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Report No: PAD1287

INTERNATIONAL BANK FOR RECONSTRUCTION AND DEVELOPMENT

PROJECT APPRAISAL DOCUMENT

ON

PROPOSED GRANTS

TO THE

VOLTA BASIN AUTHORITY

FROM

THE COOPERATION IN INTERNATIONAL WATERS IN AFRICA TRUST FUND
IN THE AMOUNT OF US$3.5 MILLION

AND

THE GLOBAL ENVIRONMENT FACILITY
IN THE AMOUNT OF US$7.2 MILLION

FOR A VOLTA RIVER BASIN STRATEGIC ACTION PROGRAMME IMPLEMENTATION PROJECT

APRIL 30, 2015

Global Water Practice (GWADR)
Africa Region

CURRENCY EQUIVALENTS

(Exchange Rate Effective, March 31, 2015)

Currency Unit = FCFA

610.762 FCFA = US$ 1

US$ 1 = SDR 0.72491

FISCAL YEAR
January - December 31

ABBREVIATIONS AND ACRONYMS

AFD	Agence Française de Développement (French Agency for Development)
BCM	Billion Cubic Meters
BMCC	Basin Management Coordinating Committee
CAS	Country Assistance Strategy
CGIAR	Consultative Group for International Agriculture Research
CIWA	Cooperation in International Waters in Africa
COM	Council of Ministers in Charge of Water Resources
CPS	Country Partnership Strategy
CQ	Consultant Qualification
DAF	Direction of Administration and Finances
EACC	Economics of Adaptation to Climate Change
ECOWAS	Economic Community of West African States
EQO	Environmental Quality Objective
ERR	Economic Rate of Return
ESIA	Environmental and Social Impacts Assessment
ESMF	Environmental and Social Management Framework
ESMP	Environmental and Social Management Plan
EU	European Union
FAO	Food and Agriculture Organization
FB	Fixed Budget
FM	Financial Management
GDP	Gross Domestic Product
GEF	Global Environment Facility
GFDRR	Global Facility for Disaster Reduction and Recovery
GIZ	Deutsche Gesellschaft für Internationale Zusammenarbeit
GRS	Grievance Redress Service
GWh	Gigawatt hours
HEP	Hydroelectric Power
IBRD	International Bank for Reconstruction and Development
IC	Individual Consultant
ICB	International Competitive Bidding

ICT	Information and Communications Technology
IDA	International Development Association
IFAC	International Federation of Accountant
IFR	Interim Financial Report
IGA	Income Generating Activities
IPMP	Integrated Pest Management Plan
IRR	Internal Rate of Return
IUCN	International Union for the Conservation of Nature
IW	International Waters
IWRM	Integrated Water Resources Management
LCBC	Lake Chad Basin Commission
LCS	Least Cost Selection
MDGs	Millennium Development Goals
MoU	Memorandum of Understanding
MW	Megawatts
M&E	Monitoring and Evaluation
NBA	Niger Basin Authority
NCB	National Competitive Bidding
NEPAD	New Partnership for African Development
NGO	Non-Government Organizations
NPV	Net Present Value
OMVS	Organisation pour la Mise en Valeur du Fleuve Sénégal (Senegal River Development Authority)
OP/BP	Operational Policies/Bank Procedures
O&M	Operation and Maintenance
PCU	Project Coordinating Unit
PDO	Project Development Objective
PFS	Project Financial Statements
PIM	Project Implementation Manual
PSC	Project Steering Committee
pTDA	Preliminary Transboundary Diagnostic Analysis
QCBS	Quality and Cost Based Selection
RBO	River Basin Organization
RF	Results Framework
RIAS	Regional Integration Assistance Strategy
RPF	Resettlement Policy Framework
SAP	Strategic Action Programme
SOE	Statement of Expenditure
SIDA	Swedish International Development Cooperation Agency
SONABEL	http://www.sonabel.bf
SORT	Systemic Operations Risk-Rating Tool
SSS	Single Source Selection
TDA	Transboundary Diagnostic Analysis
TEV	Total Economic Value
TOR	Terms of Reference
UNDP	United Nations Development Programme

UNEP	United Nations Environment Programme
UNESCO	United Nations Educational, Scientific and Cultural Organization
VBA	Volta Basin Authority
VBTC	Volta Basin Technical Committee
VRA	Volta River Authority
WMO	World Meteorological Organization
WRCC	Water Resources Coordination Center

Regional Vice President:	Makhtar Diop
Country Director:	Colin Bruce
Senior Global Practice Director:	Junaid Kamal Ahmad
Practice Manager:	Alexander Bakalian
Task Team Leader:	Shelley McMillan

AFRICA

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Volta River Basin Strategic Action Programme Implementation (P149969)

PROJECT APPRAISAL DOCUMENT

AFRICA

GWADR

Report No.: PAD1287

Basic Information			
Project ID P149969	EA Category B - Partial Assessment	Team Leader Shelley Mcmillan	
Lending Instrument Investment Project Financing	Fragile and/or Capacity Constraints [ ] Financial Intermediaries [ ] Series of Projects [ ]		
Project Implementation Start Date 21-May-2015	Project Implementation End Date 31-Aug-2019		
Expected Effectiveness Date 15-Sep-2015	Expected Closing Date 31-Aug-2019		
Joint IFC No			GEF Focal Area International waters
Practice Manager/Manager Alexander E. Bakalian	Senior Global Practice Director Junaid Kamal Ahmad	Country Director Colin Bruce	Regional Vice President Makhtar Diop

Recipient: Volta Basin Authority			
Responsible Agency: Volta Basin Authority (VBA)			
Contact:	Dr. Charles Biney	Title:	Executive Director (acting)
Telephone No.:	22625376067	Email:	cbiney@gmail.com

Project Financing Data(in USD Million)					
[ ]	Loan	[ ]	IDA Grant	[ ]	Guarantee
[ ]	Credit	[X]	Grant	[ ]	Other

Total Project Cost:	10.94	Total Bank Financing:	10.70
Financing Gap:	0.00		

Financing Source	**Amount**
Recipient	0.24
Global Environment Facility (GEF)	7.20
Cooperation in International Waters in Africa	3.50
Total	10.94

Expected Disbursements (in USD)

Fiscal Year	FY16	FY17	FY18	FY19
Annual	1094000.00	3282000.00	4376000.00	2188000.00
Cumulative	1094000.00	4376000.00	8752000.00	10940000.00

Institutional Data

Practice Area / Cross Cutting Solution Area

Water

Cross Cutting Areas

[ ] Climate Change

[ ] Fragile, Conflict & Violence

[ ] Gender

[ ] Jobs

[ ] Public Private Partnership

Sectors / Climate Change

Sector (Maximum 5 and total % must equal 100)

Major Sector	Sector	%	Adaptation Co-benefits %	Mitigation Co-benefits %
Agriculture, fishing, and forestry	General agriculture, fishing and forestry sector	40		
Water, sanitation and flood protection	General water, sanitation and flood protection sector	40		
Public Administration, Law, and Justice	General public administration sector	20		
Total		100		

☑ I certify that there is no Adaptation and Mitigation Climate Change Co-benefits information applicable to this project.

Themes

Theme (Maximum 5 and total % must equal 100)

Major theme	Theme	%
Environment and natural resources management	Water resource management	50
Environment and natural resources management	Environmental policies and institutions	30
Trade and integration	Regional integration	20
Total		100

Proposed Global Environmental Objective(s)

The proposed global environment objective is to improve the capacity of the VBA for transboundary water resources management.

Components

Component Name	**Cost (USD)**
Water Charter Development for Volta River Basin	1,992,000
Facilitating Dialogue, Communication and Project Monitoring	1,260,000
Implementation of Strategic Action Programme Priority Actions	6,898,000
Project Management	790,000

Systematic Operations Risk- Rating Tool (SORT)

Risk Category	**Rating**
1. Political and Governance	Substantial
2. Macroeconomic	Low
3. Sector Strategies and Policies	Moderate
4. Technical Design of Project or Program	Moderate
5. Institutional Capacity for Implementation and Sustainability	Substantial
6. Fiduciary	Substantial
7. Environment and Social	Moderate
8. Stakeholders	Moderate
OVERALL	Substantial

Compliance

Policy

Does the project depart from the CAS in content or in other significant respects?	Yes [ ]	No [X]
Does the project require any waivers of Bank policies?	Yes [ ]	No [X]
Have these been approved by Bank management ?	Yes [ ]	No [ ]
Is approval for any policy waiver sought from the Board?	Yes [ ]	No [X]
Does the project meet the Regional criteria for readiness for implementation?	Yes [X]	No [ ]

Safeguard Policies Triggered by the Project	**Yes**	**No**
Environmental Assessment OP/BP 4.01	X	
Natural Habitats OP/BP 4.04	X	
Forests OP/BP 4.36	X	
Pest Management OP 4.09	X	
Physical Cultural Resources OP/BP 4.11		X
Indigenous Peoples OP/BP 4.10		X
Involuntary Resettlement OP/BP 4.12	X	
Safety of Dams OP/BP 4.37		X
Projects on International Waterways OP/BP 7.50	X	
Projects in Disputed Areas OP/BP 7.60		X

Legal Covenants

Name	**Recurrent**	**Due Date**	**Frequency**
Project Steering Committee (Schedule 2, Section I, A.1.a)	**X**		CONTINUOUS

Description of Covenant

To facilitate the carrying out of the Project, the Recipient shall maintain, at all times during the implementation of the Project, a Project steering committee, with mandate, composition and resources satisfactory to the World Bank, comprising the Recipient's existing Committee of Experts ("Project Steering Committee").

Name	Recurrent	Due Date	Frequency
Project Steering Committee (Schedule 2, Section I, A.1.b)	**X**		CONTINUOUS

Description of Covenant

Without limitation upon the provisions of paragraph (a) immediately above, the Project Steering Committee shall meet annually and shall be responsible for: (i) the review and approval of annual work plans and budgets; (ii) financial and program performance; and (iii) a uniform understanding by the stakeholders of the Project's objective and activities.

Name	Recurrent	Due Date	Frequency
Project Coordination Unit (Schedule 2, Section I, A.2.a)	**X**		CONTINUOUS

Description of Covenant

The Recipient shall maintain, at all times during Project implementation, the Project Coordination Unit ("PCU") with mandate, composition and resources satisfactory to the World Bank, to be responsible for day-to-day management of all Project activities, including monitoring and fiduciary aspects of the Project.

Name	Recurrent	Due Date	Frequency
Project Coordination Unit (Schedule 2, Section I, A.2.b)	**X**		CONTINUOUS

Description of Covenant

Without limitation upon the provisions of paragraph (a) immediately above, the PCU, at all times during Project implementation, shall at least comprise a Project coordinator, three technical specialists, and accountant, a procurement specialist and a Project assistant.

Name	Recurrent	Due Date	Frequency
Project Implementation Manual (Schedule 2, Section I, B.2)	**X**		CONTINUOUS

Description of Covenant

The Recipient shall carry out the Project in accordance with the Project Implementation Manual, and except as the World Bank shall otherwise agree, the Recipient shall not assign, amend, abrogate or waive the Project Implementation Manual, or any provision thereof.

Name	Recurrent	Due Date	Frequency
Annual Work Plans and Budgets (Schedule 2, Section I, C.1)	**X**		Yearly

Description of Covenant

Not later than October 31 in each calendar year (or one month after the Effective Date for the first year of Project implementation), the recipient shall prepare and furnish to the World Bank a draft annual work plan and budget for the Project for the subsequent calendar year of Project implementation, of such scope and detail as the World Bank shall have reasonably requested.

Name	Recurrent	Due Date	Frequency
Project Reports (Schedule 2, Section II, A.1)	**X**		Quarterly

Description of Covenant

The Recipient shall monitor and evaluate the progress of the Project and prepare Project Reports in accordance with the provisions of Section 2.06 of the Standard Conditions and on the basis of indicators acceptable to the World Bank. Each Project Report shall cover the period of one calendar quarter, and shall be furnished to the World Bank not later than forty-five (45) days after the end of the period covered by such report.

Name	Recurrent	Due Date	Frequency
Completion Report (Schedule 2, Section II, A.2)		30-Apr-2020	

Description of Covenant

The Recipient shall prepare the Completion Report in accordance with the provisions of Section 2.06 of the Standard Conditions. The Completion Report shall be furnished to the World Bank not later than six (6) months after the Closing Date.

Name	Recurrent	Due Date	Frequency
Financial Management System (Schedule 2, Section II, B.1)	**X**		CONTINUOUS

Description of Covenant

The Recipient shall ensure that a financial management system is maintained in accordance with the provisions of Section 2.07 of the Standard Conditions.

Name	Recurrent	Due Date	Frequency
Financial Reports (Schedule 2, Section II, B.2)	**X**		Quarterly

Description of Covenant

The Recipient shall ensure that interim unaudited financial reports for the Project are prepared and furnished to the World Bank not later than forty-five (45) days after the end of each calendar quarter, covering the quarter, in form and substance satisfactory to the World Bank.

Name	Recurrent	Due Date	Frequency
Financial Statement (Schedule 2, Section II, B.3)	**X**		Yearly

Description of Covenant

The Recipient shall have its Financial Statements for the Project audited in accordance with the provisions of Section 2.07 (b) of the Standard Conditions. Each audit of the Financial Statements shall cover the period of one (1) fiscal year of the Recipient. The audited Financial Statements for each such period shall be furnished to the World Bank not later than six (6) months after the end of such period.

Conditions

Source Of Fund	Name	Type
CIWA/GEF (Article V.5.01.a)	Project Implementation Manual	Effectiveness

Description of Condition

The Recipient has adopted the Project Implementation Manual in accordance with the provisions of Section I.B of Schedule 2 to this Agreement

Source Of Fund	Name	Type
CIWA/GEF (Article V.5.01.b)	Project Coordination Unit	Effectiveness

Description of Condition

The Recipient has recruited a procurement specialist with terms of reference, qualifications and experience satisfactory to the World Bank and in accordance with the provisions of Section III of Schedule 2 to this Agreement.

Team Composition

Bank Staff

Name	Title	Specialization	Unit
Sirein Awadalla	Operations Analyst	Operations Analyst	GWADR
Salamata Bal	Senior Social Development Specialist	Senior Social Development Specialist	GSURR

Sylvestre Bea	Consultant	Economics	GWADR
Abdoulaye Gadiere	E T Consultant	Environmental Safeguards	GENDR
Koffi Hounkpe	Disaster Risk Management Specialist	Disaster Risk Management Specialist	GSURR
Shelley Mcmillan	Senior Water Resources Specialist	Team Lead	GWADR
Ngor Sene	E T Consultant	Financial Management Specialist	GGODR
Mamata Tiendrebeogo	Senior Procurement Specialist	Senior Procurement Specialist	GGODR
Lionel F. Yaro	Communications Specialist	Communications	AFREC
Faly Diallo	Finance Officer	Finance and Accounting	WFALA

Non Bank Staff

Name	Title	City
Ibrahim Ly	Legal Consultant	Dakar, Senegal

Locations

Country	First Administrative Division	Location	Planned	Actual	Comments

I. STRATEGIC CONTEXT

A. Regional and Country Context

1. **The Volta is a shared river basin connecting the West African countries of Benin, Burkina Faso, Cote d'Ivoire, Ghana, Mali and Togo,** covering a surface area of about 400,000 km^2 and extending 1,850 km north-south. The riparian countries of the Volta are characterized by economic differences and disparities of growth that are influenced by, among other factors, climate and its impact on natural resources. Burkina Faso and Ghana have, with 43 percent and 42 percent respectively, the largest share of the basin, followed by Togo with six percent. Benin, Cote d'Ivoire and Mali have smaller shares of the basin. Table 1 below provides a detailed overview of the share of the six riparians on the Volta Basin. The total riparian population is estimated at 91 million inhabitants, of which 20 million live in the basin itself.

2. **The Volta River basin has substantial economic importance for the diverse countries that share the water resource**. Upstream Burkina Faso is a low-income, Sahelian country, which is highly dependent on cotton exports and vulnerable to exogenous market and climate shocks. In 2007, when the country underwent a strong drop in the production of cotton (-44 percent), it resulted in a 1.5 percent reduction in the economic growth of the country. On the other hand, downstream Ghana, which is located in the water abundant region of the basin, is one of the strongest economies in Western Africa, with a growth rate of 6.3 percent in 2007. Agriculture remains the core sector of the Ghanaian economy, contributing 38.8 percent of its GDP. Since the recent exploitation of oil resources off-shore, Ghana is now transitioning to a low middle income country. The Volta River basin has substantial economic importance for the region, based on ongoing and planned development plans such as irrigated agriculture in Burkina Faso and northern Ghana, hydro-power generation at Akosombo, Kpong, Bui dams (Ghana); Bagre and Kompienga dams (Burkina Faso); or domestic and industrial water supply for urban centers such as Accra and Ouagadougou. The Akosombo Dam has created one of the world's largest artificial lakes, Lake Volta, with a surface area of 8,500 km^2 and a capacity of 148 km^3. The electricity generation capacity at Akosombo and Kpong dams are 1,020 MW and 160 MW, respectively.

Table 1: Volta basin areas by country (source: Transboundary Diagnostic Analysis, 2012)

Country	Area of Country (km^2)	Area Of Volta River Basin (km^2)	% of Basin in the country	% of the country in the Basin
Benin	112,620	13,590	3.41	12.10
Burkina Faso	274,000	171,105	42.95	62.40
Côte d'Ivoire	322,462	9,890	2.48	3.07
Ghana	238,540	165,830	41.62	70.10
Mali	1,240,190	12,430	3.12	1.00
Togo	56,785	25,545	6.41	45.00
Total	**2,244,597**	**398,390**	**100.00**	

3. **The Volta River has three main tributaries; the Black Volta (Mouhoun) and White Volta (Nakambé) originating in Burkina Faso and the Oti River (Pendjari) originating in Benin.** Annex 8 provides a map of the Volta River Basin, with main tributaries and riparian country borders.

- The *Mouhoun* originates in the south-west of Burkina Faso, flows north-eastwards and then turns south. In the south, it becomes the border, first between Ghana and Burkina Faso, and then between Ghana and Côte d'Ivoire.
- The *Nakambe* originates in the north of Burkina Faso and flows south-eastwards to the border with Ghana.
- The *Pendjari River* originates in the north-west of Benin. It flows north-east, then turns sharply to the west to become the border, first between Burkina Faso and Benin, then between Togo and Benin before entering Togo. Further downstream, it becomes the border between Togo and Ghana.

4. **Recognizing the importance of coordinated management of the shared resources of the Volta, the six riparian countries established the Volta Basin Authority (VBA)**, whose convention came into force in 2009. The VBA, which has a jurisdictional coverage of all surface and groundwater within the basin, including lakes, river, wetlands and aquifers, is tasked with the mandate to "*promote permanent consultation tools among the basin's stakeholders, promote the implementation of Integrated Water Resources Management (IWRM) and the equitable distribution of benefits, evaluate planned infrastructure developments that impact the water resources of the basin, develop and implement joint projects and works and contribute to poverty reduction, sustainable development and socio-economic integration of the sub-region".* Although equipped with a strong mandate for collaborative management, the Volta riparian countries have yet to explore the basin's potential in cooperative development in agriculture, transportation, power, water storage or environmental conservation.

B. Sectoral and Institutional Context

Sectoral Context

5. **The riparian countries have not utilized the full potential of the Volta River basin to meet their demands for poverty alleviation and economic growth, nor have they fully mitigated basin-related environmental risks**. For instance, the riparian countries of the basin are all facing energy shortages and growing power demand, which is hampering their economic performance. While an important portion of the energy that fuels the economy in some of the riparian countries comes from hydroelectric dams within the basin, the remaining hydropower potential of the river remains underdeveloped. In addition, irrigation and fishing are critical economic sectors in the basin as a result of manmade reservoirs (such as Lake Volta) and present economic opportunities. The way in which these sectors develop also presents risks and opportunities for the management and preservation of ecosystems in the basin.

6. **The Global Environment Facility (GEF) financed a series of studies on the Volta River Basin,** starting with the Volta River Basin Preliminary Transboundary Diagnostic Analysis (pTDA) in 2002 and later, a more detailed TDA in 2012, by the *Addressing Transboundary Concerns in the Volta River Basin and its Downstream Coastal Area* project. The TDA presents information on the opportunities and concerns in the Volta, for instance, indicating that the Volta River Basin is experiencing high levels of water quality and flow degradation, coastal erosion, increased sedimentation of rivers, invasive aquatic species, loss of soil and vegetative cover and ecosystem degradation as a result of factors related to climate change, livelihood practices and poor governance and mismanagement of the basin's natural resources. On the basis of the TDA, a Strategic Action Programme (SAP) was developed and this SAP informs the design of the proposed project. The SAP suggests that the basin's environmental and water challenges stem from a combination of physical constraints as well as challenges related to the governance, use and management of ecosystems, at regional, national and sub-national levels. The following sections provide more information on the economic resources of the basin followed by a summary of the main concerns in the Volta, as described in the TDA, *Water Atlas of the Volta Basin*, data compiled by the World Bank and Food and Agriculture Organization (FAO) and other publications. Annex 2 provides additional details on these sections.

Economic Opportunities in the Basin

7. **Evidence shows that agriculture is the main economic activity, the main employer, and a key engine for growth in the basin**. However, it has been estimated that less than 50 percent of the potential irrigable lands of the basin (estimated at 1,487,000 ha) are in production. Agricultural practices are currently low-technology, in terms of inputs, although this is slowly changing. The sector is dominated by small scale unorganized farmers who depend mainly on simple labor intensive production techniques. It is characterized by low productivity resulting from the continuous usage of indigenous farm implements and adoption of indigenous farming practices. Agriculture is a main source of demand for water and land. There has been a slow shift away from the agricultural economy, and although this shift is expected to continue, each country also has clear plans to further develop and expand agricultural production over the coming decades. The specific impacts of agricultural production include land degradation (especially in areas where forests have been cleared), loss of top soil, erosion, sedimentation of water sources, salinization and pollution. In the dominant agro-climatic zones of the basin, land degradation has occurred as a result of over-grazing and land clearing for cash crops.

8. **Although agriculture is a major sector in the basin's member states, irrigated agriculture is still limited** – for instance, constituting only 19 percent of agricultural land in Ghana in 2011, with little data on irrigation statistics in the other basin countries. The basin countries have unilateral plans for increasing irrigation of agricultural lands.

9. **Opportunities in hydropower abound in the Basin, particularly for projects of regional significance.** While Benin and Togo basically depend on oil for energy use, Ghana, in addition to oil, depends on hydropower, generated through three hydroelectric plants on the Volta River, with current installed capacities of 1,020 MW and 400 MW and 160 MW at the Akosombo, Bui and Kpong Generating Stations, respectively. The Bagre and Kompienga dams supply 16 MW and 14 MW to Burkina Faso, respectively, as well as water towards irrigation schemes in the

country. The combined existing hydro systems currently supply over 95 percent of Ghana's electricity needs. The Volta River Authority (VRA), which manages the Akosombo dam, also supplies neighboring countries of Togo and Benin and until recently, supplied Côte d'Ivoire, and there are ongoing projects within the West African Power Pool to extend this power sharing arrangement to Burkina Faso. Studies conducted by VRA indicate that the estimated potential of unexploited hydropower resources on three major tributaries in the Volta Basin in Ghana is of the order of 715 MW with a corresponding average annual energy generation potential exceeding 3,097 GWh. These tributaries are the Black Volta, the White Volta, and the Oti. Below are summary details of hydro sites on the main tributaries of the Volta.

Table 2: Potential for hydropower in the Volta Basin in Ghana by major sub-catchments

Tributaries	Potential	Proposed Sites	Average energy generation potential	Recommended development potential
Black Volta	282 MW	Koulbi (68MW)	2,148 GWh	Not Available
		Ntereso (64MW)		
		Lanka (95MW)		
		Jambito (55MW)		
White Volta	133 MW	Pwalugu (50MW)	544 GWh	Not Available
		Daboya (40MW)		
		Kulpawn (40MW)		
Oti River	Full scale potential of 300 MW	Juale	405 GWh	Recommended development potential will be reduced to only 90MW

Source: Gordon and Amatekpor, 1999

10. **Livestock, fisheries and aquaculture constitute a major portion of the basin's economy and are exploited to varying degrees within the countries.** Trends in recent years indicate that livestock numbers will continue to increase rapidly. Livestock breeding has a strong impact on livelihood – livestock is, after agriculture, the second source of income for rural households across the basin. While livestock represents such important elements of the economy in the Volta basin, it should be noted that depending on grazing practices, it can result in natural resource degradation such as drought and floods, local pollution and land degradation. Fisheries, including fish-farming, is also a rapidly growing sub-sector. In some areas, notably on the Lake Volta, fishery resources have been exploited while along the Oti River in Togo and Benin, it is currently an underexploited resource, and may be able to contribute to poverty reduction and economic development. In Burkina Faso, the fishing industry has grown in response to the increases in water infrastructure (dams) and the implementation of programs by the government to increase fish farming and to promote aquaculture and the diversification of fish production. All of Togo's inland fishing fleet is on the rivers of the Volta Basin.

Water and Natural Resources Risks in the Volta Basin

11. **While the Volta Basin has strong potential for growth and development in its riparian countries, risks to the environment, water sources and basin ecosystems are also prevalent**.

Burkina Faso, Ghana and Togo rank high amongst African countries most exposed to risks from multiple weather related hazards. In the last 20 years, Ghana alone experienced seven major floods; most prominently were the ones of 1991, and more recently those of 2007, 2008 and 2010. The Sahel and savannah belts of the basin, including northern parts of Benin, Cote d'Ivoire, Ghana and Togo are prone to droughts regularly impacting livelihoods and the cotton dependent economies of Burkina Faso and Mali. Ouagadougou was hard hit by floods in 2009 causing damages and losses to the economy and displacing more than 100,000 people.

12. **Changes in water quantity and seasonal flows of the Volta tributaries relate to differences in socioeconomic and cultural uses, as well as physical constraints.** Changes are also a result of the impacts of climatic change on the hydrological regimes of the Basin's rivers. Indeed, changes in the aggregate volume of water and changes in its temporal and seasonal distribution have been observed over the past decades resulting in, increasingly, more serious and less predictable water shortages, the drying up of some of the Basin's rivers for lengthy periods of time and frequent flooding. Changes in the Basin's climatic trends are significant with precipitation values decreasing over the last few decades, reducing water-fed agriculture, drying up perennial streams faster, and having a significant impact on water availability.

13. **Climate change is predicted to adversely impact temperature and precipitation trends in the basin.** The World Bank's Climate Change Portal indicates that there will be increased fluctuations in temperature across the basin. The trend over the period 2006 to 2050 indicates warming in all sub-basins, with temperatures increasing the most in the North where the forecast suggests temperature rise in the order of 2.2 to 2.3°C. The Economics of Adaptation to Climate Change (EACC) study also suggests a cyclical pattern for rainfall over the period 2006 to 2050 for all sub-basins, with high rainfall levels followed by a drought every decade or so. It is also expected that climate change will increase intra-annual rainfall variability in the basin lengthening the dry period and shortening the wet ones. This could also be accompanied by wide variations in stream flows and runoff and these fluctuations would increase the risk of floods and/or droughts. The regional nature of these environmental risks would require a collective effort by riparian countries to address their impacts.

14. **Water quality degradation in the basin is an important issue with a significant transboundary characteristic** as polluted water – be it from grazing, agricultural or industrial activity – crosses national borders. The main cause of water pollution in the Volta is improper fertilization and the heavy use of pesticides for agriculture; the growing use of fertilizers and pesticides for agricultural purposes and the unregulated use of chemicals affect the water quality. Urbanization is leading to inappropriate discharges of domestic waste and other contaminants, with resulting increases in the biochemical oxygen demand of the affected streams and rivers. Industry presents few transboundary water quality problems, but some localized significant problems are apparent – for example near large industrial sites or mining areas. The deterioration of the water quality in the basin is also caused by inefficient irrigation technologies combined with agricultural policy that is meant to protect the water quality, but that is not fully implemented.

15. **Poor land-use practices such as use of bush fires to clear land, widespread tree cutting for fuel wood and over-cultivation of the land are resulting in loss of vegetative and forest cover.** These practices, particularly in the upper watershed of the Volta River are contributing to

increased and faster run-off and heavier siltation of waterways which are exacerbating flooding in the White Volta sub-basin and lead to coastal erosion. Moreover, the continuing deforestation plaguing areas of the basin can lead to the loss of important ecosystems such as wetlands and species such as the Ephemeroptera, an important food resource for many of the fish in the Volta River. Soil degradation is caused by intense erosion, desertification and bushfires, removal of topsoil for mining, and sand and gravel extraction. Sediment loads are increased by land uses such as farming along river banks and on steep slopes, burning of farmland, excessive sand and gravel extraction, mining on river banks and beds, harvesting of fuelwood and more systematic deforestation.

16. **The coastline in the downstream area of the Volta Basin has changed over the years in response to changes in the natural environment and human activities.** It is well-known and documented that Ghana and Togo have been experiencing severe coastal erosion problems at various points along their coastlines and that this has dramatically affected the Volta Estuary in Ghana. This coastal erosion is being caused, among other things, by changes in the river flows, increased storm intensities and sea-level rise, and these factors are, in turn, a result of climate change, movement of sand, sediment and gravel from dam construction and mining, and removal of mangroves for wood. The driving factors behind these secondary forces include inadequate knowledge, cultural and social preferences, and weak legislative frameworks. Moreover, increasing population pressure is leading to higher levels of water abstraction in response to increased water demand for domestic use, urbanization, agriculture and livestock watering, and implementation of large scale water resources development investments. While increased infrastructure is being pursued to precipitate development, water quantity and seasonal flows are also affected by the development of infrastructure such as dams in the basin's rivers to support the generation of hydroelectricity, the development of agriculture, mining and industrial activities.

17. **The environmental challenges of the Basin are further exacerbated by governance insufficiencies.** A look at the portion of the basin within Mali demonstrates this interplay between environmental challenges, human activity and governance issues. In Mali, where approximately 80 percent of the region within the basin is used for agriculture, livestock or dwellings, there is strong competition between livestock breeders and farmers over increasingly limited water and land resources. Because these competing uses of the resources are unregulated and unsustainable, these factors have resulted in a steady degradation of the region, which has become prone to wind erosion and a decline in production. Another example can be seen in the White Volta between Burkina Faso and Ghana, where it is often said that flooding in northern Ghana is a result of releases from Bagre dam in Burkina Faso but is a result of several factors including natural topography, limited water storage infrastructure and environmental degradation. This misinformation has led to political tensions along the border of the two countries in the past while the risk of flooding has not been completely mitigated.

18. **Inadequate public knowledge, lack of institutional capacity and gaps in policy or lack of implementation provide an environment for the proliferation of challenges.** The different types of governance and management challenges facing the Volta basin have been summarized in the TDA and are given below. These challenges impede management within national borders and in local settings; a further secondary challenge is introduced when the transboundary perspective

is added. For the purposes of this project, the transboundary nature of these challenges are highlighted below:

19. **The Volta Basin is experiencing many institutional challenges that are exacerbated by the transboundary elements of the basin**. Institutions in the Volta Basin that manage water and natural resources typically have good local knowledge, expertise in the field of natural resources, and experience in participatory processes. Institutional challenges are related to inefficient frameworks for knowledge management, information and communication, and unavailable human and financial resources. Without a concerted effort to address these challenges, they are carried over when national institutions are required to deal with resources that have transboundary impacts. In particular, when it comes to resources and risks of transboundary significance, additional constraints facing riparian state institutions include insufficient financial, technical and organizational means to undertake action, lack of support to undertake research on topics related to sustainable management of transboundary resources, and the needed capacity and training in the management of such resources.

20. **There is a need to harmonize policies across the many institutions that are mandated with management of transboundary water resources**. The TDA showed that there are forty six key national institutions that are responsible for water and environmental management across the six riparian countries of the Volta basin, often times leading to confusion and overlap in authority. Despite the multiplicity of institutions, national laws typically do not have provisions related to transboundary water resources. Additionally, states of the Volta basin operate in different politico-administrative contexts; Ghana operates in the British system of administration, whereas the other five countries operate under a French tradition. The lack of harmonization among institutions, policies and political or administrative contexts create constraints for the Volta Basin Authority (VBA) to effectively manage the transboundary aspects of the Volta River Basin.

21. **Adopting the principles of integrated water resources management (IWRM) is one of the overarching goals of all Volta Basin countries as well as of the VBA as a basin-wide organization**. All basin states, to differing extents, are now engaged in the process of adopting IWRM. Benin, Burkina Faso, Côte d'Ivoire, Mali and Togo all have national action plans for IWRM. A Ghana national action plan based on the principle of IWRM was adopted in December, 2012. Also the country has taken many important steps and developed sub-basin level IWRM action plans (including for the area of Ghana within the Volta river basin). However, whilst Volta Basin countries have established these policies, they do not have the funding to achieve them and implementation lags a long way behind policy. Similarly, the VBA's aims to integrate IWRM principles into its mandate and organizational structure through functions related to governance, information sharing, management of shared resources through knowledge building, data compilation, improvement in expertise and understanding and facilitation of infrastructure development. Like the national governance bodies, these pillars have not been implemented due to institutional weaknesses.

22. **While the member states have ratified the Convention establishing the VBA, the current institutional arrangements do not adequately allow for strong participation and support from the member states, demonstrating limited ownership of the VBA**. As a result, many important transboundary issues are unresolved and the full jurisdictional authority of VBA

is underutilized. For instance, member states rarely employ the VBA to notify one another on proposed projects with transboundary impacts; organizations that manage large hydroelectric schemes in the basin do not engage the VBA systematically; and country contributions to the organization are sub-optimal demonstrating that the full potential and value of this institution is not realized by member states. Many of the issues being addressed through this project – increased and institutionalized communication streams, a stronger legal foundation, definition of roles and responsibilities among the landscape of institutions in the basin, implementation of priority investments and a strengthened VBA will build towards increasing its ownership by its member states.

23. **There are many capacity needs in the institutions at the regional, national and sub-national levels such as insufficient knowledge, unreliable data and absence of tools to support decision-making**. One issue related to capacity in management of transboundary water resources is a mechanism for the resolution of conflicts between competing water users across the basin. The example of Mali given above demonstrates the need for a transboundary organization that understands the issues involved and has the tools and mechanisms for addressing them. Additional issues include those related to competition between farming water needs in Benin, Ghana and Togo and cattle breeding in Burkina Faso; competing fishery practices in the Pendjari sub-basin between Benin and Burkina Faso; issues related to insufficient consultation during construction of the Bui dam; concerns over the role of upstream use of water when water levels at the Akosombo dam are reduced, which, in 1998 led to an energy crisis in Ghana. With continued development, water sharing will become more difficult and will continue to lead to competition between users as well as compete with the need to preserve and protect ecosystems for future generations.

24. The Volta River Basin is a critical resource, both economically and ecologically, for the riparian countries. Efforts towards mitigation of environmental concerns, increased and sustainably developed water storage and infrastructure, coupled with multi-purpose water resources development and management, are crucial to addressing the growing demand for water and food, and to ensuring sustainable growth and the welfare of the ecosystems and people living in the basin. However, there is a need for coordinating water resources management and investment planning at both the national and regional levels because uncoordinated management can contribute to environmental degradation as can be seen above and can also reduce the economic returns of planned investment projects. For instance, increased sedimentation can lower the storage capacity of downstream reservoirs. Additionally, looking forward, unilateral plans that are made and implemented without consideration of the larger river basin context pose the risk that some of the national investments in water-related sectors could be sub-optimal and may foreclose future development opportunities or exacerbate environmental risks in other parts of the basin. For instance, there are currently a number of large infrastructure developments progressing unilaterally in Ghana including Pwalugu dam on the White Volta, Bui dam on the Black Volta and potentially Noumbiel dam. These projects could be especially problematic since Ghana is a downstream riparian where the quantity and quality of water flow regimes could be significantly impacted by upstream development. For existing infrastructures such as the Akosombo hydropower plant, the need for ensuring basin-wide cooperation is equally strong as its reservoir is replenished with a particular amount of water flowing from upstream sources.

Institutional Context

25. **The Volta Basin remained for many years one of the few large transboundary river basins in Africa without formal legal and institutional arrangements among riparian countries for managing its resources**. In order to institute measures for sustainable transboundary water resources management, the Ministers responsible for water resources of the riparian countries undertook measures to establish the Volta Basin Authority, in the early 2000s. ECOWAS was involved in these efforts since 2004 and provided much technical and financial support towards formation of the Volta Basin Technical Committee (VBTC), which expanded dialogue on a cooperative platform for the Volta to the remaining four countries and aimed to identify the issues and obstacles towards the launching of a Volta basin organization. The VBTC led to approval of a draft Convention and Statutes of the Volta Basin Authority (Convention) on July 16, 2006 in Lomé, Togo. The Convention was signed by the heads of States of the riparian countries at their first assembly held in Ouagadougou, Burkina Faso on January 19, 2009 and finally came into force on August 14, 2009.

26. The signing and ratification of the Convention for the establishment of the Volta Basin Authority marked a turning point in transboundary cooperation for the Volta River Basin, which commits the riparian countries to engage in sustainable development and enhance coordination and information sharing on the shared water resources. This Convention is a testament that the riparian countries recognize that basin-wide cooperation for water resources management can lead to a larger pool of benefits for all countries to share. The countries also acknowledge that the consequences of unilateral actions will be unsustainable development, more environmental degradation, and higher tensions within the basin; while cooperation is expected to enhance regional stability and security. As a sign of the region's commitment towards regional integration, ECOWAS has continued to provide material, financial and technical support towards the evolution and growth of the VBA.

27. The jurisdictional coverage of the VBA in the performance of its functions, as stated in Article 7 of the Convention, includes the Volta River, its tributaries and sub-tributaries, the reservoirs and lakes, groundwater and wetlands as well as the aquatic and land ecosystems linked to the basin, the estuary of the river including the zone of coastal and oceanic influence. Article 6 of the Convention mandates the Authority to:

i. Promote permanent consultation tools among the parties for the development of the basin;
ii. Promote the implementation of integrated water resources management and the equitable distribution of the benefits resulting from their various utilizations;
iii. Authorize the development of infrastructure and projects planned by the stakeholders and which could have substantial impact on the water resources of the basin;
iv. Develop joint projects and works;
v. Contribute to poverty alleviation, the sustainable development of the Parties in the Volta basin, and for better socioeconomic integration in the sub-region.

28. However, **despite this strong mandate on paper, this has translated into little real action**. Regional cooperation for water resources management and development which is needed

to effectively tackle all the above pressing issues is still very limited as evidenced mainly by the limited number of on-going infrastructure projects in regional planning or development. Two main types of constraints face the VBA presently, which this project aims to address: 1) the incomplete design of the institution; and 2) capacity limitations in its multiple functions. The latter is a constraint faced by transboundary river basin organizations in general as the process and political dynamics of establishing a multi-sector institution for basin management are quite difficult, and the difficulties are compounded when sovereignty and trans-national authority are involved.

29. Regarding the former, in the case of the VBA, **limitations in the institutional design are attributed to several factors**. The VBA does not have sufficient, well-structured and validated internal procedures for administrative and financial management. Although the VBA has developed documents that define the Organizational Chart, Definition of Posts and Profiles, Financial Regulations and Conditions of Service, a cursory review of these policies demonstrates them to be insufficient to the level of administrative and management needs of the VBA's mandate and jurisdiction. Furthermore, the VBA does not have an effective communications framework that can structure flow of information among member states and stakeholders at different levels. The limited exchange of hydrological and meteorological data, e.g. on the release of water from Bagre dam in Burkina Faso, has so far mainly been organized bilaterally between the two major hydropower operators SONABEL (Société Nationale d'électricité du Burkina – Burkina Faso) and VRA (Volta River Authority – Ghana) without much involvement from VBA. The lack of an effective communications framework strongly limits engagement by riparian states in basin level cooperation and reduces riparian ownership of the VBA.

30. Nevertheless, **it is important to note that the VBA has taken steps towards ensuring its financial efficiency** – it has doubled execution of its budget between 2010 and 2012; it has concluded a study exploring *Autonomous and Sustainable Financing Mechanisms for the VBA*, and elevated the attainment of this financial autonomy and sustainability to one of the Objectives of its 2015-2019 Strategic Plan (list of Objectives given below); and there is a positive trend in payment of arrears by member countries – 51 percent in 2012 and 71 percent in 2014. However, funds continue to be limited as country contributions only pertain to the operating costs of the organization and the VBA is implementing a limited number of small projects. Additionally, there is a feedback effect between available funds and the strength of the institution to implement projects, resulting in a continuation of limited financial resources to enhance the institutional design. Finally, a Water Charter which would lay the legal foundation for establishing roles and responsibilities of riparian countries with regard to water resources use, exchange of information and the position of the VBA with respect to the institutional landscape of the basin, and which would strengthen the underpinning of VBA to promote coordinated and harmonized water policies in the Basin does not yet exist.

31. It is important to note that several agencies have, in reaction to the increasing pressure on the water resources of the basin, initiated various projects and programs to provide information and help develop solutions for sustainable management of the water and other natural resources of the Volta basin. These projects and programs have also contributed to the development of the VBA, in particular in terms of the knowledge base available in the basin. They have included analysis of the hydrological cycle and impacts of climate change in the basin, water audit, a compilation of baseline information on the water resources and associated environmental variables

within the basin, framework for regional meteorological data collection, and others. Detailed information on these projects is provided in Annex 2.

32. **The VBA has recently validated its Strategic Plan for 2015-2019**, which builds on its previous Strategic Plan and identifies the following objectives: (i) involve VBA in regional integration and economic development policy of the Volta basin; (ii) ensure VBA's autonomous and sustainable funding; (iii) enhance participation and partnerships with water stakeholders of the Volta basin; (iv) strengthen the legal framework of the Volta basin; (v) develop the technical framework to implement Integrated Water Resources Management of the Volta Basin; (vi) adapt the VBA's resources to the implementation of its Strategic Plan; (vii) monitor and assess the Volta basin evolution; and (viii) enhance the VBA's communication. These objectives are fully aligned with the recommendations of the SAP and the scope of the proposed project.

33. **Institutional Assessment of the VBA.** Concurrent to the recipient-executed activities of this project, the Bank is conducting an institutional assessment of the VBA. This assessment will help to define the strengths and weaknesses of the current institutional framework and provide recommendations for its improvement. The assignment is designed as a comprehensive and objective assessment of the VBA to determine a roadmap and recommendations for strengthening the VBA, some of which will then be implemented in this project.

C. Higher Level Objectives to which the Project Contributes

Rationale for CIWA Funding

34. The baseline project is funded by the Cooperation for International Waters in Africa (CIWA) Trust Fund and the case for Bank involvement through CIWA financing is compelling. The World Bank Strategy for Africa emphasizes that closing Africa's infrastructure gap is essential for driving productive development of urban growth poles and building resilience to the negative effects of climate change and natural disasters such as floods and droughts. The proposed Project will contribute to the pillar "Vulnerability and Resilience" of the Strategy. CIWA seeks to support riparian governments to unlock the potential for sustainable and climate resilient growth by addressing the constraints to cooperative management and development of international waters, which aligns with the objective of the proposed project. Climate change has been flagged as one of the main reasons for reduced water availability in the Volta River Basin, and a cooperative adaptation response to ensure sustainability of water use was recommended by the SAP and other studies.

35. The CIWA development objective is to strengthen cooperative management and development of international waters in sub-Saharan Africa to aid sustainable climate resilient growth. The project is aligned with this objective as components seek to expand and strengthen the cooperative space of the Volta basin through strengthening the institution established to manage its resources. The project aligns significantly with CIWA's first result area, strengthening regional cooperation and integration, based on Components 1 and 2 (described below). The measures in these components are also intended to increase stakeholder engagement and participation, CIWA's fourth result area. Priority actions in Component 3 aim to strengthen

sustainable water resources management and contribute directly towards actual investments on the ground, aligning with CIWA's second and third results areas. Annex 2 further elaborates on how project components map to CIWA results areas.

Rationale for Incremental GEF Funding

36. This project follows from a previous GEF-financed project, *Addressing Transboundary Concerns in the Volta River Basin and its Downstream Coastal Area*. Under this previous project a Transboundary Diagnostic Analysis (TDA) and Strategic Action Programme (SAP) were finalized and these two important studies build the foundation for the proposed project.

37. The proposed project, which aims at strengthening the institutional capacity of the VBA, is consistent with the GEF International Waters (IW) focal area, and implements elements of the Strategic Action Programme (SAP) finalized for the Volta River Basin. The GEF-6 IW focal area was established to help riparian countries of international river basins collectively manage their transboundary water systems and subsequently implement a full range of policy, legal and institutional reforms and investments contributing to the sustainable use and maintenance of ecosystem services. The project will contribute specifically to IW-1: Catalyze sustainable management of transboundary water systems by supporting multi-state cooperation through foundational capacity building, targeted research, and portfolio learning; and IW-3: Catalyze investments to balance competing water-uses in the management of transboundary surface and groundwater and enhance multi-state cooperation.

38. In line with GEF practice, the 2012 TDA was followed by a Strategic Action Programme (SAP) that sets priorities for actions, responsibilities and targets for addressing issues identified in the TDA. The SAP was formulated based on the principles of stakeholder consultations and partnership, an ecosystem approach, government commitment, environmental quality objectives, incremental costs and risk assessment. Based on the primary problems established by the TDA and their causal chain analysis, the SAP proposes actions aimed at bringing solutions to these problems. In other words, for each environmental problem identified in the TDA, the SAP proposes actions that are designed to target its root causes up to an agreed upon environmental quality objective (EQO). These SAP measures have been suggested based on the analysis of their transboundary relevance; some of them relate to the entire basin, while others to some particular country/region. The SAP measures have been categorized into four major groups related to the types of environmental challenges identified for the Volta River Basin.

39. The first set of actions (Component A of the SAP) is designed to meet the risks to ensuring consistent water availability; therefore all contribute directly to improving water availability in the Volta River Basin as well as optimizing its use among competing primary uses. Component A measures are designed to meet the EQO of ensuring that water is optimized among primary users (domestic, agricultural, ecosystem and hydroelectric power) so that they receive adequate and sustainable supply, and reduce sedimentation in critical areas. These actions will enhance water availability through the protection of water sources, the development of water allocation models and the formulation and implementation of climate change adaptation strategies. They will also enhance the riparian countries' capacities to characterize and predict climate change and climate variability impacts. They will also lead to better control of flooding and reduce related damages

through the construction of irrigation infrastructure, the monitoring of hydrological and hydrogeological data, and the development and implementation of early warning systems for droughts, floods and inundations.

40. The second group (Component B) addresses risks to conserving and restoring ecosystem functions. As such, they are aligned to EQOs which seek to stabilize the Volta Basin coast, restore and manage critical ecosystem functions, and in identified ecosystem hotspots, contain invasive species and reduce sedimentation by 20 percent by 2025. Component B measures aim to preserve acceptable and sustainable environmental conditions to guarantee the production of ecosystem goods and services. The third group (Component C) relates to ensuring high water quality in the basin and supports the EQO of ensuring that water of sufficient quality is available to support ecosystem needs at pollution hotspots. In many places within the Volta Basin, the population or the technical services may be aware of the degradation of water quality; in these situations, the major setback to water quality is that reliable data on this topic are generally missing: available data are rare, and the reliability of any data spanning a number of years is doubtful. Therefore, the SAP proposes attaining high water quality through efforts that reinforce capacities of national research centers, and increase knowledge and data bases related to water quality.

41. The final group (Component D) suggests actions that aim at strengthening governance and improving the quality of information on water resources. This group comprises actions that are aligned to the EQO of strengthening the legal and institutional framework within the Basin for sustainable management of the water and associated environmental resources. It responds to the need for setting up or reinforcing an adequate knowledge system as well as institutional frameworks for sustainable transboundary management and coordinated implementation of the SAP with all the member states. The SAP notes that the current reality of the VBA and other water-related institutions of the basin are ill-equipped to sustainably implement many of the actions of the SAP. In order to mitigate risks to implementing SAP actions, capacities of national and regional institutions must be first strengthened, through increasing involvement of stakeholders to ensure political support, enhancing existing financial mechanisms, increasing data management and sharing, increasing coordination mechanisms at basin level, improving the existing legal framework of institutions, increasing technical, administrative and institutional capacities, and streamlining responsibilities between different administrative scales.

42. The GEF resources are being fully blended with the baseline project. Additional information on the case for incremental funding by the GEF is provided in Annex 6.

Alignment with Volta Basin Authority Strategic Plan

43. The proposed project is also consistent with the objectives of VBA's Strategic Plan 2015-2019 (see full list of Objectives above). Objective 4 of the Strategic Plan for this period is to Strengthen the Legal Framework of the Volta Basin and includes the gradual harmonization of national water policies into line with the Water Charter. More importantly, the objective lays out steps towards drafting and validation of the Water Charter, including the role to be played by a Communications Plan in operationalization of the Water Charter. The Water Charter is seen through the Strategic Plan as the political and legal backbone of the VBA that will enable the VBA to play its full role as a Basin Authority.

44. Activities related to communications and basin monitoring are expanded upon in Objectives 8, Enhance VBA's Communication, and 3, Enhance Participation and Partnerships with Water Stakeholders of the Volta Basin. For instance, Objective 8 lays out the work plan for developing the Communications Plan and enhancing engagement with stakeholders. This objective also calls for the proactive exchange of information between the member states and VBA regarding projects considered for development. Component 2 of this project will build institutional frameworks – such as the Communications Plan – aimed at facilitating some of these processes. Finally, Objective 1, Involve VBA in Regional Integration and Economic Development Policy of the Volta Basin, contains many provisions in line with the components of this project such as: strengthening the role and function of the VBA's organs; this will be accomplished through capacity building and strengthening of internal regulations under Component 4. Strengthening the link between the VBA and member states is an ongoing effort that will be facilitated through increased communication with member states, better identification of roles and responsibilities with regard to water resources in the basin, and the general increased ownership of member states of the VBA. Increased ownership by the Volta's stakeholders of this institution will also affect the VBA's ability to be involved in the decision making bodies for existing transboundary dams' management and planned dam feasibility, which is another provision of the Objective. Finally, through Component 4, the VBA is being placed as a contracting authority which is developing operations to the benefit of local populations.

Rationale for World Bank Involvement

45. The Regional Integration Assistance Strategy (RIAS) for Sub-Saharan Africa, which was presented to the World Bank Board on March 18, 2008, asserts the Bank's commitment to greater support to regional integration building on lessons learned from the implementation of the IDA Regional Pilot Program since 2003. A progress report of this Strategy, prepared in March 21, 2011, reiterates this commitment as well as presents the benefits and shortcomings of the Strategy. The first pillar of this strategy focuses on regional infrastructure as a way to support Africa's economic growth by facilitating more intraregional trade with focus on transport, energy and telecommunication/ICT. The progress report recommends supporting capacity building efforts of transnational river basin organizations, which is in line with the objective of this project.

46. The project is also consistent with the general goals of improved environmental and water resources management expressed in the six riparian countries' existing Country Assistance Strategy (CAS) or Country Partnership Strategy (CPS). For all six countries, the project is also consistent with the general sector goals of strengthening governance, building institutional capacity and increasing sustainable management practices to reduce poverty. In the same way, the project is aligned with their PRSP goals for good governance and sustainable development. Individual country CAS goals, as they relate to the project, are identified below:

47. ***Benin***. The 2013-2017 CPS focuses on building capacity of the government to address its implementation constraints with emphasis on regional approaches to infrastructure in areas such as hydropower and transport. The CPS supports improving agricultural productivity and diversification, focusing on channelling more private investments into agro-business and designing an agricultural-based youth component into a youth employment project. The CPS also

focuses on sustainable management of natural resources, which it has already begun through projects that are regionally-based.

48. ***Burkina Faso***. One of the focuses of the Bank's country partnership strategy (CPS) for 2013-2016 is on transforming the agricultural sector as the biggest employer, particularly in rural areas through (a) secure land use and tenure arrangements in order to reduce conflicts and build incentives for long-term investments in value added businesses; (b) enhance productivity and reduce vulnerability to weather by scaling up investments in irrigation and water harvesting; and (c) encourage strategic reforms to attract private investment in production of higher-value products through agro-processing that will create more remunerative jobs.

49. ***Cote d' Ivoire***. The Bank's country partnership strategy (CPS – 2010/2013) for Cote d' Ivoire has four strategic objectives: (i) strengthen governance and institutions; (ii) improve the performance of agriculture; (iii) strengthen the private sector; and (iv) renew infrastructure and basic services. Expected CPS outcomes include (but are not limited to): increased productivity and value addition of export and food crops, increased rural incomes, strengthened protection of the environment and natural resources.

50. ***Ghana***. The Bank's country partnership strategy (CPS) for 2013-2016 is based on the pillars of: (i) improving economic institutions, (ii) fostering competitiveness and job creation and (iii) protecting the poor and vulnerable. All of these objectives are dependent on improving water resources management and service provision of the water-using sectors owing to the importance of the country's agriculture sector to all three pillars.

51. ***Mali***. The Interim Strategy Note (2014-2015) focuses on post conflict recovery, following events of 2012, with more efforts towards economic recovery, political risk mitigation and local economic growth. Other objectives being supported that are in line with this project include expansion of the energy sector, rural electrification projects, increasing agricultural performance and improving resilience to weather related shocks.

52. ***Togo***. The Bank's strategy for Togo is aligned to the country's ambitious poverty reduction strategy (PRS) to revive economic growth and improve basic living conditions. The project is directly aligned with efforts to strengthen regional integration and trade, revive agricultural production, rehabilitate infrastructure, and improve management of natural resources and the environment.

53. The Bank worked with VBA and riparians to design the proposed project consistent with the issues detailed in each of the six countries' CAS or CPS, CIWA results areas and TDA/SAP analysis. All the riparian countries acknowledge the necessity for regional cooperation, with VBA in principle as the leader for transboundary water resources initiatives. The member countries' commitment to cooperate is more broadly evidenced by their validation of the first Strategic Plan proposed by VBA for the period 2010-2014 and the second Strategic plan for 2015-2019 as mentioned earlier and also by their active participation in regional institutions including the Economic Community of West African States (ECOWAS) and the New Partnership for African Development (NEPAD).

II. PROJECT DEVELOPMENT OBJECTIVES

A. Project Development Objective (PDO)

54. The proposed development objective is to improve the capacity of the VBA for transboundary water resources management.

55. The project proposes to accomplish this through institutional development activities that address the main weaknesses of the institution highlighted above and implementation of priority actions of the Strategic Action Programme, which will result in direct environmental and livelihoods benefits.

B. Project Beneficiaries

56. The principal stakeholders of this Project are identifiable at three 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 national level, the principal stakeholders include the six national governments, the six national VBA Focal Structures and civil society organizations;
- At the local level, the stakeholders include the local government, local decision-makers, and rural communities including organizations dedicated to advancing the agendas of vulnerable groups.

C. PDO Level Results Indicators

57. The proposed PDO Level Results Indicators would measure overall progress of the proposed project. The proposed PDO level results indicators are:

a. Action Plan to implement findings of institutional assessment developed and validated by member countries
b. Direct project beneficiaries (of which percent are women)

III. PROJECT DESCRIPTION

A. Project Components

58. The Project components have been designed to capture both the additional and incremental environmental benefits in an integrated and cohesive manner, as described below.

59. ***Component 1: Water Charter Development for Volta River Basin (US$1,992,000).*** The aim of this first component is to develop a Water Charter which specifies roles and responsibilities of riparian countries with regard to water resources use, strengthens the underpinning of VBA to promote coordinated and harmonized water policies in the Basin and defines guiding principles for improved water resources development and management for the basin such as better integration of IWRM where transboundary resources are concerned. The Water Charter will be developed under the leadership of the legal unit of the VBA, and the process of its development will involve extensive consultations with relevant stakeholders in the member states to ensure ownership of the process and final document. The Water Charter has the objective to: (i) facilitate dialogue and cooperation between member States in the planning and implementation of programs and projects that affect water resources; (ii) strengthen solidarity and promote sub-regional integration and economic cooperation between Member States; (iii) specify the regulations for utilization of water resources of the basin; (iv) specify the regulations on the preservation and protection of the environment, especially those relating to water quality; (v) strengthen collaboration on flood management and defining the modalities for exchanging hydro-meteorological data and flood information; and (vi) define the modalities for participation of water users in decision making on management of the water resources of the Volta basin.

60. Activities in the development of the Water Charter would include: a stakeholder assessment, a legal and diagnostic study, preparation of and consultation on the draft charter and dissemination of the signed document. The communication of the final Water Charter to ensure that all stakeholders are aware of their rights and responsibilities links into the Communication Plan under Component 2.

61. ***Component 2: Facilitating Dialogue, Communication and Project Monitoring (US$1,260,000).*** In order to effectively carry out its coordination role, the Strategic Plan for the period 2015-2019 recommends that VBA establish communications mechanisms that target different sections of the basin's stakeholders, as well as facilitate exchange of information and data on environmental, water resources and monitoring of planned and ongoing projects in the Basin. While some of these efforts are being addressed through the VBA Observatory and other avenues, they are being carried out in *ad hoc* and non-coordinated manners. As such, this component focuses on 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. A stakeholder assessment will be carried out as part of the development of the Communications Strategy and Plan. The component will also support activities related to participation in the International Waters Learning Exchange and Resource Network (IW-Learn).

62. ***Component 3: Implementation of Strategic Action Programme Priority Actions (US$6,898,000).*** This component represents implementation of SAP measures through priority actions. It supports the development of projects that lead to improvements in water quality, flows and ecosystem services. Initial selection of actions was done based on their transboundary nature, criteria for which was developed through consultation with the VBA; additional consultations with the VBA and its national Focal Points, as well as representatives of local agencies and organizations led to the final choices for priority actions listed in Table 3 below. The list includes actions across Components A and B of the SAP, integrating measures that directly address physical

stresses, to those related to human capacity, governance, knowledge and livelihood in maintaining the environment. Priority actions include restoration of flows through river bank rehabilitation, reversal of vegetation degradation through reforestation and enhancing of agricultural practices through water-conserving techniques. Priority actions also include funding for feasibility studies, consultations, capacity building and awareness-raising at the national and local levels and M&E.

Table 3: Linkages between Priority Actions and EQOs

SAP Action No.	Environmental Quality Objectives (EQOs)	Name	Countries
A.2	Sedimentation in five key hotspots is reduced by 20 per cent by 2025	To protect all the springs that contribute to the permanent flow of the Mouhoun River	Burkina Faso
A.3	Water optimized among primary users (domestic, agricultural, ecosystems and HEP) so that they receive sustainable supplies	To develop irrigation infrastructure in the Sourou Basin	Mali
B.4	Critical ecosystem functions conserved, restored and managed for sustainable use in at least 5 selected areas	To design and implement a regional programme for the protection and restoration of the river banks and gallery forests upstream of Lake Volta	Cote d'Ivoire, Ghana
B.7	Critical ecosystem functions conserved, restored and managed for sustainable use in at least 5 selected areas	To preserve and restore ecosystems of the Pendjari-Oti region	Benin, Togo

63. Sub-Component 3.1. Reforestation: Being implemented in Benin, Cote d'Ivoire, Ghana and Togo, this activity builds priority actions based on SAP Actions B.4 and B.7, which highlight the degraded forest ecosystems in these countries. Forest area degradation is attributed to shifting cultivation, transhumance, overgrazing, uncontrolled bush fires used to clear land for agriculture and uncontrolled exploitation of timber and other crops. In Benin and Togo, these challenges are acute along the mountainsides and near river banks of the Pendjari-Oti, whereas in Ghana and Cote d'Ivoire these problems occur within the Black Volta sub-basin. All four priority actions will contribute towards conservation of critical ecosystem functions by rehabilitating degraded forest ecosystems in the project sites.

64. Sub-Component 3.2. River Bank Protection: Being implemented in Burkina Faso, this activity corresponds to SAP Action A.2, which addresses challenges to the water levels of the tributaries of the Mouhoun River, one of the key streams of the Volta, and situated in the northern region of Burkina Faso. These tributaries used to be permanent, but in recent years have been drying due to human impact. Furthermore, soil erosion of the river banks is leading to increased sedimentation which is in turn negatively impacting flows.

65. Sub-Component 3.3. Development of Market Gardens: This component corresponds to Action A.3 and will be implemented in Mali. Small market gardens will be developed using water conserving techniques showcasing alternate forms of irrigation applicable for the Sahel.

66. ***Component 4: Project Management (US$790,000).*** The component will finance activities

related to the strengthening the management and internal processes of the VBA. This component will also provide support to the Project Coordinating Unit (PCU) to implement the project. It will thus finance costs relating to fiduciary management, monitoring and evaluation of the project's results, technical reporting and audits, additional consultants for the PCU as well as any operating costs such as meetings, workshops, travel expenses and training to assure project implementation according to standards acceptable to the World Bank.

B. Project Financing

67. **Lending Instrument**. The project is an investment project financing operation financed by two grants from the Cooperation in International Waters in Africa (CIWA) Trust Fund in the amount of US$3.5 million and the Global Environment Facility in the amount of US$7.2 million, respectively. Counterpart funding in the amount of $240,000 is being contributed by the VBA.

68. **Project Cost and Financing**. Table 4 below summarizes funding allocations to the different project components:

Table 4: Funding allocations to the project components

Components	Financing (US$)					
	GEF	CIWA	Counterpart Funds	Total	Total with Contingency	Percent
Component 1: Development of the Water Charter	625,000	1,300,000	-	1,920,000	1,992,000	18%
Component 2: Facilitating Dialogue, Communication and Project Monitoring	550,000	650,000	-	1,200,000	1,260,000	11%
Component 3: Implementation of SAP Actions	5,400,000	1,200,000	-	6,600,000	6,898,000	60%
Component 4: Project Management	325,000	200,000	240,000	770,000	790,000	7%
Sub-total	6,900,000	3,350,000	240,000	10,490,000	10,940,000	96%
Contingencies	300,000	150,000	-	450,000	0	4%
Grand Total	**7,200,000**	**3,500,000**	**240,000**	**10,940,000**	**10,940,000**	**100%**

C. Lessons Learned Reflected in the Project Design

69. The project design has benefited from best practices and lessons learned from regional and global transboundary water resources projects that have been examined in detail. Some of the key lessons learned that are reflected in the current project design are described below.

70. *Stakeholder involvement and coordination.* The importance of consistent involvement and adequate coordination among all stakeholders has been repeatedly identified as a critical component for success in complex transboundary water resources settings that involve multiple stakeholders across a range of related sectors. This approach increases stakeholder ownership of the project as well as the institutions that such projects are intended to develop and strengthen. As national agendas usually supersede transboundary considerations (as has been the case for the Volta basin riparian countries), this trend can be altered when there are deliberate measures to involve stakeholders in the institutional development process, ensuring that their priorities and perspectives are being addressed, so that the institution grows as a tool that meets the needs of its constituents.

71. *Design informed by independent analysis.* The project design has been informed by experiences in other international basins such as the Nile, Niger, Senegal and Lake Chad and the Mekong. Important lessons include: adequacy and appropriateness of institutional set-up; sequencing of technical support provided by donors; involvement of stakeholders in project preparation and implementation so as to increase ownership of the project and transboundary institution; importance of opportunistic engagements to ensure that moments of political viability of certain activities are seized; use of independent assessments to provide objective recommendations for strengthening transboundary institutions; exploration of multiple sources of funding to ensure RBO sustainability and efficiency.

72. *Complementarity of components*. Transboundary water resources institutions have been shown to be effective when they deliver on their mandate and can be shown to provide benefits to their constituents. Towards this end, the project's components were designed to complement and reinforce one another such that they produce results whose tangible benefits are demonstrable. For instance, the robustness of regulatory processes being developed through the project will be tested through implementation of other portions of the project whose success depends on these processes; the communications plan will be implemented to communicate results of priority actions as they unfold; priority actions will themselves produce benefits that lead to the increased legitimization of the institution; the Water Charter will be communicated through mechanisms established in the Communications Plan.

73. *Synergies with development partners.* The Volta Basin, like many large transboundary basins, has several interventions by different partners. The project design responds to the need to ensure synergy with the different ongoing interventions at VBA to maximize complementarity and reduce overlap. Consultation with the other development partners working with the VBA including UNDP, AFD, GIZ, etc. has been done during preparation and will continue during implementation.

74. *Simplicity.* The project's simple design and implementation arrangements are in line with the VBA's current institutional capacity. In addition, since this is the first project the VBA will implement funded by the World Bank, it is important to keep the design simple and use the project to establish a strong institution with adequate fiduciary systems.

IV. IMPLEMENTATION

A. Institutional and Implementation Arrangements

75. Three criteria drove the selection of the following institutional arrangements. First, implementation arrangements are based on strengthening the permanent capacity of the VBA, and to avoid the creation of *ad hoc* arrangements that will dissolve this capacity after the closing of the project. Second, implementation arrangements should make use of existing VBA structures that can meet the requirements of the World Bank so as to avoid unnecessary additional administrative burden. Finally, implementation arrangements were chosen to ensure maximum ownership and involvement by stakeholders in project implementation.

76. All activities of the project will be implemented by (i) a PCU within the VBA; with strategic guidance and oversight by (ii) a Project Steering Committee (PSC).

77. The PCU will be hosted in the VBA's Executive Directorate (as the implementing agency) and will carry out the day-to-day management of all project activities. It should be noted that due to the VBA's legal standing and ability to access and implement priority actions in its member states, the PCU under the VBA will implement activities under Component 3 as well. The PCU will be staffed with current VBA personnel; and only if the expertise needed is not available at VBA will consultants be hired to complement the PCU with the long term objective of integration into the VBA's permanent staff to help ensure with sustainability of the project activities and retention of capacity beyond the project's life. The PCU will consist at a minimum of a Project Coordinator, three Technical Specialists responsible respectively for Components 1 to 3, an Accountant and a Project Assistant – these positions will be filled by current staff at the VBA. The technical specialist responsible for implementation of Component 3 will also be responsible for M&E. The PCU will also include a Procurement Specialist, who will be hired as a consultant. Functions of the PCU will include:

i) Coordinating implementation of project activities;
ii) Managing contracts;
iii) Coordinating and oversee overall flow of funds and disbursements;
iv) Ensuring information sharing with the network of project stakeholders;
v) Conducting monitoring and evaluation of project activities;
vi) Ensuring compliance with social and environmental safeguards;
vii) Reporting on project implementation progress.

78. The PSC will provide strategic guidance for the implementation of the project. The PSC will meet annually and will be specifically responsible for the review and approval of annual work plans and budgets, assurance of financial and program performance, as well as the assurance of a uniform understanding of project's objectives and activities by all stakeholders. To harmonize project implementation arrangements with the existing structures of VBA, VBA's existing Committee of Experts will serve as the Project Steering Committee. The Committee of Experts consists of two representatives from each member country, one of whom is the National Focal

Point, while the other is a technical expert selected for the purpose of the meeting. The Committee of Experts usually meets at least twice a year.

B. Results Monitoring and Evaluation

79. The project development objective (PDO), which aims "to improve the capacity of the VBA for transboundary water resources management," has been carefully selected to reflect the design, activities and approach of the project. The Results Framework (RF) is provided in Annex 1 and further details on monitoring and evaluation are given in Annex 3.

80. The RF is also in line with the expectations and framework of the CIWA and GEF grants. Annex 2 demonstrates how the project components relate to the CIWA Results Framework and Annex 6 demonstrates how the project relates to GEF's Focal Areas and Key Expected Outcomes. The GEF Tracking Tool will also be monitored and results reported against its indicators.

81. Monitoring and Evaluation functions related to the project will be carried out by the Technical Specialist responsible for Component 3 as the majority of variables to be monitored will fall under this component.

C. Sustainability

82. The project will build institutional sustainability through capacity building, consistent consultations with and inclusion of stakeholders throughout project implementation. A participatory approach to implementation will be used to build trust, empowerment and ownership among the stakeholders.

83. The project also benefits from the fact that its components are fully aligned to VBA's Strategic Plan so they do not represent new or additional activities outside the scope of planned VBA activities. The Water Charter, once signed by riparian countries, will constitute a legally binding commitment which then holds the VBA and member states accountable for responsible water resources management of the Volta Basin. Finally, priority actions have a strong potential for being sustainable as they are part of a much larger set of strategic actions that reflect needs in the basin that have been validated by the member states.

84. The VBA has taken strong steps towards its financial sustainability – the *Autonomous and Sustainable Financing Mechanisms for the VBA* outlines measures for increasing member state contributions towards the operational budget of the VBA, as well as explores other measures such as taxes, loans and development partner support. As a result of these steps, contributions by member states has increased significantly over the past four years and currently covers 71 percent of the VBA's operating costs – although that constitutes a small portion of their Strategic Action budget. The Study identifies capacity, human resources and institutional needs as the major causes for the VBA's financing issues. The interventions of the project in these fields are expected to contribute towards strengthening the organization's financial sustainability.

V. KEY RISKS AND MITIGATION MEASURES

85. The main risks identified for the project are related to political and governance issues and VBA's capacity to implement the project. The proposed project will be the first World Bank-financed project to be implemented by the VBA and they currently lack the necessary robust fiduciary systems to implement it. This project is therefore designed to strengthen the VBA's capacity for project implementation including strengthening its institutional and fiduciary processes, and improving communication and engagement with other institutions and stakeholders. VBA's capacity risk will be mitigated through the designation of the PCU responsible for project implementation to which relevant training on fiduciary requirements for new and existing staff will be provided. The World Bank fiduciary team will assist in strengthening the capacity of the PCU and ensuring fiduciary compliance with WB requirements. Additionally, the inherent complexity in designing a regional project which involves multiple countries and agencies at the regional, national and local levels for implementation introduces risks and potential delays.

86. The political stability of member states will also affect both VBA's ability to implement the proposed project. In early November of 2014, Burkina Faso saw a military takeover of the government including wide protests in the capital and other cities. The protests led to the closure of government sectors in the capital, airport closings and other security measures in the capital where VBA Headquarters is located. While the biggest impact of these events on the project was a delay in preparation by several weeks, it is important to note that most of the six member states are stable and the VBA headquarters resumed work relatively quickly following the unrest in Burkina Faso. In addition, project implementation via a regional agency (such as VBA) can help to by-pass some of the difficulties posed at the national level in cases of instability. Furthermore, the project is intended to be carried out in a highly participatory manner and includes a lot of capacity building for the stakeholders involved, thus helping to mitigate national political divergences.

87. The Overall Risk Rating for the project is **substantial**. An overview of the risk ratings for the different categories is given in Annex 5.

VI. APPRAISAL SUMMARY

A. Economic and Financial Analyses

88. The full economic and financial analysis is given in Annex 7; a brief summary is given below. The project will generate a wide range of quantifiable and non-quantifiable benefits including:

89. **Socioeconomic benefits**. Project's activities aimed at dredging river beds and reinforcing extremely degraded portions of their banks are expected to significantly contribute to increase the flow of targeted rivers, water resource availability and flood control. As a result, the productivity

of cultivated areas, crop, fishing and pastoral activities in the basin are projected to increase significantly along with the associated socioeconomic returns. It is anticipated for instance that, the rice-growing area of the Kou valley situated 25 km in the north-west city of Bobo Dioulasso would increase by 20 percent from the current 1,260 ha to about 1,512 ha with an average annual incremental return of about US$176,420. The analysis predicts that about US$3 million of yearly incremental agricultural gains could benefit about 50,000 people living in project intervention zones beginning from the end of the second year of project implementation.

90. **Food Security and Nutritional Benefits**. Siltation and continued degradation of riverbanks due to anthropogenic actions are negatively impacting agricultural, fishing and pastoral productivity and threatening to seriously undermine efforts to ensure food security within the Volta River Basin. It is projected that implementation of selected priority actions under the project aimed at increasing water resource availability would lead to an incremental production of about 11,280[1] tons of diversified agricultural products (including rice, mango, papaya, guava, watermelon, and cabbage), per year with the likelihood to reach a total incremental yearly production of about 21,800 tons.

91. **Job creation and poverty alleviation**. It is projected that increased hydro-agricultural cultivated areas to be induced by increased water resource availability caused by project reforestation, riverbanks beautification, river bed dredging-related activities, and rehabilitation works planned on Dindérésso Bridge in Burkina Faso will all together have a significant positive effect on rural jobs creation and poverty alleviation around project sites. In Burkina Faso and Côte d'Ivoire for instance, the incremental number of local direct jobs likely to be created because of the project implementation has been estimated by VBA national focal points at 1,600 jobs. Taking into account the implementation of similar activities planned under the project in the other five countries, the analysis has conservatively forecasted that a minimum of 2,500 jobs could be created during the four-year period of the project implementation. The associated anticipated income generation for local communities at the average monthly minimum wage of US$100 is about US$828,000 per year over the project life span.

92. **Environmental benefits**. Implementation of priority actions pertaining to reforestation, agroforestry development and stabilization of selected riverbanks and hills lopes are expected to yield significant environmental benefits, including: reduced soil erosion in critical areas, increased vegetal cover along the targeted riversides, increased preservation and restoration of coastal and marine ecosystem goods and services, comprising globally relevant biodiversity of the Pendjari, Oti and Mouhoun regions.

93. **Estimated Project Costs**. Project costs include total investment costs are US$10.94 million over the four-year implementation period. Annual operation and maintenance (O&M) costs for various investments related to the project including reforestation, hydro-agriculture, agroforestry, beautified riverbanks and rehabilitating the bridge on the Kou River are also taken into account over the project life span. They are estimated at 10 percent of respective capital expenditure.

[1] Total crops annual production on 200 hectares.

94. Financial and economic analyses conducted for the Project focus on a cost-benefit analysis and zero-in on selected priority actions under Component 3. The analyses cover 25 years, including 4 years of project implementation and take into account only quantifiable benefit and cost streams. The financial viability of productive investments and the economic attractiveness of the Project at the Basin level are verified through the computation of Net Present Values (NPVs) and Internal and Economic Rates of Return (IRR/ERR) and their comparison to the associated capital investment and the opportunity cost of World Bank funds, estimated at 12 percent. The main objective of the financial analysis was to examine the financial viability of selected productive investments taking into account only related direct costs and benefits. Results of this analysis are summarized in the table below:

Table 5: Results of financial analyses of productive investments

Project Activities	Sub-sector	Beneficiaries	Financial IRR	NPVs (US$)
Hydro-agriculture and agroforestry	Agriculture /Agroforestry	local Communities in Project sites	18%	596,000
Income Generating Activities (IGAs)	Apiculture, gardening and Rabbit breeding (combined)	local Communities in Project sites	21%	154,000
Project			**19%**	**750,000**

95. ***Economic Analysis***. The main objective of the economic analysis carried out was to examine the economic viability of the overall operation at the regional level, by taking into consideration direct and indirect costs and expected benefits. Depreciation charges, expected changes in the general price and direct transfers such as taxes, direct subsidies, and credit transactions including loans, principal repayment, and interest payments were thus excluded from the cost-benefit analysis. On the other hand, several benefits have not been quantified because of lack of usable data. As a result, these were not taken into account in the determination of the project's economic rate of return. These include mainly environmental (such as carbon credits), Non-timber benefits such as hunting and biodiversity/ecological protection benefits which represent returns of significant value for the project. If accounted for, they would enhance the overall economic viability of the Project. For that reason, the decision on project feasibility and rationale should also take these elements into consideration. Results of the analysis indicate that the proposed operation is economically viable at the regional level with a positive NPV of about US$2,279,000 and an overall economic rate of return (ERR) estimated at 21 percent.

96. **The Project's overall positive expected contribution to the country's socioeconomic development**. In addition to the anticipated revenues projected to accrue to targeted local communities, the project will contribute to the creation of about 2,500 local jobs and the generation of an average annual income (salary) of about US$828,000 over the project life span. Income generating activities planned under the project will, on the other hand, benefit many local communities, including women and would contribute to improving their livelihoods. Furthermore, these activities will provide rural and sub-regional markets with increased supply in products such as honey, rabbit, and vegetables thereby contributing to local food security. Finally, it is expected

that institutional capacity building activities planned under Component I along with activities under Component II aimed at fostering dialogue and effective dissemination of information on ongoing and planned initiatives in the Volta basin for coordination and monitoring purpose, will catalyze stakeholders' energies to envision and develop a more ambitious program, building on the results and lessons learned from the proposed project.

97. **The Rationale for the Public Sector Provision**. The involvement of the public sector in transboundary water resources management in the Volta River Basin is critical for a number of reasons. Formal market economies have limited suitability in protecting the global environment. It is therefore important that the riparian governments help to foster an environment which is more conducive to sustainable economic development and use of natural resources, by strengthening transboundary water resources management in the Basin, notably through institutional development and implementation of priority actions of the Strategic Action Programme. Moreover, given the increased vulnerability of some riparian countries to climate change variability, the associated devastating impacts, and the necessity to strengthen regional cooperation in the search for sustainable mitigation/adaptation solutions, the six governments have an important role to play in strengthening transboundary water resource management. This project recognizes the important role which the public sector should play in achieving the broad objective of ensuring equitable distribution and access to international waterways, public services and the conservation of goods and services of the ecosystem. Furthermore, public sector leadership involvement is essential because rivers and riverbanks along with protected forests in Volta River Basin are vested in governments' ownership.

98. **World Bank's added value.** The World Bank's added value is substantial, encompassing capacity building, technical expertise, coordination support, and channeling of global knowledge. The Bank's value added in lower-middle income and fragile states is acknowledged to be substantial. For this project, this will include direct technical expertise through intensive supervision; support for required coordination through a Bank team that incorporates members from various relevant sectors; and the channeling of global knowledge through connections to WB teams and counterparts working on similar projects (past or present) in other lower-middle income or fragile states.

B. Technical

99. Drafting of the Water Charter through this project will play a strong role in strengthening the political, legal and institutional capacity of the VBA. However, the effectiveness of this Charter and its viability rely as much on the process by which it is drafted as on the content of the Charter itself. Therefore, the drafting of the Charter is preceded and accompanied by an intensive and wide-reaching stakeholder involvement process. This participative approach has been shown to result in longer term benefits and help to imbed the content of the Charter into the functioning of national and sub-national institutions in member states. This was demonstrated in the drafting of the Senegal River and Niger River Water Charters. Activities under Component 2 (Communications Plan) further support this process.

100. Additionally, implementation of activities related to the institutional development and strengthening of the VBA will be based on an objective and independent assessment of the institution – providing the VBA with a set of sound and well researched recommendations and guidance as they proceed with this project.

101. Priority Actions (Component 3) comprise community-based activities to reduce erosion and sedimentation, restore vegetative cover, and conserve forest ecosystems in and around the tributaries of the Volta River. Such activities, which include reforestation and river bank rehabilitation, are proven to be effective in contributing to restoring flow regimes – particularly in regions such as the Volta basin where soil erosion is a strong factor in their degradation. The specific activities for each site have been chosen through a consultative process with key basin stakeholders and World Bank experts, and based on the recommendations of the SAP. Detailed feasibility studies will be carried out early during project implementation for all the priority actions to ensure their viability. Capacity and training activities will continue throughout implementation to ensure that stakeholder ownership of and sustainability of the actions are maintained.

C. Financial management

102. A Financial Management (FM) assessment of the International Volta Basin Authority (VBA), Implementing Agency of the Volta River Basin Strategic Action Programme Implementation Project was carried out in January, 2015. The objective of the assessment was to determine whether VBA has adequate FM arrangements in place to ensure that the Project funds will be used only for the purposes for which the financing was provided, with due attention to considerations of economy and efficiency. The assessment complied with the Financial Management Manual for World Bank-Financed Investment Operations effective since March 1, 2010 and AFTFM Financial Management Assessment and Risk Rating Principles.

103. The conclusion of the assessment is that the financial management arrangements meet the Bank's minimum requirements under OP/BP10.00. The overall fiduciary risk rating is assessed as **moderate**, once the mitigation measures are implemented. Details of the Financial Management arrangements are provided in Annex 3.

D. Procurement

104. Procurement for the proposed project would be carried out in accordance with the World Bank's "Guidelines: Procurement of Goods, Works, and Non-Consulting Services[2] under IBRD Loans and IDA Credits & Grants by World Bank Borrowers" dated January 2011, revised in July 2014, and "Guidelines: Selection and Employment of Consultants under IBRD Loans and IDA Credits & Grants by World Bank Borrowers" dated January 2011, revised in July 2014, and the provisions stipulated in the CIWA and GEF Grant Agreements. The "Guidelines on Preventing

[2] Non-consulting services are defined as "...services in which the physical aspects of the activity dominate, such as drilling, mapping, and similar operations, and which are bid and contracted on the basis of performance of a measurable physical output".

and Combating Fraud and Corruption in projects Financed by IBRD Loans and IDA Credits and Grants", dated October 15th, 2006 and updated January 2011, shall apply to the project.

105. For each contract to be financed by the credit, the procurement plan defines the appropriate procurement methods or consultant selection methods, the need for pre-qualification, estimated costs, the prior review requirements, and the time frame. The procurement plan was reviewed during project appraisal and was formally approved prior to or during negotiations. The procurement plan will be updated at least annually, or as required, to reflect the actual project implementation needs and improvements in institutional capacity.

106. Procurement activities for the project will be carried out by the PCU hosted in VBA's Executive Directorate. The main procurement activities for the project will consist of civil works, consulting services, training and workshops, office equipment, studies, advisory services, and audits.

107. **Assessment of Procurement Capacity and Risks**. The Direction of Administration and Finances (DAF) is responsible of carrying out procurement for activities financed under VBA's own budget. For funds received from external donors, VBA nominates a coordinator who has the overall responsibility of the project. The coordinator supervises TORs and technical specifications production and conducts procurement processes with the support of the DAF. The findings of the assessment are summarized as the following: (i) the workload of the DAF and the limited knowledge of the existing staff in Bank procedures; (ii) a lack of experience of the key members of the evaluation committee, (iii) an absence of a manual of administrative procedures and the absence of standard documents; and (iv) limited publication of VBA Expressions of Interest. The risk is evaluated to be **high**.

108. To mitigate the risks, five actions are proposed: (i) strengthen the DAF capacity by the recruitment of a procurement specialist with a minimal experience in Bank procedures; (ii) training to be conducted by the Bank procurement team for the evaluation committee key members; (iii) use of the standard Bank bidding documents, Request for Proposals and evaluation reports; (iv) the elaboration of a Project Implementation Manual (PIM) including administrative procedures where procurement processes will be well described; (v) the publication of all procurement notices in local and well-known newspapers in addition to the web side.

E. Environment and Social (including Safeguards)

109. No significant negative environmental impacts are expected from this project as its intention is to promote sound water resources management. In fact, the project is expected to generate significant environmental benefits as it aims to implement priority actions that will support improvements in water quality, flows, increased tree/shrub/grass cover and reduced deforestation and forest degradation through reforestation activities and ecosystem services and would reduce vulnerability to flooding and limit land degradation trends.

110. Improvements in drainage are likely to result in reductions in water-borne illnesses such malaria and a reduction in the frequency and impact of flooding on households and businesses. In

the project areas where reforestation/afforestation practices and pump irrigation system will be introduced, the expected socioeconomic benefits for the communities derive from the reduced impact from effects of flooding on cultivated crops as well as provide alternative (water-based) forms of agriculture. This also indicates the availability of water that could be controlled and utilized for irrigated agriculture and thus lead to economic development. Overall, the project is expected to contribute positively to employment and livelihood opportunities and provide an environment conducive to the expansion of local economic activity.

111. However, it is recognized that despite these anticipated benefits, it is necessary for the sake of the environmental integrity of the project to follow a structured assessment process to ensure that no activities will have unintended consequences on the environment. During appraisal most of the priority actions have been screened and have found to have low negatives impacts on the beneficiaries and the environment. Consequently, the project is rated category B and triggers six (06) environmental safeguard policies which are: OP/PB4.01 (Environment Assessment); OP/PB4.04 (Natural Habitats); OP/PB 4.36 (Forests); OP4.09 (Pest Management); Involuntary Resettlement (OP/BP 4.12); and OP/PB7.50 (Project on International Waterways).

112. For that purpose and as the exact locations of projected investments are not known to date, an Environmental and Social Management Framework (ESMF) was prepared in accordance with the World Bank Environmental Assessment Policy (O.P. 4.01). To take into account OP/PB4.04 and OP/PB4.36, there has been no need to develop a specific safeguard instrument. The ESMF includes a chapter to deal with these aspects. In addition to the ESMF, an Integrated Pest Management Plan (IPMP) was also developed in accordance with OP 4.09 on Pest Management. As the project may involve some land acquisition/involuntary resettlement and/or loss of income, a Resettlement Policy Framework (RPF) was prepared by the VBA. The ESMF, IPMP and RPF have been disclosed within the six Volta Basin member states on April 7 and 16, 2015 and World Bank InfoShop on April 7 and April 17, 2015, respectively.

F. Grievance Redress

113. Communities and individuals who believe that they are adversely affected by a World Bank (WB) supported project may submit complaints to existing project-level grievance redress mechanisms or the WB's Grievance Redress Service (GRS). The GRS ensures that complaints received are promptly reviewed in order to address project-related concerns. Project affected communities and individuals may submit their complaint to the WB's independent Inspection Panel which determines whether harm occurred, or could occur, as a result of WB non-compliance with its policies and procedures. Complaints may be submitted at any time after concerns have been brought directly to the World Bank's attention, and Bank Management has been given an opportunity to respond. For information on how to submit complaints to the World Bank's corporate Grievance Redress Service (GRS), please visit http://www.worldbank.org/GRS. For information on how to submit complaints to the World Bank Inspection Panel, please visit www.inspectionpanel.org.

Annex 1: Results Framework and Monitoring

Africa

Volta River Basin Strategic Action Programme Implementation Project

Project Development Objective (PDO): To improve the capacity of the VBA for transboundary water resources management										
PDO Level Results Indicators*	**Core**	**Unit of Measure**	**Baseline**	**Cumulative Target Values****				**Frequency**	**Data Source/ Methodology**	**Responsibility for Data Collection**
				YR 1	**YR 2**	**YR3**	**YR 4**			
Indicator One: Action Plan to implement findings of Institutional Assessment developed and validated by member countries	☐	Yes/No	No	No	No	No	Yes	6 months	Progress monitoring and reports	VBA
Indicator Two: Direct project beneficiaries (of which % are women)	☐	Number	0	0	0	20000 20%	50000 20%	6 months	Progress monitoring and reports	VBA
INTERMEDIATE RESULTS										
Intermediate Result (Component One): Intermediate Result (Component One): Water Charter Development for Volta River Basin										
Intermediate Result indicator One: Water Charter drafted and validated by member states.	☐	**Yes/No**		No	No	No	Yes	6 months	Progress monitoring and reports	VBA
Intermediate Result (Component Two): Facilitating Dialogue, Monitoring and Project Development										
Intermediate Result indicator One: Number of stakeholders consulted during development of Communications Plan	☐	**Number**	0	100	200	350	500	6 months	Progress monitoring and reports	VBA
Intermediate Result indicator Two: Communications Plan developed and validated by member countries	☐	**Yes/No**	No	No	No	No	Yes	6 months	Progress monitoring and reports	VBA
Intermediate Result (Component Three): Implementation of SAP Actions										

Intermediate Result indicator One: Number of priority actions implemented in Volta Basin transboundary zones.		**Number**	0	0	0	3	6	6 months	Progress monitoring and reports	VBA
Intermediate Result indicator Two: Surface area reforested (ha)		**Number**	0	0	0	50	150	6 months	Progress monitoring and reports	VBA

Africa

Volta River Basin Strategic Action Programme Implementation Project

Results Framework

Project Development Objective Indicators	
Indicator Name	Description (indicator definition etc.)
Action Plan to implement findings of Institutional Assessment developed and validated by member countries	This indicator monitors steps taken by the VBA through this project towards strengthening of the institution. The indicator monitors the degree to which recommendations of the institutional assessment, which will be carried out during development of the Water Charter, are integrated into the trainings and capacity building activities of this project. As the assessment will identify weaknesses and gaps in the VBA, its integration will have a direct impact on the institution's capacity for managing transboundary water resources management.
Direct project beneficiaries (of which % are women)	Direct project beneficiaries are those whose livelihoods have improved as a result of implementation of the priority actions. Direct benefits to these affected communities will increase stakeholder awareness of and ownership of the VBA at national levels.

Intermediate Results Indicators	
Indicator Name	Description (indicator definition etc.)
Water Charter drafted and validated by member states.	The project anticipates that the Water Charter would have been drafted and followed by a first round of validation by member states. The coordination and management needed for development of the Charter will enhance the VBA's capacity in those areas.
Number of stakeholders consulted during development of Communications Plan	This indicator is a measure of the VBA's efforts towards advancing ownership by relevant stakeholders of this project through drafting of the Communications Plan. As such, the indicator monitors the number of stakeholders consulted

	during its drafting. This consultation process will improve the VBA's coordination, management and communication capacity, as it will expose the institution to the various types of stakeholders involved in the management of the basin's transboundary resources
Communications Plan developed and validated by member countries	The project will draft a Communications Plan based on the needs and opportunities of the Volta Basin. The project anticipates that this Plan will be validated by member states by the closing of the project. The Communication Plan will standardize and improve the Authority's communication streams and guiding principles with different types of stakeholders, thus fulfilling one of the main tenets of its mandate, which is to promote permanent consultation tools among the parties for development of the basin
Number of priority actions implemented in Volta Basin transboundary zones.	This indicator measures the number of priority actions that will be under implementation by the project. Priority actions will lead to improvements in water quality, flows and ecosystem services and income generation for the communities concerned. VBA's capacity for preparing and implementing similar investment projects in the Basin will also be developed.
Surface area reforested (ha)	Since reforestation is one of the main activities that cuts through many of the priority actions being implemented, the total surface area being reforested will be monitored

***Please indicate whether the indicator is a Core Sector Indicator (see further http://coreindicators)**
****Target values should be entered for the years data will be available, not necessarily annually**

Annex 2: Detailed Project Description

Africa

Volta River Basin Strategic Action Programme Implementation Project

A. Sector and Institutional Context

1. The Volta, one of the largest transboundary basins in Africa, and distributed over the West African countries of Benin, Burkina Faso, Cote d'Ivoire, Ghana, Mali and Togo, has large potentials for development in irrigation, hydropower, water supply, fisheries and other sectors, but is also faced with multiple threats to its ecosystems. It has been estimated that less than 50 percent of the potential irrigable lands of the basin are in production, with small scale unorganized farmers dominating the sector. Agriculture dominates the economies of countries like Burkina Faso and Mali (although only a small part of Mali actually lies in the Volta basin), and continues to have a strong impact in the remaining member states.

2. Burkina Faso's economy is based on the rural sector which employed about 86 percent of the labor force (National Population Census, 2006) and accounted for an average of 33 percent of the Gross Domestic Product (GDP) in 2011. The rural sector accounts for nearly 61.5 percent of the monetary income of farming households. Household income structure is dominated by crop production (67 percent), followed by livestock production (31 percent). Forestry production only accounts for 2 percent of rural households incomes (DGPER, 2010). There is a rapid expansion of small reservoirs and a trend towards the integration of new technologies. Most agriculture is of a subsistence nature, focusing on food grains (sorghum, millet, maize) - these constitute about 80 percent of production. Between 2000 and 2009, the cultivated area in the basin increased from 2,496,550 ha to 3,556,133 ha. This represents an impressive annual growth rate of 4 percent.

3. In Ghana, figures from 2010 demonstrate that 50.6 percent of the country's labor force is engaged in agriculture, contributing to 30 percent of the country's GDP (although this GDP declined to 22 percent in 2013). From 2005-2012, the country experienced a gradual increase in the area dedicated to agriculture – up to 69 percent of its total land, demonstrating that despite that country's rapid urbanization trends and contribution of the oil industry towards its economy, agriculture remains a viable and important sector, engaging 53 percent of its population. The basin produces much of the country's food products: 56 percent of corn, 72 percent of rice and 100 percent of sorghum and millet are produced in the basin. Additionally, Ghana, 70 percent of which lies in the basin, is one of the leading producers of cocoa beans, cereals and coarse grains in the region.

4. In the Sourou basin in Mali, agriculture is mainly for subsistence crops produced by small family farms and small farms, collectively occupying over 90 percent of the population. Other important crops are sorghum, rice, cowpea and groundnut. In Togo, agriculture is considered the engine of economic growth, with an average growth rate of 2.9 percent from 2000 to 2005, an increasing share of the country's labor force, and an additional US$150 of value added per agricultural worker between 1995 and 2010, and contributing to 32 percent of the GDP in 2011.

Production levels have been growing progressively in recent years. The southern part of the basin is the area par excellence for coffee and cocoa (about 2/3 of national production), fruit and forest crops (bananas, taro, etc.). The center and north are known for farming shea and food crops (millet, sorghum and especially the best varieties of yams). Cotton is grown everywhere in Togo, but the Volta Basin generally contributes more than 50 percent of production.

5. FAO's AQUASTAT provides estimates for the land within basin countries that is equipped for irrigation; in Burkina Faso this estimate is 25,000 ha where 62 percent of the country is within the basin. With the estimated growth rate of 4 percent for the sector, the country has a strong potential for irrigation. Mali has a huge irrigation potential – almost 235,000 ha – so while only a small region of the country is in the basin, there are development plans to withdraw water stored in the Bagre dam to irrigate schemes in Mali. Benin and Cote d'Ivoire, of which 12 percent and 3 percent respectively are within the basin, have areas equipped for irrigation that are 12,258 ha and 47,750 ha, respectively. Ghana has one of the highest potentials for irrigation in the basin, with an area equipped for irrigation estimated at 59,000 ha where 70 percent of Ghana is within the basin. As mentioned above, even with urbanization continuing to rise in the country, agriculture continues to be a strong economic force with upwards trends for growth in particularly rice production. In Togo, where nearly half of this small country within the basin, approximately 7,300 ha are equipped for irrigation.

6. The hydropower potential of the basin has been partially utilized through construction of dams such as the Akosombo, Bui and Kpong dams across Ghana and the Bagre and Kompienga dams in Burkina Faso. Additional sites within the region have been identified for the basin and constitute a combined potential of 715 MW. Hydropower development in the basin has been shown to necessitate a regional or at least sub-basin perspective – Table 2 under Strategic Context above provides hydropower estimates for each of the major tributaries of the basin, which cross national borders. The Akosombo dam, which is managed and operated by the Volta River Authority (VRA) and supplies about 70 per cent of Ghana's power needs, requires a dependable annual inflow (estimated at about 28 BCM) to be stored in Lake Volta. Run-off accounts for the bulk of replenishment to the usable storage and is an important direct factor affecting the power generation at the Akosombo Dam. Since the Lake Volta is situated in the downstream reach of the Volta River, changes in run-off resulting from upstream development would equally negatively impact power generation. VRA has further limited reliable, real time information on inflows into Lake Volta, making it difficult for them to optimally manage storage and hydro-power generation.

7. The basin also has large potential in the livestock and fisheries sectors. Burkina Faso has one of the largest livestock populations in the region – estimated at 54 million in 2010 and expected to rise to 72 million by 2025. In Ghana, the Volta Basin is known as a breeding area for livestock as it coincides almost entirely with the savanna belt of grasslands of the country. Livestock in Togo represents 5.3 percent of GDP. There has also been strong growth in livestock in Mali, where the population of sheep/goats increased tenfold between 1990 and 2010. Mali is also a regional exporter of livestock to the Volta countries and beyond.

8. Meanwhile, manmade lakes such as Lake Volta have proven to be a strong source for fishing, while the possibilities along the Oti River in Benin and Togo have yet to be fully exploited. In Benin, national production is estimated at 42,000 tons/year (UNEP-GEF Volta Project, 2010a). In Ghana, Lake Volta is an important source of fish production, where current figures indicate that

17 percent of all fish production comes from the basin waters, and in 1996, it was estimated that the fishing industry of the Lake employed over 100,000 people. Although fish is the primary source of animal protein in Cote d'Ivoire, 80 percent of consumed fish were shown to be imported and the fishing industry remains small, artisanal with streams and lakes generally considered insufficiently exploited. In Mali, in the Volta Basin, fishing is practiced on a small scale in the Sourou River, lakes and ponds, and is a leading resource for the people and economy, and each year a significant amount of fish are taken from streams. However, there is no reliable data to characterize the production of fish in the basin of the Sourou. In Togo, fishery resources are relatively modest, although the Oti River Fishing Area is the largest area for fisheries. The fishing industry/fish farming has an estimated 25,000 operators and sustains 150,000 people, or 3 percent of the total population. Benefits of the fishing sector extend to employment as well as being the largest source of protein for communities around the basin. Water supply is another sector with a huge potential for growth – percentage of populations in the member states with access to improved sanitation facilities range from 13 percent (Benin and Togo) to 24 percent (Cote d'Ivoire).

9. While these resource capacities are strong justification for increasing development in the basin, they must be balanced against environmental and water resources threats faced there, which may undermine efforts towards this development. Burkina Faso, Ghana and Togo rank high amongst African countries most exposed to risks from multiple weather related hazards such as floods and droughts; floods in the 2000s have resulted in damaging impacts to livelihoods, homes and economies in these countries. Differences in socioeconomic and cultural uses of the water, as well as physical attributes such as climate change, have been shown to negatively affect the water quality and seasonal flows of the Volta's tributaries such that previously perennial streams in the Mouhoun and other tributaries of the Volta have now dried up with efforts being pursued to revive them. Water quality degradation in particular is attributed to human practices in the basin such as over grazing, the growing use of fertilizers and pesticides in agricultural and the unregulated use of chemical waste from nearby industries.

10. Poor land-use practices such as bushfires, tree cutting and over-cultivation of the land have been observed to result in a loss in vegetation, which contributes to heavier siltation of waterways and sedimentation. Sedimentation is also present due to dam construction, highlighting some of the negative impacts that offset positive returns of these development projects. Moreover, the continuing deforestation plaguing areas of the basin can lead to the loss of important ecosystems such as wetlands and to coastal erosion; the high erosion levels in the coastal region nearby Lake Volta in Ghana is one example of this occurrence. In Keta (and in its extension to Lome in Togo) the sea covered about 1 km of tarred road in 2009. In similarly affected areas, such as Ada (where the Volta River flows into the Atlantic Ocean), up to 20 meters of beach front is currently being lost to erosion per year.

11. Areas of the Volta Basin within Benin, Cote d'Ivoire, Ghana and Togo are witnessing a proliferation of invasive aquatic plants such as Pistia stratiotes (water lettuce), which is common in ponds and lagoons and in coastal mangroves, Salvinia molesta (giant salvinia or kariba weed) and, most significantly, water hyacinth (Eichhornia crassipes). Other invasive aquatic plants such as Neptunia oleracea (water mimosa), Vossia cuspidate (hippo grass), and Cyperus papyrus (papyrus sedge) have also been reported. By overwhelming the natural ecosystems, these invasive plants undermine ecosystem functions. For example, they completely cover the surface of the

waterbodies, consuming all the water's oxygen and blocking out light. Under these conditions, few other species can survive, and this leads to a depletion of fish stocks as is seen, for example, in the Pendjari and Lower Volta.

12. Multiple competing demands for water use such as irrigation, hydropower, cattle breeding, farming and fishing, large development infrastructure under implementation as well as planned for the long-term, increasing pressures on the natural resources, and a complex landscape of institutions for managing basin populations, sectors and resources, all contribute to the natural and socioeconomic risks facing the basin. The transboundary nature of some of these issues adds another layer of complexity. With increasing evidence of these risks, the basin countries recognized the strong need for establishing a multi-lateral water resources management institution for the basin in order to address these present and potential concerns as well as facilitate the equitable and sustainable development of resources in the basin.

13. The Volta Basin Authority was formally established in 2009, with a strong vision, mandate and Strategic Plans (2010-2014; 2015-2019) for addressing the concerns observed for the Volta Basin. The VBA is mandated to:

a. Promote permanent consultation tools among the parties for the development of the basin;
b. Promote the implementation of integrated water resources management and the equitable distribution of the benefits resulting from their various utilizations;
c. Authorize the development of infrastructure and projects planned by the stakeholders and which could have substantial impact on the water resources of the basin;
d. Develop joint projects and works;
e. Contribute to poverty alleviation, the sustainable development of the Parties in the Volta basin, and for better socioeconomic integration in the sub-region.

14. The organization's permanent administrative organs and responsibilities are:

15. The Assembly of Heads of State and Government is the supreme body of the Volta Basin Authority with a rotating chairmanship for stability. Definition of the terms of cooperation and all economic development decisions are vested in the Assembly of Heads of States and Government.

16. The Council of Ministers in charge of Water Resources (COM) and is presided over in succession by each of the Member States. Its responsibilities include: formulation of the general policy for the development of the Volta River Basin, the exploitation of their resources, and cooperation among states. Supported by technical experts, the COM defines the projects to be undertaken and their order of priority, and determines the contribution of each member state for financing the operations, research, and administration of the organization.

17. The Committee of Experts is responsible for technical advice and guidance. It is made up of the member country Focal Points and an additional technical expert chosen on an as-needed basis. The Convention establishing VBA envisaged this body as an extension of the VBA Executive Directorate into all the six member countries to facilitate implementation of its activities at the national level. The Committee of Experts also has reporting and advisory functions for their

Ministries and Ministers; provide key technical input to the review process of activities taken at the regional level and ensure that national interests are adequately taken into consideration. The Focal Points are the civil servants equivalent to technical director level in the respective Water Ministries of the Member States.

18. The Forum of the Parties comprises of civil society and non-government organizations that provide advisory and outreach support to the VBA.

19. The Executive Directorate of the Authority is the executive organ of the organization. The Executive Directorate of the VBA has limited human and financial resources. There are currently 5 technical staff, plus ancillary and support staff; however, recruitment of additional technical staff is ongoing to fill positions of a hydroelectric expert, economist, head of the Cooperation and Communication unit, head of the Coordination Unit for Stakeholders and National Focal Points and a position in the Administrative and Finance Unit. Figure 1 is an organogram of the VBA Executive Directorate. Consistent financial support from the member states is challenging, although strong strides continue to be made and currently all of the member states have contributed more than 50 percent of their arrears, for an average of 70 percent of arrears paid across the countries.

20. The VBA has also initiated several key projects in conjunction with regional and international organizations. The most critical of these is the GLOWA Volta basin project (2000-2010) which included an analysis of the hydrological cycle and impacts of climate change in the Volta Basin and development of Decision Support System for water resource management (supported by the German Federal Ministry of Education and Research). A Water Audit of the Volta Basin was sponsored by the International Union for the Conservation of Nature *Volta Water Governance Project* (IUCN/PAGEV) with financial support from Swedish International Development Cooperation Agency (SIDA). In addition some support has been provided by the European Union (EU) to start to develop monitoring and evaluation tools.

21. Another critical project is the Observatory for Water Resources and Associated Environments (Observatory). The Observatory, supported by the France Development Agency (AFD) and SIDA, aims to enable monitoring and measurements of environmental changes in order to support decision making and develop shared basin-scale perspectives. Towards that end, the Observatory is planned as a series of phases diagnosing technical, institutional, capacity building and training, technical communications and long-term financing aspects. Currently, the first phase was completed, for which the VBA was able to conduct a baseline evaluation of the basin's socio-economic and environmental situation, an overview of the sources of monitored data and their characteristics in order to enhance the data base of the VBA Observatory, as well as analysis of the problem areas and the issues of sustainable management of water resources. The second phase is also being implemented and deals more specifically with the constraints, threats and risks affecting both the natural environment and the human environment in the Volta Basin by attempting, on the one hand, to localise the critical areas in terms of intensity or combined effects; and on the other, to present the intervention priorities in terms of their targets or action programmes. It is clear that some of this project's deliverables – e.g. Communications Strategy/Plan – will interface with some aspects of this Observatory.

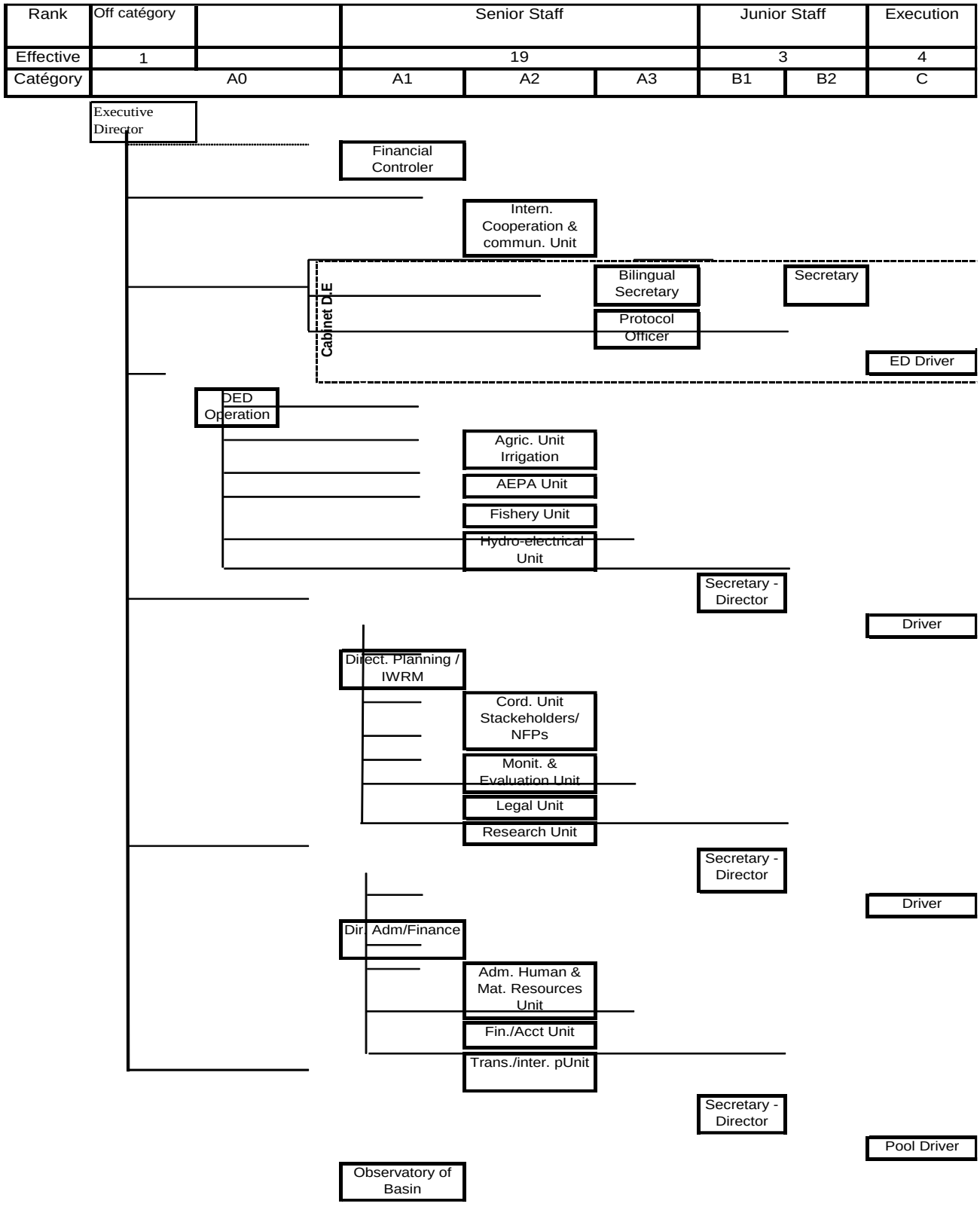
22. There are also a number of projects ongoing funded by other development partners which are all contributing to the development of the VBA:

a. Volta HYCOS project with the World Meteorological Organization (WMO) as supervising agency which will develop a regional framework, for data collection and management, for exchange of information on the status of water resources (Agence Française de Développement (AFD/Africa Water Facility);
b. Addressing Transboundary Concerns in the Volta River Basin and its Downstream Coastal Area project. A Transboundary Diagnostic Analysis (TDA) and Strategic Action Programme (SAP) have been finalized (supported by GEF and UNEP) which build the foundation for this project. The SAP has been validated by twelve ministers in the six basin countries as of June 2014.
c. The development of a Master Plan has been launched (with EU support), but stopped due to budgetary constraints; it is expected to continue as part of the VBA's Strategic Plan for 2015-2019. The SAP's national and transboundary actions for environmental sustainability define a long-term framework for management of the Volta Basin through investments for socioeconomic development. The Master Plan will then translate these long-term objectives into a phased 5 year approach including potential water infrastructure projects and investments which meet the SAP objectives.
d. Studies on autonomous and sustainable financing, supported by AFD, have been completed and resulted in the *Autonomous and Sustainable Financing Mechanisms for the VBA study*.

23. Despite the strong mandate on paper and strides made towards the establishment of the VBA, there is limited implementation on the ground of this mandate, and the organization's human, financial, institutional, technical and political capacity for addressing the multiple concerns of its basin are currently insufficient for meeting this mandate. An incomplete institutional design and capacity limitations have been identified as the main reasons impeding the growth and impact of the VBA. For instance, the VBA lacks well-structured and validated internal procedures for administrative and financial management; the VBA does not have an effective communications framework that can structure flow of information among other member states and stakeholders at different levels; ownership of the organization by member states and stakeholders is limited and reflected in the insufficient way that these groups interact with the VBA; conflicts arising from competing water uses are not being addressed through the VBA, which is the proper channel for such grievances; the VBA is rarely and inconsistently engaged in consultations on transboundary projects; the VBA is operating under an environment of complex, disharmonized and competing policy landscape for managing transboundary water resources, whereby the roles and responsibilities of different actors are not well defined; and the VBA lacks the gravitas needed to convene its stakeholders and address the major issues and development potentials facing its basin.

24. The project, described in detail in the sections below, is designed to address some of these core issues in the VBA and support building a springboard from which the VBA can continue to grow and meet the challenges and facilitate opportunities of the basin.

Figure 1: Volta Basin Authority Executive Directorate Organogram



B. Component 1: Water Charter Development for the Volta Basin (US$1,992,000)

25. The purpose of this component is to develop a Water Charter that defines the roles and responsibilities of the Volta River Basin riparian countries in the use of water resources, strengthens the foundations of VBA in promoting water policies that are combined and harmonized in the basin, and provides guidelines for the development and water resource management for improved watershed such as better integration of IWRM, where transboundary resources are concerned. The Water Charter will be developed under the leadership of the legal unit of the VBA, and the process of its development will include extensive consultations with key parties in the member states to ensure ownership of the process and final document. A consulting firm(s) will be procured to draft the studies outlined below, but it will be under the oversight of the VBA's legal unit and with close consultation with relevant stakeholders in the member states at every key step of their development.

26. Development of a Water Charter for the Volta Basin was previously started – however, due to budgetary constraints, the process was not completed. The VBA will identify aspects of that previous attempt from which the activities under this component can then build.

27. The Water Charter aims to:

(i) Facilitate dialogue and cooperation between Member States in the planning and implementation of programs and projects affecting water resources;
(ii) Strengthen solidarity and promote sub-regional integration and economic cooperation among member states;
(iii) Define the regulations for the use of the basin's water resources by determining the terms of the distribution of water resources between sectors and associated beneficiaries;
(iv) Define the regulations on the conservation and protection of the environment, particularly those concerning the quality of water;
(v) Strengthen collaboration on flood management and the modalities for the exchange of hydro-meteorological data and information on floods;
(vi) Define the modalities for the participation of water users in decision making on water resource management in the Volta Basin.

28. In addition, the Water Charter will define the operating parameters for VBA, in particular vis-à-vis relevant national institutions within the Basin. An institutional assessment of the VBA is also underway which will identify gaps and capacity needs for the institution. These two activities will significantly contribute towards improving the VBA's capacity.

29. The activities in the development of the Water Charter include: an assessment of the actors, a legal and diagnostic study, preparation of the consultation on the draft charter, and dissemination of the signed Charter. The communication of the final version of the Water Charter will ensure that all actors know their rights and responsibilities.

30. **Stakeholder Assessment**. All stakeholders of the basin must be taken into account, including the member states and their subdivisions (local and decentralized services), NGOs, the private sector and members of civil society. The assessment process should be to take stock of the

roles and responsibilities as well as the identification of institutional problems in order to propose appropriate and practical solutions. The information gathered from stakeholders should be analyzed at the national and sub-regional levels. This assessment of the players will have to put a significant focus on the Volta Basin Authority, mainly on its capacity to coordinate all activities and actors in the Volta Basin.

31. **Legal Study and Diagnosis**. In all six countries of the Volta Basin, in-depth legal studies are needed to make an inventory of legislation, regulations and legal systems in force in the area of integrated water resource management. This will make a legal and institutional diagnosis (the two are intrinsically linked) to update the bottlenecks in the application of laws and regulations, overlaps and conflicts of jurisdiction between administrations and entities responsible for the management of water resources, and aspects of customary rights related to the traditional management of water resources. It appears that many challenges in the application of water-related laws are caused by conflicts between modern water law and traditional water law. The legal study and diagnosis should lead to a series of recommendations to correct these challenges. The diagnostic and institutional study will also, in addition to the analysis of the VBA, take stock of experiences at the subregional level (NBA, OMVS, LCBC, etc.). Consultations and a participatory guiding principle underpin development and completion of these studies.

32. **Consultation on the Draft Charter**. A suitable TOR needs be developed to clearly define the contextual needs in the consultative process, the objectives of preparing and drafting the Charter, and the terms and conditions of Conduct. Under the previous attempt at developing a Water Charter, some of this work had already been done. In the current context, it is imperative to review the objectives and deadlines previously set forth and update it for the current needs. Although consultations on the draft Charter will be led by the VBA, a consulting firm will also be procured to ensure that the multidisciplinary nature of the consultations is integrated, as well as any other issues that may arise.

33. **Dissemination and of the Charter**. A Communication Plan being developed through this project will be used to disseminate and popularize the Charter. This activity will help explain to stakeholders and the public the contents of the charter and the underlying reasons for its development. Civil society is very important and composes a fundamental facilitator to help achieve the objectives of this activity. The VBA will spearhead the dissemination of the Charter.

34. The Water Charter is one of the measures identified under the SAP (component D). GEF funding for this component will be used for consultations, legal assessments, stakeholder workshops related to the development of the Water Charter and other necessary items. All this is in order to ensure that the Charter is developed in an inclusive way such that there is ownership by key stakeholders and that the institutional role of the VBA related to transboundary water management is sufficiently understood and applied.

35. In order to facilitate proper implementation of Component 1 of the development of the Water Charter for the Volta basin, it is essential and the activities aim to focus on capitalizing on the positive experiences of the VBA and the Member States in the field of water resources management, as well as the legal and institutional diagnostic study at national and sub-regional levels that have already been conducted; further, there are numerous examples of positive experiences in the region of other basin organizations preparing and drafting of Water Charters

(OMVS, NBA, LCBC), which will be referred to for best practices. Given the legal and institutional capacity of the VBA, logistical and financial support towards the VBA are important to carry out this activity to its end. Also, linkages between this component and the other components of the project (in particular Component 2) will be strongly maintained.

36. Regarding the development of the Charter, the activities will strive to ensure continuous consultations on the drafting of regulations of the Water Charter on the use of the basin's water resources; to avail priority sub-regional approach and cooperation among states in the shared management of the water resources of the Volta Basin; to prevail to the extent possible, and where this is more useful for the rural population of the basin, the application of existing rules of customary law in the sharing and use of the basin's water resources; to provide the opportunity for rural people to enter and use wherever possible local agreements for water resources management when such agreements are not in contradiction with the rules of modern law; to ensure the effective participation of users in the basin in decisions regarding water resources management of the basin; to ensure effective participation of civil society in decision-making regarding the management of the basin's water resources; and to ensure that the drafting of the Charter and its future application will not be the potential source of jurisdictional conflicts with the laws and regulations of the Member States of the VBA, and other sub regional organizations involved directly in the territory of the Volta basin.

C. Component 2: Facilitating Dialogue, Communication and Project Monitoring (US$1,260,000)

37. In accordance with the draft Strategic Plan for 2015 –2019, VBA has set clear objectives to improve its communication. These Objectives are defined along two different tracks: the first is concerned with general communication that encompasses different types of stakeholders (communities, networks of technical specialists and water practitioners, governance and decision making networks, etc.) and requires the development of a Communications Plan that distinguishes between the different types of stakeholders and their communications needs as well as outlines the methods by which communication will be carried out. The second track responds to the need to increase coordination between new and existing projects within the basin by establishing a mechanism for member countries to share national plans and details of projects being planned and implemented. This mechanism would allow member countries to disclose the potential effects of projects being developed, as well as allow for the better planning and management of water resources in the basin. The establishment of a Basin Management and Coordination Committee (BMCC) is proposed for this second track.

38. To date, the VBA has initiated different *ad hoc* communication avenues, to varying levels of success. They include invitations to the press to attend key VBA meetings, development of some communications products (brochures, posters and calendars), development of Memoranda of Understanding (MoUs) with civil society and non-governmental organizations on the basis of communication and awareness raising (although little follow up activity resulted from these MoUs) and inviting stakeholders to technical fora and other meetings when relevant. Unfortunately there has only been limited follow-up from the MoUs. The VBA has also conducted a basic stakeholder analysis for establishing the Observatory and this can serve as a basis for a more comprehensive analysis for the development of the Communications Plan.

39. The VBA has established a partnership with the International Office of Water (Paris) to enhance its communications efforts. The firm will prepare and configure open source management tools in order to manage the VBA's future web portal; and organize trainings for the VBA and member countries on further developing these mechanisms. The institutional arrangement of the VBA includes two units relating to communications: the International Cooperation and Communication Unit and the Coordination Unit for Stakeholders and National Focal Points. Currently, only the latter is staffed with one person and an additional specialist is being hired to lead the unit. Finally, the National Focal Points are VBA's main channel for information exchange with the stakeholders in member countries.

40. The component will contribute towards improvement of the VBA's capacity for transboundary water resources management by standardizing and improving the Authority's communication streams with different types of stakeholders, thus fulfilling one of the main tenets of its mandate, which is to promote permanent consultation tools among the parties for development of the basin. Furthermore, the activities under this component will formalize and better define the linkages among the different communications initiatives being carried out as well as those planned at the VBA – such as linkages with the Environmental Observatory and VBA's website.

41. The project will support communications efforts at the VBA with the ultimate goal of; (i) promoting dialogue with stakeholders on emerging water-related issues within the basin and the expected role of VBA; and (ii) facilitating information sharing. The main activities include:

a. Stakeholder Assessment
b. Development of a Communications Strategy and Plan
c. GEF IW-Learn

42. The **Stakeholder Assessment** will inform the typology of stakeholders as well as their communications needs. This is different from the Stakeholder Assessment being carried out under Component 1.

43. A **Communications Strategy** will then be developed to provide guidelines to establish a platform for information and harmonized data exchange. A diagnostic analysis of the weaknesses and strengths related to communication at the VBA will be carried out as part of the development of the strategy. The **Communication Plan**, which will then be developed in line with the Strategy and will define the key types of messages to deliver to different targets, the channels and tools to be used in communicating them, timetables for communication, and costs/budgets.

44. The component will also support knowledge generation and dissemination, including participation in the International Waters Learning Exchange and Resource Network **(IW-Learn)** activities and sharing of studies and knowledge products via the internet. (Approximately 1 percent of the GEF grant amount will be committed to this activity).

D. Component 3: Implementation of Strategic Action Programme Priority Actions (US$6,898,000)

45. This component supports the development of projects that lead to improvements in water quality, flows and ecosystem services and income generation for select communities.

46. Early consultations with the VBA resulted in the criteria for selection of SAP measures to be implemented, which ensured that projects being chosen are transboundary in nature. The criteria include:

a. Action must address a challenge that exists in two or more riparian countries and results/findings can be used to inform similar challenges in other countries;
b. Action is located in a region that is shared with two or more riparian countries; or
c. Action is wholly located within one riparian country but has a tangible positive transboundary impact for other riparian countries.

47. Next, preliminary selection of priority actions was done through consultation with the VBA and national Focal Points, and final actions were decided following field visits, consultations with Focal Points and local representatives in the proposed regions. There are three types of activities being implemented Sub-Component 3.1. Reforestation (Benin, Cote d'Ivoire, Ghana and Togo); Sub-Component 3.2. River Bank Rehabilitation (Burkina Faso, Cote d'Ivoire, Ghana and Togo); and Sub-Component 3.3. Development of Market Gardens (Mali).

48. The priority actions draw details from the specific SAP measures they are mapped to as much as possible, while adapting the measures to the scale, scope, budget and specific implementation arrangements of the project. So while there are similarities between the types of priority actions being implemented in Benin and in Ghana, the project region in Benin is directly related to regions covered under B.7, whereas B.4 applies to regions in Ghana. On the other hand, activities and project regions under Actions A.2 and A.3 directly informing the priority actions in Burkina Faso and Mali, respectively.

49. *Benin and Togo: SAP Action B.7 – To preserve and restore ecosystems of the Pendjari-Oti region.* The mountain slopes of the Volta Basin are under strong anthropogenic pressure and are being consistently cleared for agriculture, by logging and mining, as well as being damaged by unsustainable tourism. In light of this, they are among the most endangered ecosystems in Togo, Burkina Faso and Benin. The negative impacts of this non-sustainable use of the mountain regions are diverse:

- Modification of the water cycle (decrease in rainfall and change in the flow regime)
- Erosion and soil leaching causing soil degradation and loss of fertility
- Loss of biodiversity (resulting in the loss of some species and varieties of plants used in food and medicine)
- Overfishing as loss of vegetation necessitates new sources of income generating activities
- Loss in tourism value (the mountains have lost their potential attraction for tourists)

50. To reverse this trend and help preserve and restore the natural ecosystems of these regions, the SAP action being proposed here is as follows:

- Reforestation including crops that generate income for the local population

51. This action would help to restore, protect and manage the area from soil erosion, and create a buffer zone between mountain sides and the river.

52. *Burkina Faso: SAP Action A.2 - To protect all the springs that contribute to the permanent flow of the Mouhoun River.* Restoring vegetation in watersheds that support the six tributaries that contribute to the Mouhoun River. One of these tributaries provides water to the famous "Lac aux Hippopotames", which is classified as a Ramsar and UNESCO site. These previously permanent streams have reduced flows due to human impact and suffer from siltation and reduced groundwater infiltration. Increased vegetative cover along the streams will help to reduce these negative impacts.

53. The SAP action being proposed here includes the following activities:

- River bank rehabilitation
- Reforestation along degraded river banks

54. Cote d'Ivoire and Ghana: SAP Action B.4 – To design and implement a regional programme for the protection and restoration of the river banks and gallery forests upstream of Lake Volta. Shifting cultivation, transhumance, overgrazing, uncontrolled bush fires used to clear land for agriculture and uncontrolled exploitation of timber are degrading forest ecosystems along the river banks in the Volta Basin. This loss of tree cover is exposing top soils and resulting in siltation of rivers and lakes, which in turn is leading to greater evaporation rates in water-bodies as water surface areas become larger. This action will help stabilize river banks, reduce sedimentation of riverbeds and restore vegetation. In doing so it will help to protect the region's water resources as well as key ecosystems, gallery forests, which are home to unique species and are key sources of biodiversity in the region.

55. For the site being considered in Cote d'Ivoire, the priority action being proposed here includes the following activities:

- River bank rehabilitation
- Reforestation along degraded river banks
- Reforestation of select watershed areas including crops that generate income for the local population

56. *Mali: SAP Action A.3 – To develop irrigation infrastructure in the Sourou Basin.* Although Mali occupies only a small portion of the Volta basin, the situation in that portion is considered to be similar to the rest of the country. Two thirds of the population is involved in agriculture, and an even greater percentage in rural areas. Agriculture also provides over 70 percent of Mali's exports: cotton, peanuts and sugar; millet is the staple food of the Malian population, and the other main food crops are maize and rice. In the Sourou basin, agriculture is mainly for subsistence crops produced by small family farms. Similarly to the rest of the country, declining and erratic rainfall

in the basin portion of Mali contribute to constraining growth in the rural sector. With some noticeable exceptions like rice production, productivity of Malian agriculture and agro food systems remain generally very low and stagnant, even compared to that of other developing countries. This is due to a number of factors, among which the widespread use of traditional low-input/low-output cultivation techniques, insufficient access to water resources for irrigation, as well as losses and inefficiencies in the downstream stages of the supply chain due to high transportation costs, lack of storage infrastructure, limited development of post-harvest processing, and poor or limited access to markets.

57. The World Bank's Agricultural Competitiveness and Diversification Project, initiated in 2006 and extended again in 2012, is helping to address some of these issues through activities that included the dissemination and demonstration of low-cost agricultural technologies for high-value products, such as groundwater utilization, groundwater recharging, water extraction, water transport and distribution technologies. In that project, as well as others piloted in Mali, drip irrigation systems were found to be particularly successful and made growing of labor intensive, high-return crops such as fruits and vegetables, sufficiently rewarding. The infrastructure of drip irrigation is an inexpensive series of pipes running along plant beds that supply water, drop-by-drop, directly to the root of the plants. The slow steady stream of water supplied directly to the roots increases the moisture there and spreads water evenly in the soil; it also slowly breaks down nutrients in fertilizers for a combined effect of conserving water resources, conserving on the use of fertilizers and maintaining a healthier state of the soil as compared to the scenario where no drip irrigation is used. The pipes also have a long lifetime, which further increases its value, particularly in regions where maintenance of new technology is not readily available. This technique is being proposed for the small irrigation scheme in Mali. For the priority action in Mali, there will be a particular focus on women and youth farmers to ensure that the needs of these traditionally marginalized groups are addressed.

58. The activities under this priority action will include:

- Development of small irrigation schemes and related income generating activities for the local population

59. All priority actions will include feasibility studies, which will be developed early on in the project's implementation period and will develop many of the priority action details, such as breakdown of budget and cost effectiveness of activities. Priority actions also include funding for consultations, capacity building and awareness-raising at the national and local levels and M&E (see table below).

Table 6: EQOs and SAP Actions for Activities

Country	Environmental Quality Objective	SAP No.	Activity	Cost (US$)
Benin	Critical ecosystem functions conserved, restored and managed for sustainable use in at least 5 selected areas	B.7: To preserve and restore ecosystems of the Pendjari-Oti region	Capacity Building	100,000
			Reforestation	520,000
			Income Generation	400,000
			Project Management	80,000
Activity Sub-Total				**1,100,000**
Burkina Faso	Sedimentation in five key hotspots is reduced by 20 per cent by 2025	A.2: To protect all the springs that contribute to the permanent flow of the Mouhoun River	Capacity Building	100,000
			Bank Restoration	820,000
			Income Generation	100,000
			Project Management	80,000
Activity Sub-Total				**1,100,000**
Cote d'Ivoire	Critical ecosystem functions conserved, restored and managed for sustainable use in at least 5 selected areas	B.4: To design and implement a regional programme for the protection and restoration of the river banks and gallery forests upstream of Lake Volta	Capacity Building	100,000
			Bank Restoration	400,000
			Reforestation	520,000
			Project Management	80,000
Activity Sub-Total				**1,100,000**
Ghana	Critical ecosystem functions conserved, restored and managed for sustainable use in at least 5 selected areas	B.4: To design and implement a regional programme for the protection and restoration of the river banks and gallery forests upstream of Lake Volta	Capacity Building	100,000
			Bank Restoration	220,000
			Reforestation	450,000
			Income Generation	250,000
			Project Management	80,000
Activity Sub-Total				**1,100,000**
Mali	Water optimized among primary users (domestic, agricultural, ecosystems and HEP) so that they receive sustainable supplies	A.3: To develop irrigation infrastructure in the Sourou Basin	Capacity Building	100,000
			Income Generation	400,000
			Irrigation Scheme	520,000
			Project Management	80,000
Activity Sub-Total				**1,100,000**
Togo	Critical ecosystem functions conserved, restored and managed for sustainable use in at least 5 selected areas	B.7: To preserve and restore ecosystems of the Pendjari-Oti region	Capacity Building	100,000
			Bank Restoration	420,000
			Reforestation	300,000
			Income Generation	200,000
Activity Sub-Total				**1,100,000**
Component Total				**6,600,000**

E. Component 4: Project Management (US$790,000)

60. This component will cover the operational costs for project management including fiduciary compliance, M&E, technical reporting, audits as well as the costs for any additional consultants to staff the PCU. The component will also finance activities related to the management and strengthening of internal processes related to strengthening the capacity of the VBA.

F. Alignment with CIWA Results Areas

61. The Volta River Basin Strategic Action Programme Implementation project is aligned with the results areas of the CIWA program and will contribute towards meeting the program's long-term targets, as articulated through its development objective indicators. The priority actions planned under Component 3 will directly mobilize US$6.6 million in investments implemented during the course of the project, and will provide benefits in improved livelihoods to a target of 50,000 people, 20% of which are expected to be women.

62. The development of a Water Charter for the Volta Basin would lay the legal foundation for establishing roles and responsibilities of riparian countries with regard to water resources use and strengthen the underpinning of VBA to promote coordinated and harmonized water policies in the Basin. Additionally, the establishment and implementation of procedures for internal regulations as well as the institutional assessment of the VBA will strengthen the functionality of the overall organization by establishing procedures for administration and financial management. These activities would significantly contribute to CIWA's Intermediate Result #1 on strengthening regional cooperation and integration.

63. The Communication Strategy and Plan and procedures for internal regulations would provide VBA and its national counterparts with standardized tools for data collection and monitoring and facilitate exchange of information on actual transboundary threats such as floods and droughts. This will contribute directly to CIWA's Intermediate Result #2 on strengthening water resources management. Awareness and capacity building activities envisaged under each of the priority actions in Component 3 will also contribute towards Intermediate Result #2.

64. The priority actions, which are investments in reforestation, river bank protection, and irrigation are intended to support water resources development and will result in tangible benefits for the communities where they are being implemented; they are aligned with Intermediate Result #3. Another major results area where the project will have an impact is Intermediate Result #4; stakeholders of all the member states as well as interested partners will be more involved in transboundary water resources management of the Volta basin through increased and more effective communication, a better understanding of roles and responsibilities, stakeholder assessments for communication and legal purposes, and through direct engagement of communities being affected through implementation of priority actions. The following table describes the project components' alignment to CIWA's results areas. The table includes the Bank-executed activity, Independent Assessment of the Volta Basin, for a comprehensive view of CIWA's support towards the basin.

Table 7: Alignment of project with CIWA results areas

Project Components/CIWA Volta Basin Program	Alignment with CIWA Results Areas			
	Result Area #1: Regional Cooperation and Integration	**Result Area #2: Water Resources Management**	**Result Area #3: Water Resources Development**	**Result Area #4: Stakeholder Engagement and Coordination**
Development of the Volta Basin Water Charter	Decision making and defining of institutional hierarchy; defining roles; harmonizing water policies	Water Charter integrating principles of IWRM		Institutionalizing role of Forum of Parties (non-technical stakeholders) as well as other elements of VBA structure and larger basin
Facilitating Dialogue, Communication and Project Monitoring	Strengthening functionality of overall organization; effective, focused, results-driven communications plan ensuring sustainability and relevance of the VBA	Increasing the knowledge base of VBA to support future development plans; communications plan developing standardized tools for data collection and exchange of information		Communications plan involving highly consultative process with wide network of stakeholders
Implementation of SAP Actions	Implementation of SAP priority actions ensures sustainability and strengthening institution and increasing its credibility for stakeholders	Priority actions intended to increase the sustainable management of water resources, climate resilience, in a way that engages users and stakeholders of Volta basin in project areas	Priority actions provide direct water resources development benefits to affected communities in all member states of the basin	Consultations, trainings, awareness and capacity are a major part of each of the priority actions to ensure that stakeholders are engaged and able to maximize on benefits of priority actions.
Project Management	Procedures for internal regulations			
Independent Assessment	Identifying areas where organization needs strengthening			Highly consultative process involving wide network of stakeholders

G. Project Cost by Funding Source

65. The following table is a breakdown of project component financing by funding source.

Table 8: Project component financing by funding source

Components	Financing (US$)						
	GEF		CIWA		Counterpart Funds		Total
	US$	%	US$	%	US$	%	US$
Component 1: Development of the Water Charter	625,000	32	1,300,000	68			1,920,000
Component 2: Facilitating Dialogue, Communication and Project Monitoring	550,000	46	650,000	54			1,200,000
Component 3: Implementation of SAP Actions	5,400,000	82	1,200,000	18			6,600,000
Component 4: Project Management	325,000	42	200,000	26	240,000	31	770,000
Sub-total	6,900,000	69	3,350,000	29	240,000	2	10,490,000
Contingencies	300,000	67	150,000	33			450,000
Grand Total	**7,200,000**	**69**	**3,500,000**	**29**	**240,000**	**2**	**10,940,000**

Annex 3: Implementation Arrangements

Africa

Volta River Basin Strategic Action Programme Implementation Project

A. Project Institutional and Implementation Arrangements

1. Three criteria drove the selection of the following institutional arrangements. First, implementation arrangements are based on strengthening the permanent capacity of the VBA, and to avoid the creation of *ad hoc* arrangements that will dissolve this capacity after the closing of the project. Second, implementation arrangements should make use of existing VBA structures that can meet the requirements of the World Bank so as to avoid unnecessary additional administrative burden. Finally, implementation arrangements were chosen to ensure maximum ownership and involvement by stakeholders in project implementation.

2. All activities of the project will be implemented by (i) a Project Coordination Unit (PCU) under the VBA; with strategic guidance and oversight by (ii) a Project Steering Committee (PSC).

3. The PCU will be hosted in the VBA's Executive Directorate (as the implementing agency) and will carry out the day-to-day management of all project activities. It should be noted that due to the VBA's legal standing and ability to access and implement priority actions in its member states, the PCU under the VBA will implement activities under Component 3 as well. The PCU will be pulled directly from current VBA staff; and only if the expertise needed is not available at VBA will consultants be hired to complement the PCU with the long term objective of integration into the VBA's permanent staff to help ensure sustainability of the project activities and retention of capacity beyond the project's life. The PCU will consist at a minimum of a Project Coordinator, three Technical Specialists responsible respectively for Components 1 to 3, an Accountant and a Project Assistant – these positions will be filled by current staff at the VBA. The technical specialist responsible for implementation of Component 3 will also be responsible for M&E. The PCU will also include a Procurement Specialist, who will be hired as a consultant. Roles and responsibilities of the PCU will be fully defined in the PIM but will include among others the following key functions:

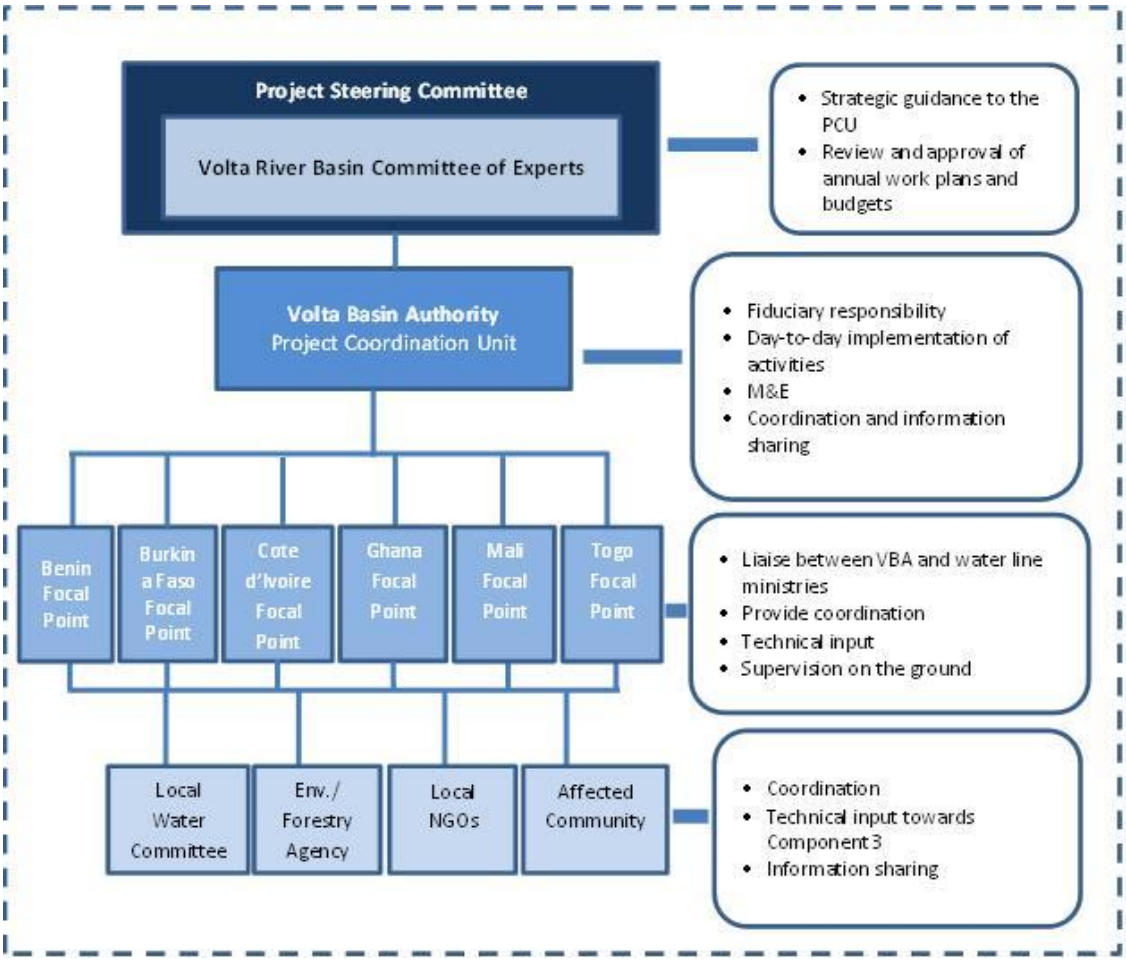
i) Coordinating implementation of project activities;
ii) Managing contracts;
iii) Coordinating and oversee overall flow of funds and disbursements;
iv) Ensuring information sharing with the network of project stakeholders;
v) Conducting monitoring and evaluation of project activities;
vi) Ensuring compliance with social and environmental safeguards;
vii) Reporting on project implementation progress

4. The Project Steering Committee (PSC) will provide strategic guidance to the PCU and VBA overall. The PSC will meet annually and will be specifically responsible for the review and approval of annual work plans and budgets, assurance of financial and program performance, as well as the assurance of a uniform understanding of project's objectives and activities by all

stakeholders. To harmonize project implementation arrangements with the existing structures of VBA, VBA's existing Committee of Experts will serve as the Project Steering Committee. The Committee of Experts consists of two representatives from each member country, one of whom is the National Focal Point, while the other is a technical expert selected for the purpose of the meeting. The Committee of Experts usually meets at least twice a year.

5. National focal points will provide technical input and participate in all key consultations. In particular for component 3, national focal points will be closely involved in implementation, particularly in supervision and M&E. Other relevant stakeholders such as local water, forestry, environment, and sub-basin management committees/agencies will also be engaged. Figure 2 below provides a schematic of the implementation arrangements and institutional roles and responsibilities for the project. The PIM will provide full details on the roles and responsibilities of all stakeholders involved in implementation. The preparation of the PIM is an effectiveness condition.

Figure 2: Institutional Arrangements for Project Implementation



B. Financial Management and Disbursements

6. A Financial Management (FM) assessment of the Volta Basin Authority (VBA), Implementing Agency of the Volta River Basin Strategic Action Programme Implementation Project was carried out in January, 2015.

7. The objective of the assessment was to determine whether VBA has adequate FM arrangements in place to ensure that the Project funds will be used only for the purposes for which the financing was provided, with due attention to considerations of economy and efficiency.

8. The FM assessment considers, based on the existing FM arrangements, the degree to which (a) the budgeted expenditures are realistic, prepared with due regard to relevant policies, and executed in an orderly and predictable manner, (b) reasonable records are maintained, (c) financial reports are produced and disseminated for decision-making, management, and reporting, (d) adequate funds are available to finance the Project, (f) there are reasonable controls over Project funds, and (f) independent and competent audit arrangements are in place.

9. The assessment found that VBA (i) has a financial policy named "*Règlement Financier – novembre 2007*" which defines the financial management policy, (ii) has a sufficiently qualified financial management staff, (iii) is installing a multi-projects computerized accounting system, and (iv) is recruiting a financial controller and expect to have him on board by September 2015.

10. The assessment complied with the Financial Management Manual for World Bank-Financed Investment Operations effective since March 1, 2010 and AFTFM Financial Management Assessment and Risk Rating Principles.

Table 9: Financial Management Action Plan

FM pillar	Action	When	By whom	Observation
Internal Control System	Develop the section on Administrative and Financial Procedures of the PIM, with detailed policies and procedures for priority actions management	By effectiveness	VBA	- Template of terms of reference was sent to VBA. - VBA should contact ongoing projects which are funded priority actions for knowledge sharing
External Audit	Recruit an external auditor	Six months after effectiveness	VBA	- TOR was cleared by WB prior to negotiations

Financial Management Arrangements

11. *Internal Control*: the Project will rely on the existing internal control system comprising a Financial Policy (*Règlement Financier – novembre 2007*), and a Financial Controller who is being recruited and expected to be on board by September 2015.

12. VBA will prepare a PIM including administrative and financial procedures, which must complement the financial policy (art. 40 of the Financial Policy, November 2007). This manual will include detailed procedures for the financial management of all components, with specific guidelines for component 3.

13. The Financial Controller (recruitment in progress) will be in charge to review the internal control system. The Project will furnish to the Bank, no later than 30 days following the end of each quarter, a copy of the internal audit report which summarized the key findings of the reviews completed during the quarter.

14. The FM staff comprises an Administrative and Finance Director, a Head of Accounting and Finance Unit, an Accountant and an Assistant Accountant. This team has sufficient capacity to handle the financial management needs of the Project.

15. *Planning and Budgeting*: the Project will rely on Financial Policy - November 2007 (*Règlement Financier – novembre 2007*), for the Activities Planning and the Budgeting. The project will be required to prepare and submit to the World Bank before the end of each calendar year, a detailed annual work plan and budget (PTBA) as well as a disbursement forecasts.

16. *Accounting*: The SYSCOHADA, which is the assigned accounting system in West African Francophone countries, will be used.

17. VBA is installing "multi-projects" accounting software (TOMPRO2), which is appropriate for project accounting.

18. *Financial Reporting*: VBA will submit an Interim Financial Report (IFR) to the Bank within 45 days after the end of each quarter. The Project will choose an IFR format among those presented in the document "Financial Monitoring Reports for World Bank-Financed Projects: Guidelines for Borrowers, November 30, 2002" and agree with the Bank on it.

19. The IFR will include:

- A Sources and Uses of funds Statement, both cumulatively and for the period covered by the report;
- A Uses of funds by components Statement, cumulatively and for the period covered by the report;
- The designated account reconciliation;
- The disbursement forecasts of the upcoming six months;
- An explanation of variances between the actual and planned disbursements.

20. VBA will produce the project Annual Financial Statements. The Financial Statements will comprise:

- A Statement of Sources and Uses of Funds which recognizes all cash receipts, cash payments and cash balances;
- A Statement of Commitments;
- Accounting policies adopted and explanatory notes;

- List of assets;
- A Management Assertion that project funds have been expended for the intended purposes as specified in the relevant financing agreement.

21. *Auditing*: VBA will submit audited Project Financial Statements (PFS) satisfactory to the World Bank within six (6) months after the end of each fiscal year.

22. A single opinion on the Audited Project Financial Statements in compliance with International Federation of Accountant (IFAC) will be required. In addition, a Management Letter will be required. The Management Letter will provide observations and comments, and recommendations for improvements in internal control and compliance with financial covenants in the Financial Agreement.

Disbursements Arrangements

23. Disbursements under this project will be carried out in accordance with the provisions of the Disbursement Guidelines (" *World Bank Disbursement Guidelines for Projects, dated May 1, 2006"*), the Disbursement Letter and the CIWA and GEF Grant Agreements.

24. *Designated Account*: the project designated account will be opened in the "Société Générale Burkina Faso".

25. *Disbursement Methods*: the disbursement methods will be indicated in the Disbursement letter.

26. *Designated Account Replenishment and documentation*: the designated account will be replenished through the submission of withdrawal applications on a quarterly basis by VBA. Replenishment (requests for reimbursement) and reporting on the use of advances will be accompanied by a Statement of Expenditure (SOE) providing information on payments for eligible expenditures and records required by the Bank for specific expenditures in the Disbursement Letter. All supporting documentation will be retained at the VBA and must be made available for periodic review by the Bank's missions and external auditors.

27. Figure 3 below shows the flow of funds and Table 10 shows the disbursement categories for the project components.

Figure 3: Project Funds Flow Chart

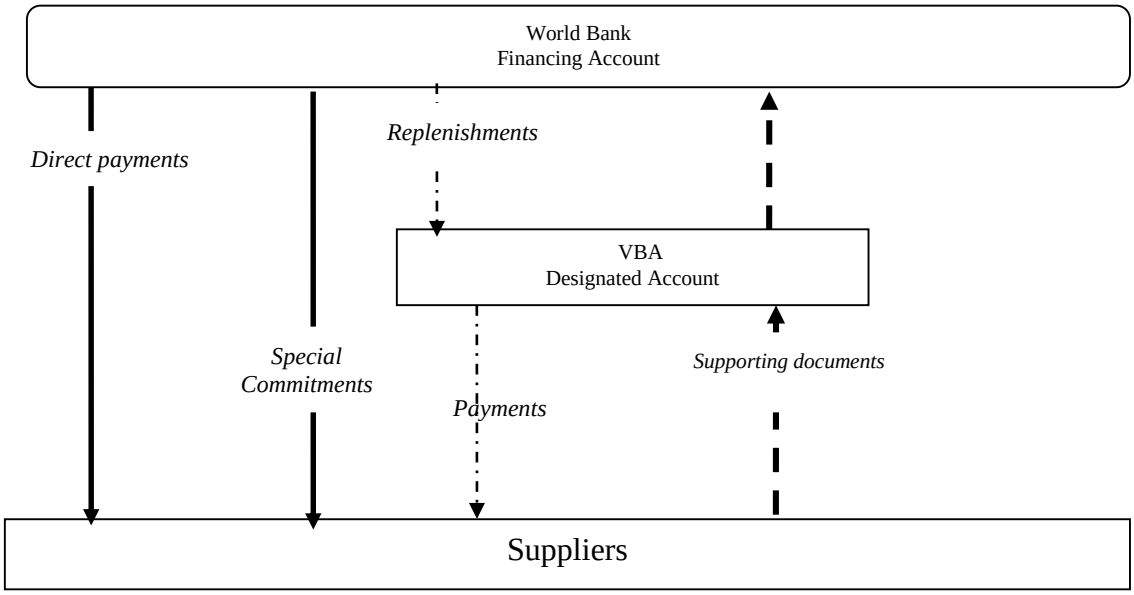


Table 10: Disbursement Categories

Category	CIWA		GEF		Percentage of Expenditures to be Financed (inclusive of Taxes)
	Amount of the Grant Allocated (USD)	Percentage of Total Project Financing	Amount of the Grant Allocated (USD)	Percentage of Total Project Financing	
(1) Consultants' Services and Training for Components 1 and 2	1,950,000	62%	1,175,000	38%	100%
(2) Civil works, Consultants' Services, Goods, Training and Operating Costs for Component 3	1,200,000	18%	5,400,000	82%	100%
(3) Consultants' Services, Goods, Training and Operating Costs for Component 4	200,000	38%	325,000	62%	100%
Unallocated	150,000	33%	300,000	67%	100%
TOTAL	**3,500,000**		**7,200,000**		**100%**

Implementation Support Plan

28. Based on the outcome of the FM risk assessment, the following implementation support plan is proposed. The objective of the implementation support plan is to ensure the project maintains a satisfactory financial management system throughout the project's life.

Table 11: Implementation Support Plan

FM Activity	**Frequency**
Desk reviews	
Interim financial reports review	Quarterly
Review of the audited financial statements (audit reports)	Annually
Review of other relevant information such as interim internal control systems reports.	Continuous as they become available
On site visits	
Review of overall operation of the FM system	Implementation Support Mission: Year 1: two missions Year 2 and after: one mission per year.
Monitoring of actions taken on issues highlighted in audit reports, auditors' management letters, internal audit and other reports	As needed
Transaction reviews	As needed
Capacity building support	
FM training sessions	During implementation and as and when needed.

C. Procurement

29. Procurement for the project will be carried out in accordance with the World Bank's "Guidelines: Procurement under IBRD Loans and IDA Credits" dated January 2011, revised in July 2014 (Procurement Guidelines); and "Guidelines: Selection and Employment of Consultants by World Bank Borrowers" dated January 2011, revised in July 2014 (Consultant Guidelines) and the provision stipulated in Financial Agreement. The "Guidelines on Preventing and Combating Fraud and Corruption in projects Financed by IBRD Loans and IDA Credits and Grants", dated October 15th, 2006 and updated January 2011, shall apply to the project. The various procurement actions under different expenditure categories are described in general below. For each contract to be financed under the CIWA and GEF Grant Agreements, the various procurement or consultant selection method, the need for pre-qualification, estimated costs, prior review requirements, and time frame have been agreed between the recipient and the Bank in the Procurement Plan. The

Procurement Plan will be updated at least annually or as required to reflect the actual project implementation needs and improvements in institutional capacity.

30. **Procurement of works, goods and non-consulting services**: Small works for reforestation and rehabilitation of hydraulic infrastructures will be financed by the current project. Goods procured under this project will include office equipment, vehicles and other equipment for VBA. Procurement will be done under International Competitive Bidding (ICB) or National Competitive Bidding (NCB) using the Bank's Standard Bidding Documents for all ICB and NCB. Small value procurements for goods may be procured under shopping procedures. Direct contracting may be used where necessary if agreed in the procurement plan in accordance with the provisions of paragraph 3.7 to 3.8 of the Procurement Guidelines.

31. **Selection and Employment of Consultants.** Consultancy services would include studies, advisory services, and audits. The selection method will be Quality and Cost Based Selection (QCBS) method whenever possible. Contracts for specialized assignments estimated to cost less than US$200,000 equivalent may be contracted through Consultant Qualification (CQ).

32. The following additional methods may be used where appropriate: Quality Based Selection (QBS); Selection under a Fixed Budget (FB); and Least-Cost Selection (LCS). Single Source Selection (SSS) may be employed with prior approval of the Bank and will be in accordance with paragraphs 3.8 to 3.11 of the Consultant Guidelines. All services of Individual Consultants (IC) will be procured under contracts in accordance with the provisions of paragraphs 5.1 to 5.6 of the Guidelines.

33. **Operating Costs**: Operating costs shall consist of operations and maintenance costs for vehicles, office supplies, communication charges, equipment, utility charges, travel expenses, per diem and travels costs, office rental, training costs, workshops and seminar and associated costs, among others.

34. **Training and Workshops**: Training and workshops will be based on capacity needs assessment. Detailed training plans and workshops activities will be developed during project implementation, and included in the annual work plan and budget for Bank's review and approval.

35. **Assessment of Procurement Capacity and Risks**: The Direction of Administration and Finances is responsible for carrying out procurement for activities financed under VBA's own budget. For funds received from external donors, VBA nominates a coordinator who has the overall responsibility of the project. The Coordinator supervises TORs and technical specifications production and conduct procurement process with the support of the DAF. The DAF is not well staffed (only two people) and the accountant who is in charge of procurement has a limited experience in World Bank procedures.

36. The VBA's Evaluation Committee is made of internal experts but, when necessary VBA invites external experts to participate. As this project is the first financed by the World Bank, this Committee is not very familiar with the Bank documents and procedures.

37. VBA does not have an administrative manual to guide procurement procedures and has no standard procurement documents but is using documents from other regional institutions. VBA is familiar with the selection of suppliers through shopping and selection of consultants. The VBA

has limited publication of Expressions of Interest, but most of the time few bidders and consultants respond.

38. The findings of the assessment are summarized as the following: (i) weak capacity of the DAF and a lack of existing staff knowledgeable in Bank procedures; (ii) lack of experience of the key members of the evaluation committee, (iii) the absence of an administrative manual of procedures and the absence of standard documents; and (iv) limited publication of Expressions of Interest. The unmitigated risk is considered to be **high** and the main risks are delays in the project implementation and poor results.

39. **Mitigation of Procurement Risks:** To mitigate the risks, it is proposed to: (i) strengthen the DAF capacity by the recruitment of a procurement specialist with a minimum of experience in Bank procedures; (ii) training to be conducted by the Bank procurement team for the evaluation committee key members; (iii) use of the standard Bank biding documents, Request for proposals and evaluation reports; (iv) the elaboration of a PIM including procedures where procurement processes will be well described; (v) the publication of all procurement notices in local and well-known newspapers in addition to the VBA website.

Table 12: Summary of procurement mitigation measures

Action Plan for strengthening procurement capacity			
Ref	**Tasks**	**Responsibility**	**Comments / Due date**
1	Prepare the administrative and procurement part of the PIM to ensure appropriate implementation of activities in line with Bank general framework related to the project. The manual should describe procurement rules applicable to the project and clear accountability system and responsibilities for decisions making.	VBA	By effectiveness
2	Hire an experienced procurement specialist who will be positioned inside the DAF and will be responsible for the overall procurement activities	VBA	By effectiveness
3	Train the VBA Tender committee in the Bank procurement procedures	VBA / WB	3 months after effectiveness

40. **Procurement plan:** The Recipient has developed a procurement plan for the first 18 months of the project implementation with the basis for the procurement methods for each contract. Immediately upon approval of the Credit, with the Recipient's agreement and following revisions if needed, the plan will be published on the Bank's public website and the Recipient's intranet website. Once approved, the procurement plan shall be updated in agreement with the Bank on an annual basis or as required, to reflect the actual project implementation needs and improvements in institutional capacity.

41. **Fraud, Coercion, and Corruption:** All procuring entities, as well as bidders, suppliers, and contractors shall observe the highest standard of ethics during the procurement and execution of contracts financed under the project in accordance with paragraphs 1.16 & 1.17 of the Procurement Guidelines and paragraphs 1.23 & 1.24 of the Consultants Guidelines.

42. **Frequency of Procurement Implementation Support** : In addition to the prior review as indicated in the procurement plan, the preliminary capacity assessment of the implementing agency recommended supervision missions to visit the field once a year and to carry out post review of procurement actions once annually.

D. Environmental and Social (including safeguards)

43. No significant negative environmental impacts are expected from this project as its intention is to promote sound water resources management. In fact, the project is expected to generate significant environmental benefits as it aims to implement priority actions that will support improvements in water quality, flows, increased tree/shrub/grass cover and reduced deforestation and forest degradation through reforestation activities and ecosystem services and would reduce vulnerability to flooding and limit land degradation trends.

44. Improvements in drainage are likely to result in reductions in water-borne illnesses such malaria and a reduction in the frequency and impact of flooding on households and businesses. In the project areas where reforestation/afforestation practices and pump irrigation system will be introduced, the expected socioeconomic benefits for the communities derive from the reduced impact from effects of flooding on cultivated crops as well as provide alternative (water-based) forms of agriculture. This also indicates the availability of water that could be controlled and utilized for irrigated agriculture and thus lead to economic development. Overall the project is expected to contribute positively to employment and livelihood opportunities and provide an environment conducive to the expansion of local economic activity.

45. However, it is recognized that despite these anticipated benefits, it is necessary for the sake of the environmental integrity of the project to follow a structured assessment process to ensure that no activities will have unintended consequences on the environment. During appraisal most of the priority actions have been screened and have found to have low negatives impacts on the beneficiaries and the environment. The most obvious impact is the loss of farmland and the population groups may suffer from the extension of the rehabilitation works. The introduction of some agricultural activities in areas liable to flooding can upset the traditional crops. Loss of income and livelihood can occur during the period of construction or rehabilitation of facilities of dregs and along the river. The limited impact on lands, crops, buildings and other structures (wells, etc.), loss of habitats or operating buildings following the completion of hydro-agricultural facilities or basic socio-economic infrastructures.

46. As part of the implementation of the SAP and when the activities planned or in progress are more or less known, it is important to understand the impact on the human environment, in terms of people to be displaced, the impact on the economic activities and land acquisition modes, as well as the impacts that may result from these acquisitions. so, the execution of the sub-component (3): the implementation of the Volta Basin SAP actions is likely to generate social impacts through its activities which may involve some land acquisition/involuntary resettlement and/or disruption of agricultural calendars leading to loss of agricultural incomes. Consequently, the project is rated category B and triggers six (06) environmental safeguard policies which are: OP/PB4.01 (Environment Assessment); OP/PB4.04 (Natural Habitats); OP/PB 4.36 (Forests); OP4.09 (Pest Management); OP/BP 4.12 (Involuntary Resettlement); and OP/PB7.50 (Project on International Waterways).

47. For that purpose and as the exact locations of projected investments are not known to date, an Environmental and Social Management Framework (ESMF) was prepared in accordance with the World Bank Environmental Assessment Policy (O.P. 4.01). To take into account OP/PB4.04 and OP/PB4.36, there has been no need to develop a specific safeguard instrument. The ESMF includes a chapter to deal with these aspects. In addition to the ESMF, an Integrated Pest Management Plan (IPMP) was also developed in accordance with OP 4.09 on Pest Management. A Resettlement Policy Framework (RPF) was prepared by the VBA consulted upon in the 6 members' states and approved by the Bank before completion of project appraisal. The RPF was disclosed in 6 countries on April 16, 2015 and through the InfoShop on April 17, 2015 and will describe the various impacts and planned compensation for APPs, Nevertheless, the exact number of really affected people will be only known if necessary during field surveys through a census at the period of the execution of the potential resettlement plans. The SAP will endorse the OP/BP 4.12 policy and in particular, will implement the principles of minimizing physical displacements/resettlement of people.

48. A socio-economic study could be necessary to determine the exact number of people who may lose their land, structures or who have seen their living conditions negatively affected by the project.

49. After their elaboration, the ESMF and IPMP have been consulted upon and a regional workshop was held on February 26-27, 2015; the two documents have been disclosed within the six Volta Basin member states, and thereafter, at the Infoshop on April 7, 2015. The ESMF outlines an environmental and social screening process, including institutional responsibilities for screening, review and clearance, and implementation of mitigation and monitoring measures, for future investments. This screening process consists of (i) an environmental and social screening form to determine potential adverse environmental and social impacts and record the outcome of consultations; (ii) an environmental and social checklist with generic mitigation measures to be adapted to the specific investment; (iii) a summary of the Bank's safeguard policies; (iv) an Environmental and Social Management Plan (ESMP), including environmental monitoring indicators and capacity building activities; (v) Environmental Guidelines for Contractors; and (vi) generic environmental impact assessment terms of reference. It is also designed to serve as a guide for developing ESIAs and ESMPs as needed.

50. With regard to the IPMP, It serves as guidance for the use of pesticides within income generating activities in agriculture. The IPMP sets out guidelines and principles to minimize possible adverse impact on human communities and environment. Since the exact priority action location and scale of impacts are not known, the prepared RPF establishes principles and procedures for resettlement planning and implementation.

51. The OP 7.50 is triggered by the project. To be in compliance with OP7.50, Projects on International Waterways, the VBA sent a letter for endorsement to all six Volta Basin riparian countries (Benin, Burkina Faso, Cote d'Ivoire, Ghana, Mali and Togo) on December 14, 2014. In return, the VBA received responses from all the six countries confirming their agreement for this ongoing project.

52. The Project Coordination Unit will work closely with the respective national agencies in charge of Environment Evaluation in the VBA country members to address safeguard issues and

will benefit from safeguards training provided by Bank supervision missions. The PCU staff will regularly monitor all safeguards requirements. The Bank's supervision missions will also include environmental and social safeguards specialists.

53. The CIWA and GEF Grant Agreements will require the VBA to prepare and submit to the Bank for prior approval and disclosure any required ESIAs and ESMPs in accordance with the ESMF, and any RAP in accordance with the RPF, for the activities proposed to be carried out under the ongoing operation, where deemed necessary. Prior to commencing any works the VBA will take all actions required by the ESMP and obtain the World Bank's confirmation that the works may commence. Finally, the VBA, through the PCU, will report quarterly to the World Bank on the environmental and social safeguard measures taken through a specific Safeguard Monitoring Report and (ii) a summary of this specific report to be included in the periodic project progress reports.

F. Project Monitoring & Evaluation

54. **The Project Development Objective.** The PDO has been carefully selected to reflect the institutional development and strengthening approach and to give a clear indication of what will be achieved during the course of the project. Based on the four project components, intermediate results indicators were developed in close consultation with the VBA as well as Bank experts. The PCU will have overall responsibility for M&E, including collating outputs and data from implementation of the priority actions into a consolidated M&E report as part of the implementation progress reports. Baseline information will be provided by the PCU in collaboration with the Focal Points and other relevant stakeholders involved in project. The PCU will be required to keep detailed records of activities, outputs and expenditures against agreed work plans and following standard formats, including robust financial monitoring. Primary responsibility for M&E activities will be assigned to the Technical Specialist in the PCU responsible for overseeing Component 3.

55. **M&E in relation to GEF requirements**. The GEF tracking tool will be used by the PCU to monitor the specific GEF indicators relevant to this project.

Annex 4: Implementation Support Plan

Africa

Volta River Basin Strategic Action Programme Implementation Project

1. **Strategy and approach to implementation support**. A number of measures aimed at ensuring implementation proceeds as expected have been put in place as follows:

2. The Bank will conduct at least one formal mission per year to the VBA, with additional visits as deemed necessary. The team will include Bank staff from the Water Global Practice and Environment and Natural Resources Global Practice working on water resources and environmental management as well as financial management, procurement and environmental and social safeguards. The skill sets represented by these staff cover the range of issues being addressed through this project – institutional strengthening needs of the VBA, as well as skills related to implementation of priority actions, capacity building and safeguarding the sustainability of project activities. Other specialists will be added as needed. The project team has engaged a legal specialist from the region to assist with the design and preparation of activities related to Component 1, and will continue to engage other specialists depending on the needs of the client and project implementation. Most of the team is based in field offices and so can more readily support the client as needed. Based on the current FM risk assessment which is **moderate**, one formal on-site supervision mission will be held per year during implementation and a review of transactions will be performed during that mission.

3. Finally, considerable safeguards have been put into place to guard against procurement fraud risk. These are presented in the procurement section of Annex 3.

Annex 5: Systemic Operations Risk-Rating Tool (SORT)

Africa

Volta River Basin Strategic Action Programme Implementation Project

Systematic Operations Risk- Rating Tool (SORT)	
Risk Category	**Rating**
1. Political and Governance	Substantial
2. Macroeconomic	Low
3. Sector Strategies and Policies	Moderate
4. Technical Design of Project or Program	Moderate
5. Institutional Capacity for Implementation and Sustainability	Substantial
6. Fiduciary	Substantial
7. Environment and Social	Moderate
8. Stakeholders	Moderate
OVERALL	Substantial

Annex 6: Incremental and Additional Cost Analysis

Africa

Volta River Basin Strategic Action Programme Implementation Project

A. Context

1. The Volta River Basin, a 400,000 km^2 region in West Africa, lies across the six member states of Benin, Burkina Faso, Cote d'Ivoire, Ghana, Mali and Togo, through its 1850 km north-south trek. For many years it has remained one of last basins of its size to establish a transboundary river basin organization. But spurred by the natural resource-dependent and diverse economies of its member states, multiple threats and heightened human pressures to its water and natural resources, long-term development goals that tap into its resource potential, and a complex and overlapping institutional landscape for managing transboundary resources and concerns, and supported by regional and international leadership towards greater integration, the six member states formed the Volta Basin Authority (VBA) to begin to address and sustainably manage resources available to its stakeholders. The proposed Project would support the continued establishment and growth of the VBA to manage current and future transboundary water resources challenges in the basin.

B. Alignment with relevant national and regional priorities for water

2. In the six member states, transboundary water is not often granted the same attention and priority as national concerns, although many nationally relevant issues have transboundary implications. This is evidenced by the large number of institutions across the six countries for managing natural resources with unclear, disharmonious and competing policies for addressing their transboundary impacts. The establishment of the VBA came about as recognition of the need to have an institution that plays this role. Its establishment was supported by many international and regional initiatives. ECOWAS, the West African regional economic community plays a strong role in the regional integration of its different sectors, such as water resources management. Starting in the 1990s, ECOWAS began to highlight the importance of regionally integrated IWRM practices and cooperation frameworks for shared basins. The Water Resources Coordination Center (WRCC) – water resources arm of ECOWAS – continued this trend by developing policies for ensuring that regional stakeholders benefit from potential synergies between countries and basins, from benchmarking on the various approaches tried in the region to best practices towards improving the performance of water resources management systems; the WRCC also managed an initiative that examined 39 ongoing and proposed dams for their regional importance – an initiative that led to the prioritization of 8 regional dams for development. More recently, the organization has developed directives that outline best practices in implementation of IWRM principles as well as implementation of investment projects in shared river basins. The WRCC intends to support incorporation of these directives into national and regional RBOs as part of its ongoing regional integration program in West Africa.

3. ECOWAS extended its leadership to specific transboundary river basins – it was instrumental in establishing the VBA, by providing financial, political and technical support towards establishment of the institution. As the VBA continued to grow, other regional and international agencies whose missions aligned with the goals of the VBA also provided support. These include the GLOWA Volta Basin project (2000-2010) supported by the German Federal Ministry of Education and Research; the Water Audit of the Volta Basin, sponsored by the International Union for the Conservation of Nature; the *Volta Water Governance Project* (IUCN/PAGEV) with financial support from the Swedish International Development Cooperation Agency (SIDA); support by the European Union towards development of monitoring and evaluation tools; Volta HYCOS through support of the World Meteorological Organization; and others (additional details provided in Annex 2).

4. Beyond direct engagement with the Volta Basin Authority, other national and regional projects in Burkina Faso, Ghana and Togo – the three member states with the largest shares of the Volta Basin – have tackled similar issues as those being addressed through this project. In the case of Burkina Faso and Ghana, there has been a strong focus on agriculture water management projects – between 1970 and 2009 projects in this field totaled 195 in Burkina Faso, for a total investment amount of US$641million, and 46 in Ghana, for a total of US$258 million[3], with a wide range of results and impacts on the technical, governance and management landscape in the region. An example of these is the comprehensive CGIAR's Challenge Program on Water and Food (CPWF). Setting out to find ways to strengthen integrated management of rainwater and small reservoirs, the CGIAR conducted 12 independent projects that researched a wide range of water and food related issues in the Volta Basin between 2003 and 2013, including an exploration of the institutional and technical aspects of rainwater management as well as small reservoir development and maintenance. The Program's research revealed that the region is home to approximately 1,700 small reservoirs scattered across Burkina Faso and Ghana, which start out mostly as watering holes for cattle but soon come to serve multiple purposes, providing opportunities for farmers to mitigate variable rainfall trends.

5. Togo, on the other hand, is highly vulnerable to floods that have an enormous toll on the population, environment and economy. Issues around soil erosion, coastal erosion and deforestation also exacerbate effects of flooding. Two recent events that have been particularly damaging are the floods of 2007, whereby Togo was one of the hardest hit among the West African countries, with 127,880 people affected and 23 casualties; and 2010 flooding, which affected 83,000 people and resulted in over US$38 million in damages and losses. In Togo, there has been a consortium of development partners working around the issue of flooding and disaster risk management. The Global Facility for Disaster Reduction and Recovery (GFDRR) Integrated Disaster and Land Management Project (2007-2013; in conjunction with the GEF) set out to provide critical support towards multiple institutions in managing the risk of flooding and land degradation in rural and urban areas, for an integrated approach to disaster risk prevention and preparedness. The project provided support to institutions such as the Civil Protection Department, the Togolese Red Cross, the Department of Meteorology and the Department of Hydrology. Additional GFDRR support conducted an assessment in the aftermath of the 2010 flood that

[3] CGIAR Challenge Program on Water and Food: https://cgspace.cgiar.org/bitstream/handle/10568/34065/CPWF%20Volta%20basin%20summary%20A4%20final%2020%20Feb%202014%20small.pdf?sequence=5

brought together stakeholders and expertise around the issue, identified recovery needs in the amount of US$43 million and a clear plan of action for reducing flood risks in the country, and developed capacity training for a national team so as to enhance the country's ownership over mitigation measures.

6. The Basin-Wide Cooperation on Flood Risk Management in the Volta Basin (planned for 2014-2016, with a focus on Togo, Burkina Faso and Ghana) supports national institutions to develop of a basin wide flood hazard assessment for the White Volta and the Oti River; an operational flood forecasting system; an assessment of the impact of potential structural and nonstructural measures; and institutional support for basin wide flood management and data sharing.

7. Other initiatives in Togo include support from the World Bank for improved drainage systems to reduce urban flooding; a combined West African Development Bank, African Development Bank and EU supports a decentralized national action program for environmental management and a drainage project in the lagoon of Lom to reduce flood risk; assistance by the UNDP in developing a national strategy for disaster risk management, a national risk/hazard map, a contingency plan and an early warning system; and the United Nations International Strategy for Disaster Reduction's support towards preparation of the national disaster risk reduction strategy.

8. The GEF has provided support for the development of: a Preliminary Transboundary Diagnostic Analysis, a Transboundary Diagnostic Analysis, and most recently, completion of the Strategic Action Programme, which has been endorsed by ministries of water and the environment in all six member states of the basin. In addition, the Volta countries are implementing various national projects in sectors such as transboundary water resources management, agriculture, water supply, ecosystem protection and others in the Volta Basin.

C. SAP Priorities to be addressed

9. As stated above, the previous GEF-financed projects, *Addressing Transboundary Concerns in the Volta River Basin and its Downstream Coastal Area*, where a Transboundary Diagnostic Analysis (TDA) and Strategic Action Programme (SAP) were finalized, set the stage and built a foundation for the proposed project.

10. The proposed project, which aims at strengthening the institutional capacity of the VBA, is consistent with the GEF International Waters (IW) focal areas, and implements elements of the Strategic Action Programme (SAP) finalized for the Volta River Basin. The GEF-6 IW focal area was established to help riparian countries of international river basins collectively manage their transboundary water systems and subsequently implement a full range of policy, legal and institutional reforms and investments contributing to the sustainable use and maintenance of ecosystem services. The project will contribute specifically to IW-1: Catalyze sustainable management of transboundary water systems by supporting multi-state cooperation through foundational capacity building, targeted research, and portfolio learning; and IW-2: Catalyze investments to balance competing water-uses in the management of transboundary surface and groundwater and enhance multi-state cooperation.

11. In line with GEF practice, the 2012 TDA was followed by a Strategic Action Programme (SAP) that sets priorities for actions, responsibilities and targets for addressing issues identified in the TDA. The SAP was formulated based on the principles of stakeholder consultations and partnership, an ecosystem approach, government commitment, environmental quality objectives, incremental costs and risk assessment. Based on the primary basin concerns identified in the TDA and their causal chain analysis, the SAP proposes actions aimed at bringing solutions to these problems. In other words, for each environmental problem identified in the TDA, the SAP proposes actions that are designed to target its root causes up to an agreed upon environmental quality objective (EQO). These SAP measures have been suggested based on the analysis of their transboundary relevance; some of them relate to the entire basin, while others to some particular country/region. The SAP measures have been categorized into four major groups related to the types of environmental challenges identified for the Volta River Basin.

12. The first set of actions (Component A of the SAP) is designed to meet the risks to ensuring consistent water availability therefore all contribute directly to improving water availability in the Volta River Basin as well as optimizing its use among competing primary uses. Component A measures are designed to meet the EQO of ensuring that water is optimized among primary users (domestic, agricultural, ecosystem and hydroelectric power) so that they receive adequate and sustainable supply, and reduce sedimentation in critical areas. These actions will enhance water availability through the protection of water sources, the development of water allocation models and the formulation and implementation of climate change adaptation strategies. They will also enhance the riparian countries' capacities to characterize and predict climate change and climate variability impacts. They will also lead to better control of flooding and reduced related damages through the construction of irrigation infrastructure, the monitoring of hydrological and hydrogeological data, and the development and implementation of early warning systems for droughts, floods and inundations.

13. The second group (Component B) addresses risks to conserving and restoring ecosystem functions. As such, they are aligned to EQOs which seek to stabilize the Volta Basin coast, restore and manage critical ecosystem functions, and in identified ecosystem hotspots, contain invasive species and reduce sedimentation by 20 percent by 2025. Component B measures aim to preserve acceptable and sustainable environmental conditions to guarantee the production of ecosystem goods and services. The third group (Component C) relates to ensuring high water quality in the basin and supports the EQO of ensuring that water of sufficient quality is available to support ecosystem needs at pollution hotspots. In many places within the Volta Basin, the population or the technical services may be aware of the degradation of water quality. However, the major setback to water quality is that reliable data on this topic are generally missing: available data are rare, and the reliability of any data spanning a number of years is doubtful. Therefore, the SAP proposes attaining high water quality through efforts that reinforce capacities of national research centers, and increase knowledge and data bases related to water quality.

14. The final group (Component D) suggests actions that aim at strengthening governance and improving the quality of information on water resources. This group comprises actions that are aligned to the EQO of strengthening the legal and institutional framework within the Basin for sustainable management of the water and associated environmental resources. It responds to the need for setting up or reinforcing an adequate knowledge system as well as institutional frameworks for sustainable transboundary management and coordinated implementation of the

SAP with all the member states. The SAP notes that the current reality of the VBA and other water-related institutions of the basin are ill-equipped to sustainably implement many of the actions of the SAP. In order to mitigate risks to implementing SAP actions, capacities of national and regional institutions must be first strengthened, through increasing involvement of stakeholders to ensure political support, enhancing existing financial mechanisms, increasing data management and sharing, increasing coordination mechanisms at basin level, improving the existing legal framework of institutions, increasing technical, administrative and institutional capacities, and streamlining responsibilities between different administrative scales.

Table 13: Project components mapped to SAP Actions, EQOs and countries

SAP Action No.	Environmental Quality Objectives (EQOs)	Name	Responsible Agency/Country	Project Component
D.1	The legal and institutional framework within the Volta Basin is strengthened	To prepare the Water Charter of the Volta Basin	VBA	Component 1
D.9	The legal and institutional framework within the Volta Basin is strengthened	To reinforce public awareness and knowledge on laws relating to water and the environment in the Volta Basin	VBA	Component 2
A.2	Sedimentation in five key hotspots is reduced by 20 per cent by 2025	To protect all the springs that contribute to the permanent flow of the Mouhoun River	Burkina Faso	Component 3
A.3	Water optimized among primary users (domestic, agricultural, ecosystems and HEP) so that they receive sustainable supplies	To develop irrigation infrastructure in the Sourou Basin	Mali	Component 3
B.4	Critical ecosystem functions conserved, restored and managed for sustainable use in at least 5 selected areas	To design and implement a regional programme for the protection and restoration of the river banks and gallery forests upstream of Lake Volta	Cote d'Ivoire, Ghana	Component 3
B.7	Critical ecosystem functions conserved, restored and managed for sustainable use in at least 5 selected areas	To preserve and restore ecosystems of the Pendjari-Oti region	Benin, Togo	Component 3
D.4	The legal and institutional framework within the Volta Basin is	To support and reinforce transboundary and regional cooperation for water	VBA	Component 4

	strengthened	resource management across the Volta Basin		

D. Description of the baseline

15. The "baseline scenario" indicates that there is a total of approximately US$545.8 million identified projects supporting activities similar to those of this project across the Volta member states. Of this, approximately US$30 million has been identified as associated co-financing that is relevant for the Project through the Bagre Growth Pole Project (Burkina Faso); Fostering Agriculture Productivity (Mali); the Agriculture Sector Support Project (Cote d'Ivoire); and the Urban Water Project (Ghana).

16. The four projects above are all being implemented in riparian countries of the Volta River Basin and seek to enhance sustainable uses of water resources in agriculture, electricity and water supply, while addressing the transboundary environmental and management concerns arising from these development initiatives. The Bagre Growth Pole project utilizes transboundary water resources from the existing Bagre multi-purpose dam by diverting water to irrigate a 15,000 ha area, primarily targeting small farmers for this support. In accordance with World Bank policy and following its recommendation, the Government of Burkina Faso carried out notification of the other Volta member states of the proposed activities through the VBA. This highlights the need for standardizing and streamlining this process at the VBA, outside the requirements of the policies of donor organizations, which will be accomplished through adoption of the Volta Basin Water Charter.

17. Fostering Agriculture Productivity in Mali and the Agriculture Sector Support Project in Cote d'Ivoire specifically target agriculture for small farmers. They support institutional development, construction of agricultural infrastructure, provision of services to improve the business environment, linkages to government and the private sector and other activities. Increases in agricultural productivity coincide with land clearing which in turn can lead to land degradation, forest degradation and biodiversity loss. This highlights the need for effective institutional measures for addressing transboundary management and environmental concerns.

18. The Urban Water Project in Ghana increases water abstraction from all three transboundary basins in Ghana – including the Volta Basin. The project identified several risks associated with its implementation such as soil erosion, conflicting demands for water use, particularly in the northern dry region of Ghana, and the need to assess and potentially rehabilitate existing dams in the region, including the Akosombo dam in the Volta Basin. Based on these concerns, the Ghana Urban Water Project concludes that there is a strong need for a management and institutional structure that is able to participate and play a role in projects that affect transboundary waters in the region – whether for issues related to management of multiple stakeholders, or to address environmental and water resources risks with transboundary impacts.

19. An additional US$3.74 million to this current project forms the baseline. The GEF resources of US$7.20 million will be fully blended with US$3.5 million grant in direct co-financing from the CIWA multi-donor trust fund and US$240,000 in counterpart funds to enhance the benefits under the baseline scenario. Jointly they fund the proposed project which presents an

opportunity to build a stronger and more structured transboundary river basin institution for managing the water resources of the basin.

20. Overall, the incremental cost reasoning lies in the project's potential to deliver: 1) a Water Charter that is drafted through a consultative and stakeholder-owned process; 2) an institution strengthened through new and enhanced internal regulations and communications streams to address issues from a basin and transboundary perspective; and 3) implementation of priority actions with direct benefits to local farmers, enhancements to livelihoods and engagement of local stakeholders.

21. The baseline project is mainly focused on development of catalytic studies and foundational work on which the incremental GEF financing then builds. This applies to all project components.

E. Link with GEF Strategy

22. The proposed project is consistent with the GEF-6 International Waters (IW) window. The GEF Focal Area was established to support countries to jointly manage their transboundary surface water basins, groundwater basins, and coastal and marine systems to enable the sharing of benefits from their utilization. The project will combine the following IW Focal Area Objectives:

a. Catalyze sustainable management of transboundary water systems by supporting multi-state cooperation through foundational capacity building, targeted research, and portfolio learning
b. Catalyze investments to balance competing water-uses in the management of transboundary surface and groundwater and enhance multi-state cooperation

23. Each objective encompasses targeted programs that focus GEF's support towards key concerns for international water contexts. The following table lists the GEF IW objectives, programs and key outcomes to which this project contributes:

Table 14: Relevant GEF-6 International Waters Focal Areas, Programs and Outcomes

Focal Area Objective	Programs	Expected Outcomes
IW 1: Catalyze sustainable management of transboundary water systems by supporting multi-state cooperation through foundational capacity building, targeted research and portfolio learning.	*Program 1*: Foster cooperation for sustainable use of transboundary water systems and economic growth.	*Outcome 1.1*: Political commitment/shared vision and improved governance demonstrated for joint, ecosystem-based management of transboundary water bodies.
IW 2: Catalyze investments to balance competing water-uses in the management of transboundary surface and groundwater and enhance multi-state cooperation.	*Program 4*. Water/Food/Energy/Ecosystem Security Nexus	*Outcome 4.1:* Increased water/food/energy/ecosystem security and sharing of benefits on basin/sub-basin scale underpinned by adequate regional legal/institutional frameworks for cooperation.

F. GEF Alternative Scenario

24. The proposed Volta River Basin Strategic Action Programme Implementation project will support four defined components: Component 1: Water Charter Development for Volta River Basin; Component 2: Facilitating Dialogue, Monitoring and Project Development; Component 3: Implementation of SAP Actions; Component 4: Project Management.

25. GEF financing will build on the baseline project which already addresses many elements of the project. Improving the institutional, regulatory and stakeholder engagement frameworks of the VBA empowers the organization to then take a leading role in implementing priority actions recommended in the SAP and representative of Components A and B of the SAP for restoring ecosystem functions, and regulating water quality and flow in select areas of the basin. The priority actions which have been agreed with the VBA and the member states have been included to initiate the process of meeting SAP actions and test the effectiveness of the institutional strengthening measures being supported by the proposed project.

26. The table 15 below demonstrates the added value of GEF funds towards the project.

Table 15: Incremental GEF funds and description of support by project component

Component	Baseline Co-finance (US$)	Incremental GEF Funds (US$)	Description of Incremental Support
Component 1: Water Charter Development for the Volta River Basin	7,044,000	670,000	GEF funding to this component will contribute to consultations and stakeholder workshops related to development of the Water Charter and other items necessary to ensuring that the Charter is developed in an inclusive way such that there is sufficient ownership from the relevant stakeholders and that the institutional role of VBA related to management of transboundary waters is sufficiently understood and rendered effective
Component 2: Facilitating Dialogue, Communication and Project Monitoring	4,493,000	590,000	GEF funds will be used to ensure completion of the Communications Plan as well as its validation by member states. Additionally funds will be used to raise the awareness of the local population to the detrimental impacts of land degradation on the Volta Basin watershed and also to better educate them about the laws relating to zoning policies, land clearing and cultivation. Based on the principles of transparency and partnership with stakeholders, adhered to in previous GEF projects, GEF support to this component will ensure that the results of the SAP actions are communicated to relevant stakeholders in line with the Communications Plan. This component will also include provisions for participation of the VBA and other relevant stakeholders to GEF's IW-Learn activities such as participation in the International Waters Learning Exchange and Resource Network
Component 3: Implementation of SAP Actions	22,543,000	5,600,000	GEF funds will be used to implement on the ground activities of the priority actions that go beyond the technical and capacity foundations established under the baseline project. Activities to undergo river bank protection, reforestation, market gardens and livelihood generation will be supported by these funds.
Component 4: Project Management	2,060,000	340,000	GEF funds will support training for relevant stakeholders on the internal regulations as well as additional capacity building as needed.

G. Global Environment Benefits

27. The Volta river basin lies at the intersection of environmental and governance challenges whereby physical constraints that the basin faces are compounded and overlapping with concerns related to the governance and management faced by its many institutions and populations. As member states of the Volta continue to pursue development goals, competing uses of the water increasingly come to light: irrigation schemes are challenged by matters of water security for electricity production, desertification and climate change impacts highlight the competing demands of farmers and cattle-breeders, invasive aquatic species reduce the fishing potential of the basin and development schemes are undermined by increasing erosion and sedimentation. What becomes abundantly clear is that in order for member states to sustainably and equitably manage and develop their resources, there is a need for a governing body that understands the issues at hand and has the technical, institutional, financial, political and legal capacity to carry out this large feat. The global environment benefits associated with the project relate to the more sustainable transboundary management that can be achieved across the Volta River Basin as a result of a strengthened VBA.

28. This is also particularly important considering that the river basin environment maintains critical ecological significance as established by its numerous ecological sites having national, regional and, global significance. Implementation of priority actions will lead to environmental benefits resulting in restored and sustained freshwater, reduced sedimentation, and improved forest ecosystems. The basin is also home to several RAMSAR wetland sites, including the Keta Lagoon Complex (in Ghana). An enhanced management of the river basin will have indirect benefits to these types of sites as well as the threatened biodiversity found in the basin in countries such as Mali, Togo and Burkina Faso. Given the current environmental and water resources risks faced by the basin, the potential future development scenarios, and given the important role of transboundary water in biodiversity protection, sustainable land management and the adaptive role it is expected to play in reducing the full impact of climate change, the global environmental benefits of the project are substantial.

Annex 7: Economic and Financial Analysis

Africa

Volta River Basin Strategic Action Programme Implementation Project

A. Introduction

1. The Project to be implemented over a four-year period consists of three mutually reinforcing components: (i) Water Charter Development for Volta River Basin; (ii) Facilitating Dialogue, Monitoring and Projects Developments; and (iii) Implementation of selected actions of the Strategic Actions Program (SAP) which mainly include: (i) reforestation and agroforestry in selected mountains' slopes and rivers' banks in Benin, Burkina Faso, Côte d' Ivoire, Ghana and Togo; (ii) support to the development of local income generating activities (IGAs) for local communities living in project intervention areas; (iii) development of small irrigated infrastructure for vegetable crops in Mali; and (v) rehabilitation of Dindérésso bridge in Burkina Faso. Ultimately, all the above envisioned investments are expected to induce many quantifiable and non-quantifiable benefits, including: optimized flow of many rivers and their tributaries in the Basin (i.e. Mouhoun, Pendjari and Oti rivers); improved flood control in flood prone areas; increased water resource availability for drinking water and agricultural development for local communities and farmers; increased agricultural productivity and fodder security, reduced mountainsides and riverbanks erosion, improved biodiversity, reduced human pressure on forest ecosystems, and enhanced preservation and restoration of marine ecosystems within the Basin. Some of the above benefits and assumptions are analyzed in the subsequent sections.

B. Assumptions Underlying Benefits and Beneficiaries Determination

2. The main benefits expected from the project have been identified under the following assumptions: (i) project sites for reforestation and agro-forestry activities as well as selection of river banks to be stabilized are identified and prioritized according to the level of degradation, the needs expressed by the local communities in terms of agro-forestry species, and their commitment to participate in the implementation of related activities and plantation maintenance in the future; (ii) income generating activities aimed at accompanying reforestation interventions and supporting their long term sustainability and impacts are identified in close collaboration with respective local communities; (iii) selection of project final sites, activities and their implementation are accompanied by a large sensitization campaign toward local populations to increase their adherence and ownership of project activities; (iv) institutional development activities proposed under the project are assumed to improve the capacity of VBA and national focal points to successfully implement all planned activities; and (iv) capacity building activities planned for selected VBA staff, local communities, agencies, and central governments 'decentralized services involved in transboundary water resource management and forest ecosystems preservation are assumed to increase awareness, knowledge, and behavior change with respect to water resource management and the preservation of marine/forest ecosystems goods and services; and (v) riparian governments political and fiscal support to VBA, its national focal points and to the project interventions will be continued in order to sustain the identified benefits.

3. Under the above assumptions, the project's development impact in terms of selected expected benefits and beneficiaries include:

- **Socioeconomic benefits.** Project's activities aimed at dredging river 'beds and reinforcing extremely degraded portions of their banks are expected to contribute to increase the flow of targeted rivers, water resource availability and flood control. As a result, the productivity of cultivated areas, crop, fishing and pastoral activities in the basin are projected to increase along with the associated socioeconomic returns. It is anticipated for instance that, the rice-growing area of the Kou valley situated 25 km in the north-west city of Bobo Dioulasso would increase by 20 percent from the current 1,260 ha to about 1,512 ha with an average annual incremental return of about US$176,420. The analysis predicts that about US$3million of yearly incremental agricultural gains could benefit about 50,000 people living in project intervention zones beginning from the end of the second year of project implementation.

- **Food Security and Nutritional Benefits.** Siltation and continued degradation of riverbanks due to anthropogenic actions are negatively impacting agricultural, fishing and pastoral productivity and threatening to seriously undermine efforts to ensure food security within the Volta River Basin. It is projected that implementation of selected priority actions under the project aimed at increasing water resource availability would lead to an incremental production of about 11,280[4] tons of diversified agricultural products (including rice, mango, papaya, guava, watermelon, and cabbage), per year with the likelihood to reach a total incremental yearly production of about 21,800 tons.

- **Job creation and poverty alleviation.** It is projected that increased hydro-agricultural cultivated areas to be induced by increased water resource availability caused by project reforestation, riverbanks beautification, rivers' beds dredging related activities, and rehabilitation works planned on Dindérésso Bridge in Burkina Faso will all together have a significant positive effect on rural jobs creation and poverty alleviation around project sites. In Burkina Faso and Côte d'Ivoire for instance, the incremental number of local direct jobs likely to be created because of the project implementation has been estimated by VBA national focal points at 1,600 jobs. Taking into account the implementation of similar activities planned under the project in the other five countries, the analysis has conservatively forecasted that a minimum of 2,500 jobs could be created during the four-year period of the project implementation. The associated anticipated income generation for local communities at the average monthly minimum wage of US$100 is about US$828,000 per year over the project life span.

- **Environmental benefits**: Implementation of priority actions pertaining to reforestation, agroforestry development and stabilization of selected riverbanks and hills lopes are expected to yield significant environmental benefits, including: reduced soil erosion in critical areas, increased vegetal cover along the targeted riversides, increased preservation and restoration of coastal and marine ecosystems goods and services, comprising globally relevant biodiversity of the Pendjari, Oti and Mouhoun regions.

[4] Total crops annual production on 200 hectares.

4. **Project Estimated Costs.** Project costs include total investment costs of US$10.94 million over the four-year implementation period. Annual operation and maintenance (O&M) costs for various investments related to the project including reforestation, hydro-agriculture, agroforestry, beautified riverbanks and rehabilitating the bridge on the Kou river are also taken in account over the project life span. They are estimated at 10 percent of respective capital expenditure.

C. Methodology

5. **Scope of work and data source**. Data (concerning crops, productions, operating costs, surface areas, etc.) was collected during a field visit undertaken during the pre-evaluation mission. Missing data were provided by VBA national focal points and/or completed by the Bank team in charge of conducting the economic analysis, looking at documentations of similar projects in the region. The economic and financial analyses focus on a cost-benefit analysis and capture the combined quantifiable benefits and costs of two main targeted groups of activities: agricultural products (hydro-agriculture and agroforestry) and other income generating activities (IGAs: Apiculture, market gardening and rabbit breeding). The analysis covers 25 years, including 4 years of project implementation and takes into account only quantifiable benefit and cost streams. The financial viability of productive investments and the economic attractiveness of the Project at the Basin level are verified through the computation of Net Present Values (NPVs) and Internal and Economic Rates of Return (IRR/ERR) and their comparison to the associated capital investment and the opportunity cost of World Bank funds, estimated at 12 percent. The sensitivity of the project's ERR to the change in expected incremental irrigated areas, in operating and maintenance (O&M) costs and to the eventual exclusion of income generating activities is tested in the analysis. Total Economic Value (TEV) of selected ecosystems is finally used to put into perspective, the "without-project scenario" cost to the long term Volta River Basin socioeconomic well-being.

Benefit Streams

6. ***Hydro-agricultural and agroforestry***. Expected benefits include incremental revenues resulting from improved water supply and expansion in spate-irrigated agriculture, and development of agroforestry along selected riversides. Farm budgets for small irrigated systems are based on typical tropical two-seasons: *dry season* and *rainy season;* cropping patterns are dominated by irrigated paddy rice and include onion (used as reference) and other cereals such as maize and sorghum. The "with-project" scenario assumes an increase in key crop yields along with an expansion of cultivated area under spate irrigation. The assumption is made based on one agricultural production area (small gardens). In addition to their environmental benefits, agro-forestry systems will induce an additional source of income for local communities in the medium term through the commercialization of mango, papaya and guava products, and in the longer-term, through timber sales.

7. ***Other income generating activities.*** To reduce anthropogenic pressure on Volta River Basin natural resources and ensure that the project's reforestation and agroforestry investments are sustainable, the project will fund income generating activities to be selected by local communities living around project sites. While the final list of eligible IGAs remain actually unknown, the

analysis has focused on costs and benefits (net cash flows) expected to accrue from three types of activities (honey production, rabbit breeding, and gardening) previously funded under Benin Additional Financing to Forest and Adjacent Land Management Project and which are not only generating substantial incomes for targeted local communities, but also contributing to reduce human pressure on forest natural resources.

D. Results of the Analyses

8. ***Financial Analysis***. The main objective of the analysis was to examine the financial viability of selected productive investments taking into account only related direct costs and benefits. Results of the financial analysis are summarized in the table below:

Table 16: Results of financial analyses of productive investments

Project Activities	Sub-sector	Beneficiaries	Financial IRR	NPVs (US$)
Hydro-agriculture and agroforestry	Agriculture /Agroforestry	local Communities in Project sites	18%	596,000
IGAs	Apiculture, gardening and Rabbit breeding (combined)	local Communities in Project sites	21%	154,000
Project			**19%**	**750,000**

9. Results of the analysis reveal that project agroforestry and hydro-agriculture productive investments are financially attractive. Over a period of 25 years at 12 percent discount rate, they yield a total Net Present Value (NPV) estimated at US$750,000 and an overall financial rate of return of about 19 percent. At the sub-sectoral level, both sets of income generating activities selected for the analyses prove financially viable as shown by the associated Internal Rates of Return above the 12 percent opportunity cost, and the respective positive Net Present values (NPVs). However, IGAs activities planned under the project appear to be more financially viable than hydro-agricultural and agroforestry ones, generating an internal rate of return of about 21 percent as compared to 18 percent for the former group of activities. The observed contrast is explained by the fact that agroforestry related investments take a longer period of time to generate profit than IGA investments.

10. ***Economic Analysis***. The main objective of the economic analysis carried out was to examine the economic viability of the overall operation at the regional level, by taking into consideration direct and indirect costs and expected benefits. Depreciation charges, expected changes in the general price and direct transfers such as taxes, direct subsidies, and credit transactions including loans, principal repayment, and interest payments were thus excluded from the cost-benefit analysis. On the other hand, several benefits have not been quantified because of lack of usable data. As a result, these were not taken into account in the determination of the project's economic rate of return. These include mainly environmental (such as carbon credits), Non-timber benefits such as hunting and biodiversity/ecological protection benefits which represent returns of significant value for the project. If accounted for, they would enhance the

overall economic viability of the Project. For that reason, the decision on project feasibility and rationale should also take these elements into consideration. Results of the analysis shown indicate that the proposed operation is economically viable at the regional level with a positive NPV of about US$2,279,000 and an overall economic rate of return (ERR) estimated at 21 percent.

Sensitivity and Risk Analysis

11. The project's IRR/ERR sensitivity to the following three key variables was tested: (i) decrease in cultivated area due to insufficient water resource availability; (ii) increase of costs of operation and maintenance caused by insufficient benefits from bulk investments to cover maintenance costs; and (iii) exclusion of costs and benefits tied to IGAs activities.

12. ***Sensitivity to changes in cultivated area***. Results of the sensitivity analysis reveal that a 10 percent decrease in projected irrigated area will cause the project Internal Rate of Return to decline from 19 percent to 16 percent and the associated ERR from 21 to 20 percent. For the project to remain financially viable "all else being equal", the maximum reduction in irrigated cultivated area should not exceed 27.5 percent; with this reduction of cultivated surface area rate, the project's IRR falls from 19 percent to the minimum required rate of return of 12 percent and the project's NPV remains positive at US$15,000.

13. ***Sensitivity to changes in O&M costs***. In the analysis, a change in project's ERR due to a variation of maintenance costs from 10 percent to 21 percent was tested. The analysis reveals that if such situation were to occur, the project overall ERR would decrease from 21 percent to the opportunity cost level of 12 percent with a positive NPV estimated at US$79,000. The project would not remain economically viable if the maintenance costs were to increase above 21 percent as the NPV would become negative with an ERR less than the 12 percent cost of capital which is for this project, the minimum required economic rate of return.

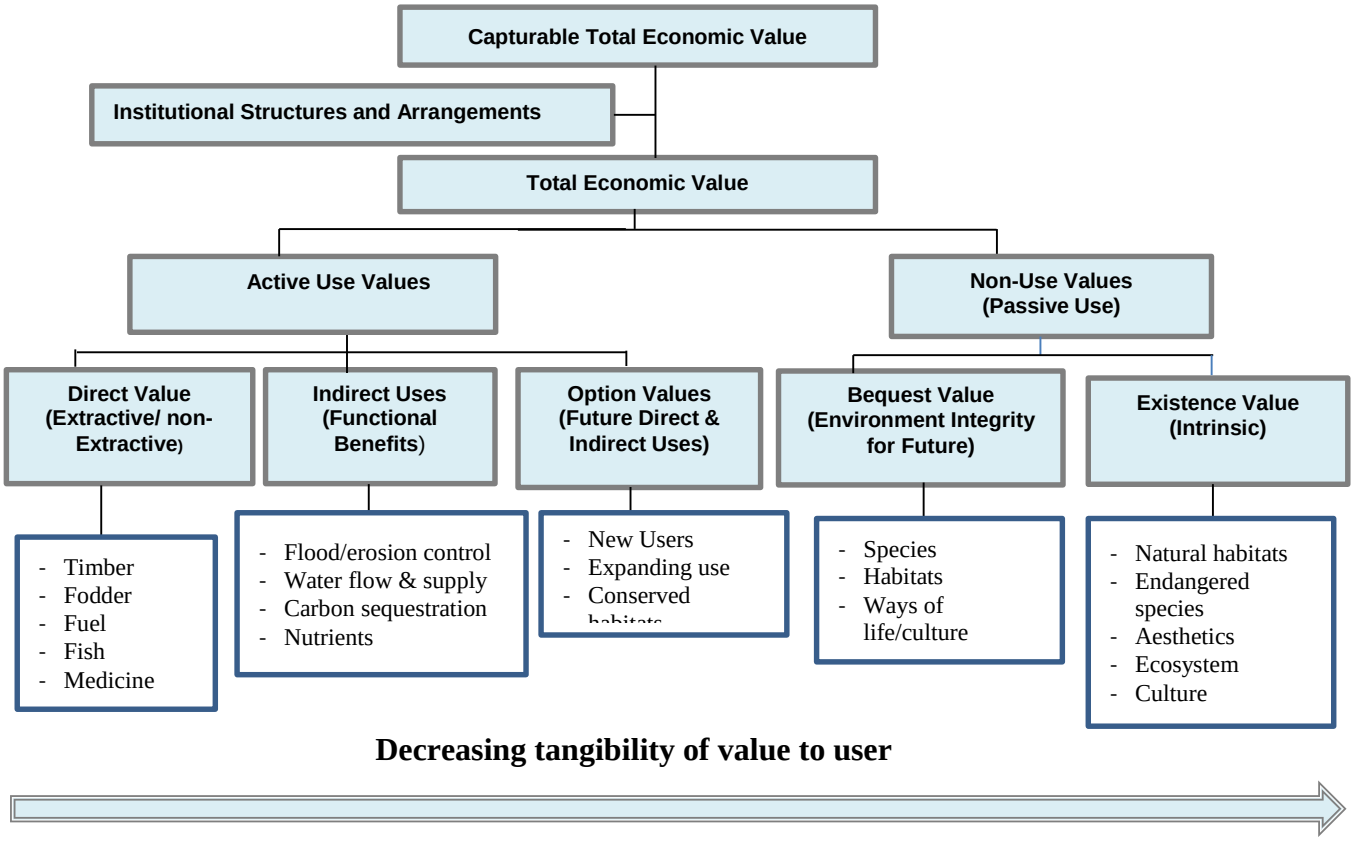
14. **Sensitivity to Income Generating Activities - IGAs**. Finally, in the analysis, the impact of an eventual exclusion of IGAs costs and benefits from the project implementation was tested. Under such hypothesis, the project's Economic Rate of Return would decrease by about 3 points from 21 percent to 18 percent. While the project economic viability remains high in such scenario, the anticipated positive effect deriving from IGAs implementation on the reduction of anthropogenic actions on water resources and environment preservation may however be critically reduced.

Without-Project Scenario

15. Without the project, the likelihood that further anthropogenic actions will accelerate the disappearance of many tributaries of major rivers in the Volta Basin is high, with significant negative impacts on the basin agro-pastoral activities, food security, local communities' livelihoods and riparian countries' economies. The Total Economic Value (TEV) concept which aims to characterize the contribution that environmental goods and services make to society's general well-being puts into perspective the eventual negative consequences of the "without-project scenario". In the context of this analysis, it provides a useful framework for considering the project contribution to the preservation of water and forest ecosystem goods and services, and for factoring them into economic valuation. Looking at the total economic value of ecosystems in

the context of this Project essentially involves considering their full range of characteristics as integrated systems: resource stocks or assets, flows of environmental services, and the attributes of the ecosystem as a whole. In other words, it incorporates all of the different present and future, marketed and non-marketed, goods and services that ecosystems generate in relation to water. The graph below broadly defines, the total economic value of water ecosystems inclusion:

Figure 4: General schematic of economic value of water ecosystems



Economic Value of Mouhoun River Marine Ecosystems

16. A Diagnostic Study of the Basin fisheries from WorldFish Center indicates that Mouhoun river and its tributaries in Volta Basin have a maximum water surface of about 14,900,000 ha with sustainable fish landings per annum estimated at 1,498,000 tons. On the other hand, the Economic and Social Value of the Guinea Current Ecosystem study which comprises four of the six countries of Volta River Basin indicates that annual total value of sustainable fish landings in West Africa is on the average US$54/ha. To estimate the total monetary output of fisheries from Mouhoun River which consists mainly of the income derived from related fisheries, the analysis has multiplied this latter figure by the Mouhoun River fishing total area. The resulting economic value is approximately US$804,600,000. This economic figure implies that, the without-project scenario, combined with climate change variability and impacts, and the population explosion in Burkina Faso and Ghana which exacerbates human pressure on surrounding natural resources, will

certainly lead to a rapid depletion of Mouhoun river related fisheries and cause not only a problem in protein supply for the large population around the coastal communities, but also weaken the whole Volta River Basin economies.

Economic Value of Volta Basin Forest Ecosystems

17. **Timber and Non-Timber Products.** Negative consequences resulting from anthropogenic pressure on Volta Basin natural ecosystems include among others: modification of the water cycle (decrease in rainfall and change in flow regime), soil erosion, degradation and loss of fertility and tourism value. Without reforestation activities planned under the Project, safeguarding the economic value of the above mentioned ecosystems functioning, including timber and non-timber products will be jeopardized in the long run. To quantify timber and non-timber products in West Africa in monetary terms, past studies[5] have used Unit Value transfer method which is based on market prices of Vietnam 's Mekong forest timber products (US$16.9/ha) and Sri Lanka Muthurajawela non-timber products (US$150/ha). As both studies assess ecosystems that resemble the situations of Volta Basin ecosystems, there is no need to adapt the results of the studies, except for adjusting the values to the general economic level in West Africa. Results of the Unit Value transfer are as follows: US$10 US$/ha for timber products and US$54/ha for non-timber products. Multiplying these figures with the total surface area concerned by reforestation activities under the Project gives an estimated total economic value of US$7,700,000 that the proposed operation will contribute to protect.

18. **The Project's overall expected contribution to the country's socioeconomic development**. In addition to the anticipated revenues projected to accrue to targeted local communities, the project will contribute to the creation of about 2,500 local jobs and the generation of an average annual income (salary) of about US$828,000 over the project life span. Income generating activities planned under the project will on the other hand benefit many local communities, including women and would contribute to improving their livelihoods. Furthermore, these activities will provide rural and sub-regional markets with increased supply in products such as honey, rabbit, and vegetables thereby contributing to local food security; It is finally expected that institutional capacity building activities planned under Component I along with investments under Component II aimed at fostering dialogue and effective dissemination of information on ongoing and planned initiatives in the Volta basin for coordination and monitoring purpose, will catalyze stakeholders 'energies to envision and develop a more ambitious program, building on the results and lessons learned from the proposed project.

[5] Bay Delta Conservation Plan and The Economic and Social Value of the Guinea Current Ecosystem

19. **The Rationale for the Public Sector Provision**. The involvement of the public sector in transboundary water resources management in Volta River Basin is critical for a number of reasons. Formal market economies have limited suitability in protecting the global environment. It is therefore important that the riparian governments help to foster an environment which is more conducive to sustainable economic development and use of natural resources, by strengthening transboundary water resources management in the Basin, notably through institutional development and implementation of priority actions of the Strategic Action Programme. Moreover, given the increased vulnerability of some riparian countries to climate change variability, the associated devastating impacts, and the necessity to strengthen regional cooperation in the search for sustainable mitigation/adaptation solutions, the six governments have an important role to play in strengthening transboundary water resource management. This project recognizes the important role which the public sector should play in achieving the broad objective of ensuring equitable distribution and access to international waterways, public services and the conservation of goods and services of the ecosystem. . Furthermore, public sector leadership involvement is essential because rivers and riverbanks along with protected forests in Volta River Basin are vested in governments' ownership.

20. **World Bank's added value.** The World Bank's added value is substantial, encompassing capacity building, technical expertise, coordination support, and channeling of global knowledge. The Bank's value added in lower-middle income and fragile states is acknowledged to be substantial. For this project, this will include direct technical expertise through intensive supervision; support for required coordination through a Bank team that incorporates members from various relevant sectors; and the channeling of global knowledge through connections to WB teams and counterparts working on similar projects (past or present) in other lower-middle income or fragile states. On the other hand, the Project is part of the World Bank's commitment to the GEF-5 IW focal area established to help riparian countries of international river basins collectively manage their transboundary water systems and subsequently implement a full range of policy, legal and institutional reforms and investments contributing to the sustainable use and maintenance of ecosystem services. The project will contribute specifically to IW-1: catalysing multi-state cooperation to balance conflicting water uses in transboundary surface and groundwater basins while considering climate variability and change; and IW-3: supporting foundational capacity building, portfolio learning and targeted research needs for ecosystem-based, joint management of transboundary water systems. The World Bank expertise on all these aspects and useful lessons learned from multiple similar programs will be channelled to VBA and riparian countries through the implementation of this project.

Annex 8: Map of the Volta River Basin

Africa

Volta River Basin Strategic Action Programme Implementation Project