASIN) are not functional and not used at the VBA/VBO. They need to be improved to support the optimization of infrastructure operation for e-flows provision and the investigation of climate variability and climate change impacts.

Based on the improvement of the knowledge base and modeling tools, this Output will provide means to identify priority investments for a greater water availability, increased water security and climate resilience and effective coordinated management of the Volta basin surface and groundwater resources and related ecosystems. The identification and planning of future investments will be supported by the established linkage between online data and information, water resource use models, indicator identification and calculation and implemented decision methods supported by MCA and CBA. The Project will also support the overall identification of hotspots for future investments and the impact assessments of these investments taking future conditions as climate change and population pressure into account.

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 greatly scarce and continue to degrade, limited by economic activities. 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. The economic valuation of natural capital and ecosystem services is, therefore, an attempt to assign quantitative and monetary values to the goods and services provided by these natural ecosystems. Effective planning of their use and management is hindered by the lack of robust and quality-assured data and information on socio-economic characteristics and values of key resources. 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 economic values of environmental capital and ecosystem functioning for an effective decision-making, resource development and management. It is believed that results of this economic valuation exercise will inform the process of operational and long-term planning at regional, but also at national level. One of the key application 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 involvement of country teams on activities on economic valuation is insufficient, and additional efforts will be required to strengthen the current capacity in the countries.

A socio-anthropological study on the relationships between water uses, the environment and water resources, and their impacts on each other will be carried out. Valuation and accounting of ecosystem services in the Volta river basin will be conducted, based on:

(i) mapping and assessment of the state of ecosystems, their services and related socio-anthropological impacts in the basin,
(ii) assessment of their economic value, and
(iii) 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).
(iv) 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.

It should be also emphasized that the Project intends to go beyond a "proof-of-the-concept" or demonstrations only. The current interest and investments in the Volta basin over the years have clearly indicated the need to move from

developing 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 in the Project on the implementation of and improving the existing approaches, rather than developing new ones.

Output 1.1.3. Shallow Groundwater Quality Assessment and Measures (SAP Priority Action C.3)

Shallow groundwater quality remains largely unknown and uninvestigated in the Volta basin. According to the Volta Basin TDA, the quality of groundwater is generally good, although there are localized concerns[20]. For some areas, anthropogenic contamination, notably by nitrates from fertilizer use or from inadequate sanitation facilities, is typical. Heavy metals also naturally occur in some parts of the basin. An inventory of transboundary hydrogeological aquifers in the Volta Basin produced the data included in TDA, shows that some of the aquifers were virtually unknown and information on the others was scanty leading to some inconsistencies in data and information. In spite of this, it can be inferred that all six countries of the Volta Basin share at least one groundwater aquifer with another country. Benin shares three aquifers. The Tano and Volta, are shared solely by Ghana and Cote d'Ivoire, whilst four other aquifers are shared with countries beyond the Volta Basin[15].

Crop production has traditionally been rainfall and/or with low-profile irrigation using buckets and watering cans to draw water from hand-dug wells that tap the shallow groundwater aquifers formed in the sand. With the low-profile irrigation system, annual precipitation has balanced water abstraction thus maintaining the fragile equilibrium at the fresh-saline water interface. Consequently, fresh water has been available for sustainable domestic water supply and agricultural production. With the recent decline in aquaculture, attention has been shifting to more-intensive crop production. Large-scale groundwater withdrawal from the shallow aquifers through mechanized wells, without adequate recharge of these aquifers, is reported to be disturbing the natural re-charge dynamics and (in the coastal zones) the fragile fresh water-saline water interface. The latter causes the degradation of the fresh groundwater by ingress of lagoon water and the sea or by the upcoming of saline water from below[21]. The scarcity of ground water resources for domestic use (which accounts, for instance, for about 60% of household water demand in Burkina Faso[22]) in general, and degraded water quality (both nutrient pollution and salinization of ground waters) would eventually lead to the failure of crop production in the basin.

An inventory of existing waterholes and pollution sources affecting shallow ground water sources in a number of hot-spots will be carried out at the start of the project to collect the most recent information and data on the availability and state of ground water resources. A limited number of water quality tests is also to be performed with required Quality Assurance and Quality Control (QA/QC). Involvement guidance of the local laboratories is also seen instrumental to understand and, if required, build the required capacity in the region.

Estimation of the groundwater recharge, being extremely important for the groundwater management in the Volta basin, will also be carried out for selected aquifers of higher importance from socio-economic and environmental point of view. The final selection of the sites will be made at later stages with involvement of key international and regional expertise available.

As a result of this exercise, a set of measures addressing pollution from both water quantity and quality points of view (e.g. recharge, impacts of wastewater discharge and nutrient run off, saline-fresh water balance, etc.) will be prepared and recommended for the implementation in close cooperation with VBA and relevant counterparts in the countries. These recommendations, amongst others issues, will address safeguarding shallow freshwater aquifers in the coastal zones (Ghana and Togo) from salinization by the development and/or application of the existing adequate agronomic practices.

[20] UNEP-GEF Volta Project, 2013. Volta Basin Transboundary Diagnostic Analysis. UNEP/GEF/Volta/RR 4/2013, p. 27.
[21] UNEP-GEF Volta Project, 2014. Volta Basin Strategic Action Programme UNEP/GEF/Volta/RR, 1/2014, p. 86.
[22] UNEP-GEF Volta Project, 2013. Volta Basin Transboundary Diagnostic Analysis. UNEP/GEF/Volta/RR 4/2013, p. 29.

The Project will establish close links with another GEF-funded intervention to be implemented by the World Bank in Chad, Mali, and Niger[23], particularly its Component 1 (Assessment of groundwater resources at national and transboundary levels). Synergy of the two projects will be assured by coordinated efforts in applying compatible assessment methodologies, establishment of solid collaboration and knowledge/information exchange links (Component 3), as well as regular communications links established regionally. With account of the fact that the most focus of this Project will be put on coastal aquifers, individual activities under these two projects are complimentary to each other.

Within the Project, it will be also critical to establish close links with Output 2.2.1 (Drought Early Warning System) to include shallow ground water sources in the calculations, especially in drought-prone areas.

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[24], 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 the need for a closer and more coordinated approach to managing the basin's resources. The affiliation or involvement of the riparian countries to a number of regional organizations and/or international agreements relating to the protection of the environment within the Volta Basin has induced, progressively, all the six countries to recognize the need for a call to strengthen regional collaboration. It is important that the proposed project links with all key regional cooperation platforms (e.g. EU African Water Facility, etc.) to complement the ongoing interventions with effective support from the project.

However, a number of SAP Priority Actions identified as critical pre-requisites for a successful transboundary cooperation, have still not been finalized. According to VBA[25], there is a need to address key missing tools for successful cooperation in the proposed project. Component 2 addresses this request within four outputs.

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.

Modeling 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 advices are politically and technically discussed within the countries with all and water use(r)s and duly inform the regional decision-making process and discussed at the basin level. The basin-level discussions are facilitated, according to its mandade, by VBA. 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 effective formal dialogue at all stages of water resource management, from, for instance, monitoring to water allocation and dam operation[26].

The process of the development of an operational tool for water resource management, and also communicating results of and discussing modeling exercise under Outputs 1.1.1 (page 15), specific inter-sectoral/inter-ministerial cooperation mechanisms or/and platforms will be developed with support from the Project. An effective decision-

[23] PMIS 9886, World Bank, Project "Economic Growth and Water security in the Sahel through Improved Groundwater Governance", Under development

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

[25] Personal communications with VBA leadership during a workshop held in Ouagadougou, Burkina Faso, in Feb 2017.

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

making mechanism is to be based on results on participatory process of inclusive consultations with key governmental and non-governmental water use(r)s in the basin, particularly in a transboundary context. Inter-dependence of hydraulic regimes and conflicting demands for water resources are to be optimized through an iterative participatory planning and development process.

Currently, the GEF WB Volta Basin Project is addressing some of the issues related to the establishment of a regional consultative dialogue (Component 2[27]). Inputs and lessons learned from the WB-implemented project will be assured for an effective design of activities under this Output.

The coordination committees of water users, which will be established under this Output, will ensure representativeness of all categories of users in the management of the shared resources at national and regional level. They will work closely with the national directorates in charge of water resources and the VBA to promote the implementation of the integrated management of water resources at all levels of the basin. This link which is still lacking in the Volta basin, but is already experienced in the Niger. Niger basin experiences will be used as an example to facilitate the establishment and operation of these water users' coordination committees.

Individual activities will be designed during PPG phase and will be initiated based on results of an institutional assessment and stakeholder analysis in PPG or early Inception phase, as the key regional players have to be engaged at the onset of the Project Work Plan development for better ownership and buy-in.

Output 2.1.2. A Regional Program to Fight Against Invasive Species in the Volta Basin (SAP Priority Action B.3)

A constantly increasing number and uncontrolled growth of populations of alien species, particularly aquatic weeds, is becoming a limiting factor in sustaining ecosystems of the Volta Basin. This has been of a particular concern on some of the tributaries, especially in the Volta Lake, the Oti River, the Pendjari River and the Lower Volta[28]. Although exact figures are not available, thousands of hectares of ponds, rivers and lakes are infested by the invasive species in the Volta Basin.

The most common IAS found in the basin are harmful aquatic weeds and floating plants, especially mimosa pigra, water hyacinth (*Eichornia crassipes), salvinia molesta (previously named Salvinia auriculata*), *Pistia stratiotes*[29].

IAS are difficult to control in all freshwater aquatic environments. Early detection and rapid response offer the greatest likelihood of successful control and the opportunity for eradication. It is essential that any new infestations are controlled as soon as possible. If allowed to become established, the seed bank rapidly expands, increasing costs and massively increasing the duration of the control program. Physical, chemical and biological are often used, in combination or alone as management methods. For example:

- Biological agents that have been used successfully to control water hyacinth in Ghana are the *Neochetina eichhorniae* and *Neochetina bruchi*.
- the *Neohydronomous affinis weevils* imported from South Africa is used to for controlling the *Pistia stratiotes*.

Alien invasive species migrate between the countries and continents with no respect for political boundaries, this is why, a regional approach and close transboundary cooperation is a key to success. The proposed Project will contribute to controlling the spread of some of alien species to restore the water resources and biodiversity of these ecosystems while combatting some vectors of waterborne diseases such as malaria. It will be done through the development of a Regional Program to Fight Against Invasive Species, as identified in SAP as one of the Priority Actions (B.3). Some of the indicative activities, as outlined in the SAP, will include the following:

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

[28] UNEP-GEF Volta Project, 2013. Volta Basin Transboundary Diagnostic Analysis. UNEP/GEF/Volta/RR 4/2013, p. 96.

[29] Five aquatic weeds are especially problematic in West Africa: water hyacinth, *Eichhornia crassipes* (Mart), Solms-Laubach (*Pontederiaceae*); red water fern, *Azolla filiculoides Lam*. (*Azollaceae*); parrots feather, *Myriophyllum aquaticum* (Vell.) Verdc. (*Haloragaceae*); water lettuce, *Pistia stratiotes L.* (*Araceae*) and *Salvinia, Salvinia molesta*, Mitchell (*Salviniaceae*) (Cilliers et al., 2003).

- Develop an emergency plan for areas affected by invasive aquatic plants
- Strengthen the enabling policy and regulatory environment for prevention and control of invasive aquatic plants (e.g., enforcement of waste discharge standards and harmonization of rules and regulations)
- Implement programmes on the prevention and control of alien invasive aquatic plants (including those related to municipal, agricultural and industrial effluent treatment, biological and mechanical control, and research and income generation opportunities)
- Facilitate the exchange of essential information among key stakeholders on the management of invasive aquatic plants
- Build capacity at all levels for sustainable management of invasive aquatic plants
- Develop GIS maps of current and predicted invasive plant coverage along with early warning systems.

The approach of biological control to fight against IAS is to use their own enemies against them. The results from a successful biological control agent last longer than most management techniques and it reduces the need for, or amount of, chemical, mechanical, and physical controls. However, it has to be chosen and managed carefully to avoid any risk of spreading, these control agents (insects, fish or pathogen).

Invasions of alien species registered in the Volta Basin have had negative impacts on biodiversity, agriculture and human development. This is why, one of the Priority Actions in the SAP includes the development of a Regional Programme to combat aquatic species, particularly, plants in the waterbodies of the basin. In order to minimize the risk of further introduction of invasive alien species in the Volta Basin, it is paramount not only to identify these but also develop and establish a number of strict specified conditions. The stipulated procedures need to ensure that enough information on invasive species is available to evaluate the risk of potential invasions. For instance, quarantine restrictions could be developed to be based on risk analysis and existing scientific knowledge on the distribution, biology and the species themselves. Suitable regulations could also be developed and enforced to facilitate the import and export of biomaterials through the issuance of import permits and biological-sanitary certificates. For the Project, it is important to assess the risks and closely manage them through an adequate risk mitigation strategy to be developed within this output.

There has been a number of project addressing control of alien species implemented in Volta Basin countries, for instance, in Ghana, however, an integrated coordinated effort is still required to address this issue at the basin scale. An inventory of national activities in the countries, as well as internationally-funded projects, will be carried out in PPG phase. Assessment of their impacts and lessons learned will also be undertaken.

Also, during PPG phase special measures will be developed, e.g. due diligence, with regard to risks of stocking/restocking efforts not to introduce additional invasive species into aquatic ecosystems of the Volta Basin.

At the PIF stage, the following risks have been identified (to be added in the Project's risk log)[30]:
(1) Direct and indirect effects on non-targets;
(2) Dispersal of a bio-control agent to a new area, either autonomously or with deliberate or inadvertent human assistance, and
(3) Changed relationships between a control agent and a native species, particularly as generated by global climate change.

The final selection of the activities will be made at PPG stage through a participatory and consultative process.

Output 2.2.1. Community Oriented Early Warning System(s) for Droughts and Floods (SAP Priority Action A.6)

Forecasts are needed to develop climate change measures to respond to extreme events, such as floods, droughts, and pollution of water bodies, and to make plans for disaster risk reduction and management. Establishing national

[30] BioControl (2012) 57:263–276, Daniel Simberloff, 2012- Risks of biological control for conservation purposes.

climate change forecasts is also necessary for making projections of water availability and for planning of water resource management and use of water resources, including hydro-power generation. Effective mitigation of risks associated with climate change require the operation of a well-coordinated early warning system(s).

Floods and drought are different hazards affecting multiple sectors but the socio-economic and both hazards will have severe impacts on a number of vital sectors within the Volta basin, and future investments within the Volta basin will have to deal with both aspects. However, the main focus of the EWS in this Outputs will be put droughts, with only elements of a flood EWS, as a bi-product. It should be mentioned though that, for instance, reservoirs will have to be in future optimized towards both types of hazards.

Community oriented Early-Warning Systems for droughts (DEWS) will be developed and disseminated within this project. The early warning systems aim to mitigate droughts, floods and inundations impacts (including, probable scenarios, impacts mitigation measures, disaster preparedness and management plans). They will be based on findings of research activities and community platforms to communicate early warning information, and improve indigenous knowledge on climate forecasts established to reduce vulnerability. Information products (hydrological bulletin, previsions for agricultural purposes) will be designed using the outputs of the early-warning systems currently under development and disseminated on a regular basis among local communities. This will enable local communities, including farmers, herdsmen, and fishermen, to adapt their activities to the forecasts at short and medium terms.

This output will build on the currently available knowledge and tools available in the region. A special mention needs to be made about a UNEP-GEF Flood and Drought Management Tools[31] Project, which is developing a set of online tools for supporting management decisions on water resources. The Volta Basin is one of the pilot basins of this project. Despite the fact, that the development of an early warning systems is beyond the scope of the project, the platform, knowledge, and tools could support the development and installation of such an early warning system.

There is a number of specific questions to be addressed during the design of the early warning system(s):

- Specificities of livelihoods of population concerned, e.g. farmers, herders, fishermen, mining industry, tourism industry, etc., since related risks are different
- Who get access to early warning system will need to be assessed. Whether to focus on remote areas, women, uneducated, ethnic groups with different languages, etc.
- How information could be shared and accessed, which media and exchange protocols are best
- How the population is mapped, particularly those without proper land titles

Clear understanding of the approach to the risks identified above, as well as other risks to be identified at the start of this activity, could guide the process of selection of the most vulnerable population and maximize project impacts.

Community-oriented Drought Early Warning Systems will be based on a number of existing efforts, such as:

i) Flood forecasting White Volta (World Bank, 2013),
ii) Community Resilience through Early Warning (UNDP, 2012),
iii) Flood and Drought Management Tools (UNEP, 2014), and
iv) Improving resiliency of crops to drought through strengthened early warning within Ghana (CTCN, 2016).

Technical outcomes, as well as the existing network of national agencies and organizations will be used, whenever possible. Currently, there is currently a good opportunity for utilizing and replicating existing efforts from the pilot countries to the entire Volta basin. The key national agencies will be the national disaster management organizations (e.g. NADMO in Ghana and Conasur in Burkina Faso) and the ministries of food and agriculture in the specific countries.

[31] 'UNEP-GEF Development of Tools to Incorporate Impacts of Climatic Variability and Change, in Particular Floods and Droughts, into Basin Planning Processes'

The Drought Early Warning System will link closely to the established outputs from Component 1 as the generated knowledge base will provide means of identifying current and upcoming flood or drought hazards. The established water use models will provide the required input in the forms of water deficits and impacts during the dry season (e.g. crop security) and, to a limited extent, early warning of flood events through forecasted river hydrographs at selected locations (N.B. the key focus of the EWS will be droughts, not floods). The identification of areas affected by the past events will be identified as part of the baseline studies and validation of the Drought Early Warning System as this will be used to evaluate the effectiveness of the established system later, i.e. the ability of the system to detect past areas impacted by droughts, floods, and other hazards will be used as a key indicator to evaluate and accept the future established system. Information regarding past areas affected by floods and droughts is available at national level, and will be also collected as part of Component 1.

The dissemination of the technical outputs to local and regional organizations will be supported through community-based approaches embedded into and supporting the existing linkage between the regional, national, and local level organizations. There will be a strong focus on supporting the existing dissemination methods and channels from the national to local levels. Development of effective modern web-based services or apps supporting the dissemination should be considered. More details on the technical outlook of this task will be done in PPG and Inception phases of the Project.
Currently, WMO is developing a similar project to be funded by Adaptation Fund on the development of a Floods and Droughts Early Warning System. The budget of that project is approximately USD 9M. It will be important to establish closest links at operational and also technical level to ensure complimentarity and synegy of these systems.

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

Expected outcomes of this output relate to information services provided by the Volta Basin Observatory and the member States to support effective decision making and sustainable basin planning for timely responses to climate risks and environmental threats at overall basin level.

This covers the knowledge and monitoring of the various aspects of the basin's natural resources and include:
(i) the development of the basin models that make projections of climate change impacts and water resources management and use
(ii) the reinforcement of the capacities of the national/regional institutions and stakeholders, especially to better protect, manage, monitor and allocate Volta Basin land, water, climate and biodiversity and operationalizing the Volta Basin Observatory, and
(iii) awareness raising & information sharing and dissemination (Output 4.1.2).

It is universally acknowledged that climate change is one of the major drivers of the global change that would have a drastic effect on sustainable development. For the Volta basin, it is recommended to address adaptation/resilience concerns: better knowledge of the situation, anticipate adequate responses to changing conditions. A review and update of current knowledge on the state of climate change, including characterization, environmental impacts and socioeconomic consequences will be carried. Support will be provided to the Volta Basin Observatory and research centers to develop/calibrate and test models, that allows projections of climate change and impacts on hydrological regimes and produce a map of vulnerable areas (mainly those at risk of flooding and drought).

The proposed project will complement other interventions in the region to reinforce the functional capacities of the Volta Basin Observatory on different aspects: capacity-building; installing technical tool (software, models, etc.); developing procedures for data collection, processing and publication; and reinforcing, where possible, equipment and technical instruments. The final selection of activities will be coordinated with VBA, other partners, both international and in-country institutions, during PPG phase.

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 for relating to IWRM (6.5.1), water quality monitoring (6.3.2) and the protection and restoration of water-related ecosystems (6.6.1) is highly

relevant here. The data being gathered for the SDGs 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

Despite its importance, the water resources and associated ecosystems in the majority of basins are increasingly threatened by escalating pressures from fast-growing populations and urbanization process, as well as expanding agricultural and industrial activities in a limited number of suitable geographical areas. This is particularly true since the 1970s as the general climate context face chronic variability and deficits in rainfall and scarcity of surface water resources. In the push for an accelerated economic growth, many basin-scale and national water and environment policies show clear limitations in their ability to promote equitable and sustainable use of resources. The Volta basin is not an exception and this calls for an urgent intervention directed at conserving and restoring degraded ecosystems on the one hand, and strengthening the resilience of such ecosystems, as well as vulnerable population, mostly communities at the local level, dependent on these ecosystems and services they provide, on the other. As a number of current interventions in the Volta Basin directly address the issues of nature-based measures (river bank protection, forest gallery restoration, etc.), e.g. WB-implemented GEF SAP Implementation project, Component 3 of this Project addresses the second aspect.

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

One of the two key sectors to be addressed by the Project is crop and livestock production. It is common for the Volta Bain that serious damages are caused to the environment and water resources by uncontrolled transhumance through overgrazing, poor pasture management practices, massive pressure on natural habitats, deterioration of water quality, and destruction of crops. Availability of resources, including water, is becoming a limiting factor for the development of this sector of agriculture. Competition for resources between pastoralists and farmers also pose serious risks of violent conflicts between them. Application of sustainable pasture management practices, e.g. the creation and marking of transhumance corridors along with resting sites, etc., will make it possible to avoid these conflicts and limit the degradation of natural resources.

Interventions within this output will be addressing the current and projected future risks with the key focus on selected drought-prone areas. Measures on sustainable use of water for crop and livestock production will be implemented with account of current and future climte change (and climate variability) to support vital local livelihoods. This will be one of indispensable component of the Drought Early Warning System to be developed in Output 2.2.1. Optimizing and sustaiing transhumance and livestock corridors will contribute to a sustainable management of pasturelands and fodder and to a better management of watering points. These measures shall contribute locally to increase farmer's incomes and food security of the community.

Being a regional governance body, the VBA, according to its mandate, will support, along other, (i) the promotion of the implementation of IWRM and the equitable distribution of the benefits resulting from their various utilization, and (ii) the contribution to poverty alleviation and the sustainable development of the Parties in the Volta basin, for better socio-economic integration in the sub-region. From the above mandates, VBA will work with actors in the livestock sector in member countries and mainstream transhumance in its IWRM implementation program through the developing sustainable management tools of rangelands and the development of water points. This will lead to sustainable use of water by pastoralist communities through the regulation of the transhumance corridors and the reduction of local conflict between crop producers and livestock breeders.

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

Another important sector of high social importance is fisheries, particularly artisanal. Significant part of the local population is dependent on fisheries (including aquaculture) as the main livelihood. Fisheries, including fish farming, is a rapidly growing sector within the Volta Basin. In some areas, notably Lake Volta, fishery resources have already been exploited, while along the Oti River in Togo and Benin, fish stocks are currently an underexploited resource. Fisheries may contribute substantially to poverty reduction and economic development if more systematically developed. Such a situation justifies the need of a regional approach to fisheries development and planning.

Similarly to resources for crop and livestock production sector, fishery resources of the Volta Basin are under excessive pressure through the degradation of habitats, on the one hand, and overuse/over catch of fishery population (overfishing), on the other hand. Direct forecasted impacts are further declining of fish abundance, including the risk of extinction of certain species, and, related to this, further pressure on communities, dependent on fisheries. Resolving this situation is essential for conserving biodiversity and ecosystem functioning as well as maintaining economic productivity (i.e., through the sustainable production of fish).

Food security and local communities' incomes will also be addressed through the promotion of the sustainable fisheries management practices to improve inland fisheries and aquaculture productivity and to reduce their impacts on water quality. This will be done through a number of demonstrational sites, where sustainable fisheries practices will be utilized.

Traditional freshwater fisheries are the most organized in the basin, mainly in Ghana and Burkina Faso, with traditional fishing gear sometimes prohibited. There has been a growing interest on in-land fisheries in the Volta Basin in term of research, regulations and capacity development. Yet, little efforts have been done for coordinating sustainable fisheries development at the basin level.
Building on the countries on-going efforts, this project will support the development of sustainable basin-wide fisheries management, through

(i) characterizing the traditional fishing activities in the basin
(ii) planning capacity building for fishermen
(iii) identifying conservation measures, and
(iv) analyzing the fishery products value chains at different scales.

In terms of aquaculture, in some VBA countries (Burkina Faso and Ghana) it has been looked at as one of the opportunities to improve domestic supply of fish. From the physical planning point of view, the construction of fish ponds is already under control and national technical services are providing advisory support for mastering the technical management of facilities at the community level. This project will capitalize on the countries past and current experiences during the PPG phase and identify gaps to fill in. This could involve strengthening the capacities of young people through specific training to better manage their operations, ensure production and control the marketing of fish products (fish and other aquaculture products).

It will be critically important for a success of this Output to concentrate on and engage with the existing country systems in all Volta basin countries. The key stakeholders in fisheries, both public and private, are to be closely included into a participatory process of consultations, benefit distribution, and effective decision-making.

Both Outputs 3.1.1 and 3.1.2 have strong links with the WB-implemented GEF Volta Project. Preliminary analysis resulted in identification of potential areas for interventions within this Project (Table 2).

Table 2 Linkages with the World Bank/GEF support to Volta Basin SAP implementation

World Bank/GEF		UNEP-IUCN/GEF	
Sub-components	**countries**/sub-basins of interventions	Component 3 outputs	**Suggested countries**/sub-basins of interventions
Sub-Component 3.3. Development of Market Gardens	**Mali.** * Sourou sub-basin in Mali	Output 3.2.1 Measures on sustainable use of water for crop and livestock productions implemented to improve productivity, food security and incomes.	**Burkina, Mali, Togo and Ghana** * Sourou sub-basin in Mali and Burkina Faso * Otti sub-basin in Togo and Ghana

World Bank/GEF		UNEP-IUCN/GEF	
Sub-components	**countries**/sub-basins of interventions	Component 3 outputs	**Suggested countries**/sub-basins of interventions
		Output 3.2.3 Sustainable fisheries management practices implemented to improve productivity, food security and incomes.	**Burkina Faso, Mali and Ghana** * Sourou sub-basin in Burkina and Mali * Nakambe sub-basin in Burkina Faso and Ghana

However, the development of criteria and final selection of targeted interventions/measures will be defined at later stages of project development in close consultations with VBA and relevant national stakeholders.

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

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 assure 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

It is important to create a standardized concept for all external communications in order to promote a positive image of the Volta Basin Authority and national water resource management institutions as the key regional and country-level entities with the mandate of SAP implementation, and supporting the initiatives aiming to deliver positive changes in the countries of the region.

Communication activities are not effective, if they are not strategically planned. This is why, the Project will support VBA to go beyond the general publicity and awareness approach, and to develop a programmatic approach sequencing communications interventions in a strategic manner:

- Identify key stakeholders (stakeholder mapping)
- identify their information and communication needs
- develop key messages considering these needs
- identify best channels of information dissemination for each stakeholder group
- disseminate information and materials to stakeholders through appropriate channels
- follow up and evaluate.

Communication Strategy will be developed at the start of the project and implemented throughout the project life-span. However, 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 rather than the project supporting this process. It is important to assure sustainability of these efforts beyond the project. A series of public awareness campaigns 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 to be conducted during PPG/Inception phase (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

Results from the 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 4.2.4. The project will identify, analyze, 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.

Output 4.2.1. Project Monitoring & Evaluation Plan and System

This output will fund the establishment of a monitoring/assessment system for the project itself. This system will be defined on the basis of GEF prerequisites via the tracking tools for activities related to effective water resource management in the Volta Basin, and conserving or restoring vulnerable ecosystems, and supporting vulnerable communities to strengthen their resilience to adverse impacts of climate change and risks posed by climate variability, first of all floods, droughts, and other extreme (also weather-) events. Moreover, a set of indicators will be developed with account of the monitoring/assessment system applied in each GEF IW project. Through the definition of the appropriate indicators during the Project preparation phase, the project will be able to supply quantitative and qualitative data on the evolution of natural resources in the area covered by the project. The aim of the project will be to generate and properly report on the global environmental benefits brought about by the Project. However, as mentioned above, the degradation of natural and water resources is also linked to conflicts between humans and nature. Thus, in addition to showing the evolution in natural resources and the corresponding actions, the system will take into account indicators linked to human activities (agricultural, commercial, income-generating, livelihood-supporting) and will attempt to establish correlations with the indicators linked to the management of natural resources.

The assessment functions will be carried out internally, bearing in mind the GEF's prerequisites, notably via the "International Waters" focal area tracking tools. However, other tools related to the degradation of soil or biodiversity (for example) may also be used. Externally, evaluation missions will be able to rely on knowledge stored by the capitalization system.

Through the definition of indicators during the final project document preparation phase, the project will be able to supply quantitative and qualitative data on the evolution of natural resources in the area covered by the project. In addition to showing the evolution in natural resources and the corresponding actions, the system will take into account indicators linked to human activities (agricultural, commercial, income-generating) and will attempt to establish correlations with the indicators linked to the management of natural resources.

The key stakeholders, including beneficiary communities, will be actively involved to play an important role in the monitoring-assessment of the different activities, in which they are involved.

Output 4.2.2. Mid-term and Final Project Evaluations

Mid-term Evaluation. An evaluation will be scheduled during the third quarter of the second implementation year. The aim will be to look back on the achieved results, lessons learned, the project overall status *vis-à-vis* the plans, established project partnerships, and links to other initiatives, as to generate forward-looking recommendations in terms of the overall project relevance, strategy and approach, and the ahead activities in particular. The evaluation will suggest possible changes that would be required in the overall project architecture, and/or on certain activities in

order to fulfill the objectives. The evaluation will also examine project management in terms of efficiency, effectiveness and delivery, the project's deliverables in terms of timeliness, quality and applicability, will review the specific monitoring and reporting tools, and will formulate recommendations towards improvement, as required.

Final Evaluation. A final independent evaluation will be scheduled during the last quarter of the project. The aim will be to look back on the overall achievement of results, the project's (actual or expected) impact, established project partnerships and links to other relevant initiatives, as well as the (foreseen) sustainability (strategy). The evaluation will also review the overall project management, reports and materials produced in terms of relevance, quality and applicability.

Output 4.2.3. A Project Communication Strategy

Designers of the current project split communications and corresponding strategies into two specific areas. A Communication Strategy for SAP implementation developed and implemented under Output 4.1.1 is mostly concentrating on key stakeholders of the SAP implementation process, whereas building on the data collected by the monitoring/assessment system defined above, the Project will contribute to the financing and dissemination of messages on requirements regarding the technical aspects of Project implementation. 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. This information will be exchanged through several appropriate channels and will be defined during the project preparation phase (e.g. radio, Internet, messages in schools).

Finally, the Implementing Agencies, with their clearly articulated comparative advantages and targeted audiences, will build on their experience in the preparation and dissemination of manuals linked to best practices in the management of environmental resources. The audiences these manuals will be aimed at will be defined during the project preparation phase.

4) Incremental/additional cost reasoning and expected contributions from the baseline, the GEFTF, LDCF, SCCF and co-financing

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 transboundary network of data collection/processing 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 model 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, inventorising and assessments of shallow and deep groundwater quality for pollution abatement.
- 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, and a regional programme to fight against, and benefit from, aquatic invasive species.
- 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 mearues 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.

5) Global environmental benefits

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 basins 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 to VBA and riparian countries relevant, information, capacity and management tools would facilitate achievement of these stress reduction 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 basin's ecosystems through sustainable harvesting of environmental resources and good management of changes in climatic trends.

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.

The project will promote gender mainstreaming at the earliest stages its cycle and all groups/categories of stakeholders will participate in the initial stages of project design, approval and implementation. The needs assessment will be done at the project development phase and used to define the roles of women and men. 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.

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.

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 the reinforcement of hydro-meteorological networks and associated climate predictions tools, 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.

2. Stakeholders. Will project design include the participation of relevant stakeholders from civil society organizations (yes ☒ /no☐) and indigenous peoples (yes ☐ /no☒)? If yes, identify key stakeholders and briefly describe how they will be engaged in project preparation.

A detailed stakeholder mapping will be implemented in PPG stage, however, a short list of 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 Center 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 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.

Despite significant range of activities to be implemented at the local level, there have not been indigenous groups identified as stakeholders or beneficiaries of the Project. A more detailed screening and analysis will be carried out at PPG phase. If identified, these groups will be closely engaged in relevant Project activities.

The main groups to be consulted in the design of the project (PPG) are mainly local communities, farmers, livestock breeders, fishermen's associations, decentralized government services, civil society and NGOs. During the design of this Project, the VBA has complied a directory of NGOs and civil society in the Volta basin which nevertheless requires an up-to-date.

3. Gender Equality and Women's Empowerment. Are issues on gender equality and women's empowerment taken into account? (yes ☒ /no☐). If yes, briefly describe how it will be mainstreamed into project preparation (e.g. gender analysis), taking into account the differences, needs, roles and priorities of women and men.

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 development 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 order to achieve this, the following steps will be taken during PPG phase:

1. 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, development approval an 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.
2. 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 analyzing it so as to provide a better understanding of the gender dynamics in water management. The information gathered and analyzed ought to fit into Component 3 (Conserving and restoring ecosystems for sustainable livelihoods in the Volta basin).

3. At the point of developing the full project document 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) log frame, and 4) budget.

4 Risks. Indicate risks, including climate change, potential social and environmental risks that might prevent the project objectives from being achieved, and, if possible, propose measures that address these risks to be further developed during the project design (table format acceptable).

RISK	**PROBA-BILITY**	**RISK MITIGATION**
Delays/obstacles to project implementation due to the regional nature of the project and involvement of 6 countries	Low to medium	Special efforts will be put into close engagement with national-level authorities and stakeholders, including private sector and grass-root community-based organizations. Timely engagement and an effective communication strategy will be designed to assure buy-in and ownership of key stakeholder and beneficiary groups.
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.
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 SAP PA B.3 (IAS) mentions the use of living control agents and the risk of them	Low to medium	A special IAS spread prevention strategy will be developed at earlier stages of work related to alien species and closely

RISK	PROBA-BILITY	RISK MITIGATION
spreading out of control. The following risks have been identified: (i) Direct and indirect effects on non-targets, (ii) Dispersal of a bio-control agent to a new area, either autonomously or with deliberate or inadvertent human assistance, and (iii) Changed relationships between a control agent and a native species, particularly as generated by global climate change		followed during the implementation process. The strategy will include four key aspects (wherever relevant): 1. Prevention. 2. Early detection and rapid response. 3. Control and management. 4. Rehabilitation and restoration.
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 progress of strengthening of the Volta Basin Observatory at will provide additional capacity and engagement of individual countries.
There is a risk of unintended negative impact on fragile ecosystems, since the project area is a site of global signifiance 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.
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.

5. Coordination. Outline the coordination with other relevant GEF-financed 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. During the PPG phase, in-depth consultations will be undertaken to establish partnerships and practical modalities for linking and collaborating with the above ongoing

initiatives so that duplication is avoided and so that GEF resources build on the progress and achievements made to date through such initiatives.

As part of its mandate, the VBA will facilitate and ensure coordination of all interventions including those supported by its Group of Technical and Financial Partners. A strategy and plan for collaboration with relevant ongoing and planned initiatives will be prepared during the preparatory phase, including defining the roles and responsibilities of critical stakeholders.

The GEF World Bank and GEF UNEP/IUCN projects are complementary and each aimed to implement priorities identified in the SAP. The GEF World Bank is rather oriented towards governance and institutional strengthening whereas the GEF UNEP/UICN project is rather oriented to towards sectoral investment interventions. Consultation between the two institutions will take place to ensure that duplication is avoided and synergies are maximized. Also MoUs or collaboration frameworks will be signed with other initiatives (mainly WISE-UP, WACDEP, WASCAL, GWP/WA, OSS and Flood and Drought Management Tool Project) in view of the coordination and implementation of joint activities.

6. Consistency with National Priorities. Is the project consistent with the National strategies and plans or reports and assessments under relevant conventions? (yes ☒ /no☐). If yes, which ones and how: 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 neighboring 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
- 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
- EQO 6: water of sufficient quality is available to support ecosystem needs at four pollution hotspots

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.

7. Knowledge Management. Outline the knowledge management approach for the project, including, if any, plans for the project to learn from other relevant projects and initiatives, to assess and document in a user-friendly form, and share these experiences and expertise 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.

PART III: APPROVAL/ENDORSEMENT BY GEF OPERATIONAL FOCAL POINT(S) AND GEF AGENCY(IES)

A. RECORD OF ENDORSEMENT[32] OF GEF OPERATIONAL FOCAL POINT (S) ON BEHALF OF THE GOVERNMENT(S):

(Please attach the Operational Focal Point endorsement letter(s) with this template. For SGP, use this SGP OFP endorsement letter).

NAME	COUNTRY	POSITION	MINISTRY	DATE (MM/DD/YYYY)
Mr. Delphin AIDJI	Benin	Directeur de la Programmation et de la Prospective du Ministere du Cadre de Vie et du Developpement Durable	Ministere du Cadre de Vie et du Developpement Durable	07/19/2017
Mr. Pamoussa OUEDRAOGO	Burkina Faso	Secretaire Permanent	Secretariat Permanent du Conseil National pour le Developpement Durable (SP/CNDD)	08/16/2017
Mrs. Alimata KONE-BAKAYOKO	Cote d'Ivoire	Secretaire Permanente	Ministry of Economy and Finance, Commission Nationale du FEM	09/11/2017
Mr. Fredua AGYEMAN	Ghana	Director of Environment	Ministry of Environment, Science, Technology and Innovation	07/24/2017
Mr. Issa Fahiri KONE	Mali	Specialiste en Foresterie Rurale et Gestion en mode Decentralise des forets	Ministere de l'Environnement et du Developpement Durable	07/25/2017
Mr. Djiwonou FOLLY	Togo	Ingenieur des Travaux des Eaux et Forets	Ministere de l'Environnement et des Ressources	07/30/2017

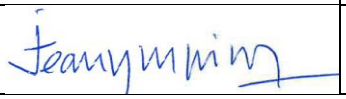
B. GEF AGENCY(IES) CERTIFICATION

This request has been prepared in accordance with GEF policies[33] and procedures and meets the GEF criteria for project identification and preparation under GEF-6.

Agency Coordinator, Agency name	Signature	Date *(MM/dd/yyyy)*	Project Contact Person	Telephone	Email
Kelly West, Senior Programme Manager & Global Environment		September 29, 2017	Yegor Volovik	+254716055792	yegor.volovik @unep.org

[32] For regional and/or global projects in which participating countries are identified, OFP endorsement letters from these countries are required even though there may not be a STAR allocation associated with the project.

[33] GEF policies encompass all managed trust funds, namely: GEFTF, LDCF, SCCF and CBIT

Facility Coordinator Corporate Services Division UN Environment					
Jean-Yves PIROT IUCN		September 29, 2017	Awaiss Aboubacar	+22676818834	aboubacar.awaiss @iucn.org

C. ADDITIONAL GEF PROJECT AGENCY CERTIFICATION (APPLICABLE ONLY TO NEWLY ACCREDITED GEF PROJECT AGENCIES)

For newly accredited GEF Project Agencies, please download and fill up the required **GEF Project Agency Certification of Ceiling Information Template** to be attached as an annex to the PIF.

A separate document duly signed by IUCN GEF Coordinator, Mr. Jean-Yves Pirrot, has been included in the submission package.

Annex 1 Volta Basin Sap (2014)