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INTERNATIONAL BANK FOR RECONSTRUCTION AND DEVELOPMENT  
AND  
INTERNATIONAL DEVELOPMENT ASSOCIATION

PROJECT APPRAISAL DOCUMENT

ON A

PROPOSED GRANT FROM THE

COOPERATION IN INTERNATIONAL WATERS IN AFRICA  
(CIWA) MULTI-DONOR TRUST FUND

IN THE AMOUNT OF US\$ 6 MILLION

TO THE

ZAMBEZI RIVER AUTHORITY

FOR THE

ZAMBEZI RIVER BASIN DEVELOPMENT PROJECT

May 12, 2014

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FISCAL YEAR  
January 1 – December 31

ABBREVIATIONS AND ACRONYMS

AMSL	Above mean sea level
BOOT	Build-Own-Operate-Transfer
CIWA	Co-Operation in International Waters In Africa
DANIDA	Danish International Development Agency
EIA	Environmental Impact Assessment
GDP	Gross Domestic Product
HCB	Hydroelectrica de Cahora Bassa
HYCOS	Hydrological Cycle Observing System
IHE	Institute for Water Education, Delft, The Netherlands
IUCN	The World Conservation Union
IWRM	Integrated Water Resources Management
LEAP	Long-range Energy Alternatives Planning
MDTF	Multi-Donor Trust Fund
MoU	Memorandum of Understanding
NGO	Non-Governmental Organization
PPP	Public-Private Partnerships
PSC	Project Steering Committee
SADC	Southern Africa Development Community
SADC-WD	Southern Africa Development Community – Water Division
SAPP	Southern African Power Pool
SEA	Strategic Environmental Assessment
SIA	Social Impact Assessment
SIDA	Swedish International Development Agency
WEAP	Water Evaluation and Planning
WWF	World Wide Fund for Nature
ZACPLAN	Zambezi River Action Plan
ZACPRO 6	ZACPLAN Project 6 (Phase 1 and 2)
ZACPRO 6.2	ZACPLAN Project 6 Phase 2
ZAMCOM	Zambezi Watercourse Commission
ZAMWIS	Zambezi Water Information System
ZESA	Zimbabwe Electricity Supply Authority
ZESCO	Zambia Electricity Supply Company
ZINWA	Zimbabwe National Water Authority
ZRA	Zambezi River Authority

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Sector Director:	Jamal Saghir
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Task Team Leader:	Marcus Wishart

**ZAMBEZI RIVER AUTHORITY**  
**Zambezi River Basin Development Project**

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## PAD DATA SHEET

Zambezi River Authority

Zambezi River Basin Development Project

Basic Information			
Date:	May 12, 2014	Sectors:	General water, sanitation and flood protection sector (80%), Public administration- Water, sanitation and flood protection (20%)
Country Director:	Kundhavi Kadiresan	Themes:	Water resource management (50%), Environmental policies and institutions (40%), Participation and civic engagement (10%)
Sector Manager / Director:	Jonathan Kamkwala / Jamal Saghir	EA Category:	A – Full Assessment
Project ID:	P133380		
Lending Instrument:	Investment Project Financing: Series		
Team Leader(s):	Marcus Wishart		
Joint IFC: No			
Recipient: The Zambezi River Authority			
Responsible Agency: The Zambezi River Authority			
Contact:	Eng. Munyaradzi Munodawafa	Title:	Chief Executive
Telephone No.:	+260 – 211 – 220 241	Email:	munodawafa@zaraho.org.zm
Project Implementation Period: Start Date: May 09, 2014 End Date: November 30, 2016			
Expected Effectiveness Date: July 09, 2014			
Expected Closing Date: November 30, 2016			
Project Financing Data(US\$M)			
<input type="checkbox"/> Loan	<input checked="" type="checkbox"/> Grant	<input type="checkbox"/> Other	
<input type="checkbox"/> Credit	<input type="checkbox"/> Guarantee		
<b>For Loans/Credits/Others</b>			
Total Project Cost:	6.00	Total Bank Financing :	6.00
Total Cofinancing:		Financing Gap :	0.00
Financing Source	Amount(US\$M)		
RECIPIENT	0.00		
MDTF CIWA	6.00		
Financing Gap	N/A		
Total	6.00		
<b>Expected Disbursements (in USD Million)</b>			

Fiscal Year	FY14	FY15	FY16	FY17
Annual	1.0	2.0	2.0	1.0
Cumulative	1.0	3.0	5.0	6.00

### Project Development Objective(s)

To advance preparation of the Batoka Gorge Hydro-Electric Scheme and strengthen cooperative development within the Zambezi River Basin.

### Components

Component Name	Cost (USD Millions)
Engineering Studies for the Batoka Gorge Hydro-Electric Scheme	-
Environmental and Social Assessment for the Batoka Gorge Hydro-Electric Scheme	-
Transaction Advisors for the Batoka Gorge Hydro-Electric Scheme	-
Legal and Institutional support to the Zambezi River Authority	-
Dam Break Analysis for the Zambezi River Basin	-
Total Grant Financing	US\$6.00

### 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

<b>Legal Covenants</b>					
<b>Name</b>		<b>Recurrent</b>	<b>Due Date</b>	<b>Frequency</b>	
<b>Description of Covenant</b>					
<b>Conditions</b>					
<b>Name</b>				<b>Type</b>	
Legal Opinion				Effectiveness	
<b>Description of Condition</b>					
The execution and delivery of this Agreement on behalf of the Recipient has been duly authorized or ratified by all necessary corporate action.					
<b>Name</b>				<b>Type</b>	
Internal Auditor				Effectiveness	
<b>Description of Condition</b>					
The Recipient has appointed an internal auditor in accordance with Section II.B.1 of Schedule 2 of the Grant Agreement.					
<b>Name</b>				<b>Type</b>	
Project Implementation Manual				Effectiveness	
<b>Description of Condition</b>					
The Recipient has adopted a Project Implementation Manual in accordance with Section 1.B.1 of Schedule 2 of the Grant Agreement.					
<b>Name</b>				<b>Type</b>	
Project Management Arrangements				Effectiveness	
<b>Description of Condition</b>					
The Recipient has established the Project Steering Committee and the Project Management Unit in accordance with Sections 1.A.3 and 1.A.5, respectively of Schedule 2 of the Grant Agreement.					
<b>Team Composition</b>					
<b>Bank Staff</b>					
<b>Name</b>	<b>Title</b>	<b>Specialization</b>	<b>Unit</b>	<b>UPI</b>	
Marcus Wishart	Senior Water Resource Specialist	Water Resources, International Waters	AFTN2	279732	
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Rikard Liden	Senior Hydropower Specialist	Hydropower	TWIWA	376247	
Satoru Ueda	Lead Water Resource Specialist	Dam Safety	AFTN3	181034	
Cecil Nundwe	Water Resource Specialist	International waters & operations	AFTN2	286005	
Eric Foster-Moore	Operations Analyst	Remote sensing & operations	AFTFE	407093	
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Sanjay Srivastava	Lead Environmental Specialist	Environment	AFTN3	246903
George Ledec	Lead Ecologist	Ecology	AFTN3	14216
Kristine Schwebach	Social Development Specialist	Resettlement & Social Development	AFTCS	160145
Wedex Ilunga	Senior Procurement Specialist	Procurement	AFTPE	150138
Lingson Chikoti	Financial Management Specialist	Financial Management	AFTME	435935
Uenan Onyenuma	Finance Analyst	Disbursements	CTRLN	
Sipiwe Chihame	Program Assistant	Operations and Administrative support	AFCS3	198790
Bernadette Milunga	Program Assistant	Operations and Administrative support	AFTG1	366470
Lucy Mukuka	Program Assistant	Operations and Administrative support	AFCS3	366471

#### Non-Bank Staff

Name	Title	Office Phone	City
Robert Robelus	Environmental specialist		Washington D.C.
Canaan Farirai Dube	Senior Legal Counsel		Harare
Chipo Sachikonye	Legal Counsel		Harare
Keith Kachambwa - -	Legal Associate		Harare
Lynda Mataka	Senior Legal Counsel		Lusaka
Anne Sampa	Senior Legal Counsel		Lusaka
Misozi Ngulube	Legal Associate		Lusaka

#### Locations

Country	First Administrative Division	Location	Planned	Actual	Comments
Zambia	Kariba				
Zimbabwe	Kariba				



## **I. STRATEGIC CONTEXT**

### **A. Regional Context**

1. The Zambezi River Basin (ZRB) is one of the most diverse and valuable natural resources in Africa. Its waters are critical to sustainable economic growth and poverty reduction in the region. In addition to meeting the basic needs of more than 30 million people and sustaining a rich and diverse natural environment, the river plays a central role in the economies of the eight riparian countries - Angola, Botswana, Malawi, Mozambique, Namibia, Tanzania, Zambia, and Zimbabwe. It provides important environmental goods and services to the region, and is essential to regional food security and hydropower production. Characterized by strong climatic variability, the River and its tributaries are subject to strong seasonal variation in the hydrological regime, with a cycle of floods and droughts that have devastating effects on the people and economies of the region, especially the poorest members of the population.
2. The ZRB has always been central to visions of economic growth and prosperity in the southern African region and there is a long history of sustained efforts to foster cooperative development. While there has been little investment in the ZRB over the last 30 years, these efforts have acknowledged the need for a combination of growth-based investments and strategic analytical work in support of a sustainable vision and framework that can inform and guide integrated, resilient regional development to unblock the significant potential for economic growth. However, despite the strong analytical foundations, cooperation has remained elusive. This reflects the complex interaction of social, technical and political considerations.
3. Sustained economic growth above 6% in many of the riparian states is providing new opportunities and increasing development pressure on the resources of the basin. More than US\$16 billion worth of investments have been identified at the pre-feasibility or feasibility stage of preparation and the combined GDP among the ZRB riparian states is estimated today at over US\$100 billion. Despite this increasing prosperity, poverty is persistent across the basin and coefficients of inequality for some of the riparians are among the highest in the world. Reflecting the dual nature of the regional economy, new investments in large infrastructure co-exist alongside a parallel, subsistence economy that is reliant upon environmental services provided by the river.
4. The benefits of cooperation in the ZRB have been well demonstrated. There is an extensive body of literature supporting the notion that cooperation over shared waters promises substantial benefits. These typically include peace dividends; preventing the escalation of disputes into conflicts by opening dialogue and increasing potential for problem solving; improving access to external markets; increasing economies of scale (e.g., lower marginal cost of unit power production in the case of hydropower); improved management and coordinated operation of water infrastructure to accommodate multipurpose uses of water; the possibility of jointly facing common external threats, (e.g., climate risks, malaria); and optimizing the location of infrastructure to increase benefits and reduce costs.
5. Results of a multi-sectoral investment analysis<sup>1</sup> have shown that cooperative water development in the Zambezi River Basin could result in substantial benefits. The development of hydropower generation plans could facilitate over US\$10 billion in investment alone, improving

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<sup>1</sup> The Zambezi River Basin: A Multi-Sector Investment Opportunities Analysis, Vol.1, Summary Report, The World Bank Africa Region, Water Resources Management, June 2010.

regional energy security by increasing firm energy production by 35,000GWh/yr and providing an additional 60,000 GWh/yr in average energy. Coordinated operation of the existing hydropower facilities and those envisaged under the Southern African Power Pool (SAPP) generation plan could increase firm energy by 23% over uncoordinated, stand-alone operations. While institutionally complex, smaller operational clusters could increase firm energy production by 7%, adding US\$585 million over a 30-year period with no major investments<sup>2</sup>. Investments in agricultural potential within the basin could similarly contribute to regional food security, with an additional 343,000ha increasing the total irrigated areas to 775,000ha/yr and creating more than 500,000 jobs in the agricultural sector. More than 80% of this potential is situated in Malawi, Zambia and Zimbabwe. The ZRB also represents one of the few options for securing water supplies for the dryland areas south of the river in Botswana, Namibia and Zimbabwe, as well as further afield across the region. Socio-economic benefits derived from investments in river crossings, bridges and transport networks would have substantial benefits, improving trade efficiencies and linkages. Similar cooperation around strategic interventions relating to disaster management could increase resilience within the basin and reduce the exposure to floods and droughts. These interventions could increase economic resilience through avoiding estimated losses of as much as US\$1 billion a year due to these ‘water shocks’.

6. The evolution of international cooperation in the ZRB has developed over more than three decades, building on the earlier foundations established during the 1940s with the efforts to establish basin mechanisms within which to advance development of the Kariba and Cahora Bassa hydropower schemes. Due to the context and complexities of the time, the Kariba complex was developed through bilateral arrangements and the Cahora Bassa as a national project. In the 1980s new initiatives were launched in an effort to reach “Agreement on the Establishment of the Zambezi Watercourse Commission” (the ZAMCOM Agreement). However, these negotiations were suspended in the early 1990s to allow for discussions on the 1995 SADC Protocol on Shared Watercourses. The Protocol was revised in 2000 and ratified in 2003 with fresh negotiations on the ZAMCOM Agreement resuming in 2002.

7. The principle objective of the ZAMCOM Agreement is “to promote the equitable and reasonable utilization of the water resources of the Zambezi watercourse as well as the efficient management and sustainable development thereof.” The Agreement was signed on July 13, 2004 in Kasane, Botswana, by Ministers responsible for water from seven of the eight riparian states - Angola, Botswana, Malawi, Mozambique, Namibia, the United Republic of Tanzania, and Zimbabwe. Zambia did not sign but reportedly pledged to do so before the August SADC Summit in that same year after further consultation at the national level<sup>3</sup>. The ZAMCOM Agreement subsequently came into force on June 19, 2011 after six of the eight riparian countries completed their ratification processes and deposited their ratification instruments with the SADC Secretariat. Zambia subsequently acceded to the agreement in 2013 and Malawi, who signed on July 13, 2004, has not yet acceded.

## **B. Sectoral and Institutional Context**

8. The hydropower resources of the Zambezi River Basin are central to the long-term growth prospects and security of the Southern African Power Pool. While hydropower remains

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<sup>2</sup> The Zambezi River Basin: A Multi-Sector Investment Opportunities Analysis, Vol.1, Summary Report, The World Bank Africa Region, Water Resources Management, June 2010, p. 3.

<sup>3</sup> <http://www.sardc.net/editorial/sadctoday/v7-3-8-04/zambezi.htm>

an important but under-represented contributor to the SAPP, the majority of the resources are located in the Zambezi River Basin with an estimated 20,000 MW in generation potential. In 2012 the Southern African Power Pool (SAPP) reported a peak demand of 45,315 MW against an available capacity of 49,877 MW. Considering a 10.2% reserve requirement this is equivalent to a 173 MW shortfall for the interconnected system and 60MW for the southern African region. The majority (73%) of this total installed capacity is provided through coal-based technologies situated in South Africa. This accounts for over 95% of the regional generation capacity. Hydropower accounts for 17% (9,474 MW) of the SAPP generation capacity, with the Zambezi River Basin having close to 5,000 MW installed hydropower potential currently developed. This accounts for roughly 50% of the regional hydropower capacity, with a similar amount planned under further development. In addition to the provision of firm energy, the centrality of the Zambezi River Basin within the SAPP means that the hydropower schemes provide an important balancing element in the overall regional energy mix.

9. The hydropower resources of the Zambezi River Basin are central to the long-term growth prospects and security of the electricity sub-sector in both Zambia and Zimbabwe. Acknowledging the importance of developing additional resources, both countries have implemented a series of institutional and policy reforms to address the quality of supply and lack of access to electricity services. Tariffs have been adjusted in both countries through a series of multi-year tariff increases over the 2009-2011 period to bring these closer to cost reflective levels. Nevertheless, aging and overloaded infrastructure continues to undermine the performance of the sector and contribute to deteriorating quality of electricity services. Large segments of the population still remain without access to electricity services and the current supply is inadequate to meet the demand during peak hours, resulting in load shedding. Further expansion of demand from mining, agriculture, manufacturing, and residential customers will require increased supply of electricity. The growing demand for electricity at both domestic and regional levels and the regional power shortages in foreseeable future provide a solid market for any additional electricity supply that can be offered. Both countries rely heavily on hydropower, while the balance is based on thermal and diesel<sup>4</sup>. Zambia's large hydropower generation potential is high, at close to 6,000 MW, of which the installed capacity is about 1,841 MW. Therefore, as members of the Southern African Power Pool (SAPP), both countries have the potential to play a pivotal role in the regional power market by increasing its power generation capacity and transmission infrastructure including regional interconnectors.

10. The two largest hydropower schemes in the Zambezi River were constructed in the 1950/60s in the case of Kariba and 1970s in the case of Cahora Bassa. In 1955 the Federation of Rhodesia and Nyasaland commenced a Hydropower Development Programme under the auspices of the Federal Power Board, which included the building of the Kariba Dam on the Zambezi River and the construction of two hydropower stations, one on the north and one on the south bank of the river, to supply power to the Federation. In 1963, the Federal Power Board was dissolved and the Central African Power Corporation (CAPCO) was established as a single system under joint ownership of the two Governments of Northern and Southern Rhodesia. Four ministers, two of each Government, regulated the conduct of the CAPCO. In the following years, Zambia (1964) and Zimbabwe (1980) gained independence and the different phases of the project were terminated. In 1987, the Zambezi River Authority (ZRA) was established as a body

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<sup>4</sup> ZESCO Business Plan 2011-2016; ZESCO, 2011.

corporate by parallel legislation in Zambia and Zimbabwe (Zambezi River Authority Agreement, 1987) and replaced CAPCO.

11. Limited investment in additional generation capacity in the ensuing decades has undermined current efforts to meet rapidly escalating demand resulting in a constrained supply environment placing constraints on economic growth prospects. The Batoka Gorge hydro-electric scheme was one of a number of potential schemes identified in 1972 as part of a study instituted by CAPCO. The aim of the study was to identify possible power sources which the inter-governmental institution could develop to meet the power demands of Zambia and Zimbabwe. In 1981 an update of this study was done, where the dam site was moved 12 km upstream. In 1992-93 a feasibility study was commissioned by the ZRA confirming the Batoka Gorge as the least cost option in respect of average specific energy generation cost for development on the Zambezi River. However, development of the Batoka Gorge Hydropower Scheme was delayed due to an unresolved impasse between the two countries dating back to 1987 related to a debt associated with the Kariba complex. The debt related to the distribution of assets following dissolution of the Central African Power Corporation and creation of the Zambezi River Authority (ZRA). The cost of this delay in implementation of the project is estimated in excess of US\$7 billion in direct revenues through electricity sales and over US\$45 billion in relation to the cost of unserved electricity. Acknowledging this cost and the urgent need for additional generation capacity, the two countries reached an agreement in 2012 that opens the way for bringing forward the studies and developing the project.

12. The ZRA is governed by a Council of Ministers and a Board of Directors (made up of Permanent Secretaries) representing the Ministries of Energy and Finance and has been given the mandate to improve and intensify the utilisation of the Zambezi waters for the production of energy and for any other purposes beneficial to the two countries. Under the ZRA Act of 1987 (Act No. 17 and 19 of the Republics of Zambia and Zimbabwe, respectively), ZRA serves as a secretary and executing agency responsible for:

- Operation, monitoring and maintenance of the Kariba Dam complex
- Investigations of new dam projects
- Collection and processing of hydrological and environmental data
- Liaison with utilities of water and related resources of the Zambezi River common to both countries
- Various administrative functions required for the implementation of the above activities

### **C. Higher Level Objectives to which the Project Contributes**

13. The World Bank has had a long-standing commitment to global priorities and region-wide programs. The 2008 Regional Integration Strategy for Africa provides a coherent and strategically focused framework to guide the Bank Group's assistance in support of regional integration and regional programs in the provision of regional public goods. The strategy acknowledges that regional approaches to the management of shared waters can provide improved water security and more sustainable management of these resources than is achievable through national action alone. It further recognizes that effective management is all the more urgent given the potentially disruptive impact of climate change on water resources availability and increasing water demand resulting in potential conflicts arising from limited supplies. The Bank's 2010 Strategy for Africa also recognises that many challenges, such as climate change and water resource management, are best addressed through cooperation and integration at the

regional level. The World Bank Group (WBG) Strategy of October 2013 lends further emphasis to the strengthening of regional initiatives and institutions as a way to improve on development impact and fostering collective action and delivering the two WBG goals of ending extreme poverty and promoting shared prosperity. This project contributes to increasing the availability and reliability of electricity supplies to countries associated with the Southern African Power Pool (SAPP), and in doing so providing the essential foundations for expanded economic growth, prosperity and poverty alleviation.

14. The Bank portfolio under the Sustainable Development Network across the eight riparian states in the Zambezi River Basin amounts to more than US\$2 billion. Specific water related programs are supported in all eight of the riparian states and the regional SADC Secretariat with the active portfolio account for a large share of this. A comprehensive analytical program has been developed over the years to set the foundation for complex investment programs. This program is supported through a solid analytical foundation, with Country Water Resources Assistance Strategies having been prepared for Malawi, Mozambique, Tanzania and Zambia. This analytical program is reflected in the Country Assistance Strategies and Interim Strategy Notes among the individual riparian states, all of which include a strong focus on water and recognition of the role that water plays in fostering the goals of economic cooperation.

15. The proposed program is aligned with the multi-donor trust fund for Cooperation in International Waters in Africa (CIWA). The CIWA development objective is to strengthen cooperative management and development of international waters in Africa to facilitate sustainable climate-resilient growth. The proposed program is directly aligned with CIWA's objective, intending to support the riparian states and regional bodies towards facilitating investment and growth by developing the resources of the basin. Key outcomes envisaged by the CIWA MDTF include increasing levels of regional cooperation and integration, enhanced management and development of water resources in a climate resilient manner, and broad stakeholder engagement and coordination. The proposed program engages the stakeholders to strengthen existing institutions and management regimes by supporting cooperative planning and development of water resources in the Zambezi River Basin.

## **II. PROJECT DEVELOPMENT OBJECTIVES**

### **A. PDO**

16. The Program Objective of CIWA is to strengthen cooperative management and development within the Zambezi River Basin to facilitate sustainable, climate resilient growth.

17. This is a common objective for all CIWA-financed projects within the Zambezi River Basin. The objective will be achieved through advancing development of the Batoka Gorge HES as part of this integrated program of strategic support. The overall program is intended to inform and guide sustained, integrated regional growth through local investments and financing of targeted projects.

18. The **Project Development Objective** is to advance preparation of the Batoka Gorge Hydro-Electric Scheme and strengthen cooperative development within the Zambezi River Basin.

### **B. Project Beneficiaries**

19. The long term benefits from development of the Batoka Gorge hydro-electric scheme will have regional benefits for enhanced energy security as well as stability within the SAPP. Given

the shortage of installed capacity and predicted energy demands, improving regional energy security will make a substantial contribution to safeguarding economic gains and supporting further economic growth. At the local level, the mean energy production of the preferred option for the Batoka Gorge HES scheme is estimated to be sufficient to provide energy equivalent to 1,213,750 households. Considering an average of five people per household, the total beneficiaries from development of the Batoka Gorge HES would be in the order of 6,068,750 people.

### **C. PDO Results Indicators**

20. The **PDO Level Results Indicators** are intended to measure progress toward enhanced management of water resources and the development of physical investments in a climate resilient manner in line with the overall indicators outlined and agreed for the CIWA Program. The CIWA program level indicators are:

- (a) US\$ financing planned for cooperative management and development of international waters; and,
- (b) Number of people directly benefiting from increased energy availability and improved energy security.

21. The intermediate level results indicators for the program are intended to provide an integrating framework for assessing progress within the individual projects under the program. They are therefore aligned with the four intermediate results areas and specific indicators of the CIWA MDTF and the relevant Bank's Core indicators. These results and targets are further elaborated in the results framework and will be subject to review and addition as the program evolves to meet the needs of the basin. The long-term CIWA results are over the next ten years expected to be:

- (a) Regional cooperation and integration strengthened by supporting legal establishment, financial sustainability, delivery of key functions and establishment of effective partnerships with key institutions throughout the basin.
- (b) Water resources management strengthened supporting public availability of basin-wide data and information, analytical tools for planning, management of extreme events and harmonized national transboundary legislation.
- (c) Water resources development strengthened by supporting a common investment planning framework and advancing investment opportunities with regional benefits.
- (d) Stakeholder engagement and coordination strengthened by establishing partnerships and effective strategic communications.

22. The **PDO Level Results Indicators** would measure progress toward enhanced management of water resources and the development of physical investments in a climate resilient manner specifically through advancing preparation of the Batoka Gorge Hydro-Electric Scheme and strengthening water resources management through the dam break analysis and legal review.

23. Key outcome indicators for the PDO include:

- (a) Investment Integration with joint operations strengthened through dam break analysis
- (b) Institutional arrangements for catastrophic disaster management enhanced

(c) Legal frameworks for transboundary water management and development harmonized

(d) Investment implementation with opportunities with regional benefits advanced

### III. PROJECT DESCRIPTION

#### A. Project Components

24. The Zambezi River Basin Development Project is part of a broader program of support within the Zambezi River Basin. The program is facilitated through the multi-donor trust fund for Cooperation in International Waters in Africa (CIWA MDTF) and intended to provide an integrating framework to crowd in and leverage Bank-supported programs across various sectors and countries within the Zambezi River Basin. The CIWA MDTF has been designed in recognition of the fact that all of Africa's major water sources are shared by two or more countries and that the key sectors which contribute to growth depend on the continent's water resources.

25. The development objective of CIWA is intended to be both responsive to the requirements of organizations engaged in international waters and opportunistic in promoting collaboration and development. The proposed program is directly aligned with CIWA's objective, intending to support the riparian states and regional bodies towards facilitating investment and growth by developing the resources of the basin. The specific recipient executed activities to be supported under the Zambezi River Basin Development Project includes the following:

(a) ***Feasibility Studies for the Batoka Gorge Hydro-electric Scheme.*** The objective of the Engineering Studies is to assess, update and develop a full bankable feasibility study, complete up to tender design and documentation for the development of Batoka Gorge HES and associated transmission lines to evacuate the power. The existence of a full bankable feasibility study is intended to facilitate mobilization of the required resources for the development of the scheme within the shortest possible time and address the prevailing power supply shortages within the Southern African Power Pool. This recipient executed activity will be supported through the provision of: i) Consulting Services; ii) Non-consulting goods and services; and iii) Operating expenses associated with workshops, training, and capacity enhancement initiatives.

(b) ***Environmental and Social Assessment of the Batoka Gorge Hydro-electric Scheme.*** The objective of the Environmental and Social Assessment is to evaluate the design for the Batoka Gorge HES and develop the required Environmental and Social Impact Assessments (ESIA), along with Environmental Management Plans (EMPs), Resettlement Policy Frameworks (RPFs) and Resettlement Action Plans (RAPs), as needed, for each infrastructure investment associated with the project. These will inform the Governments of Zambia and Zimbabwe, the ZRA, national power utilities, interested and affected parties and other stakeholders about potential environmental and social impacts associated with development of the Batoka Gorge HES. They are further intended to facilitate mobilization of the required resources for the development of the scheme within the shortest possible time and to be used during implementation and development of the project. This recipient executed activity will be supported through the

provision of: i) Consulting Services; and, ii) Operating expenses associated with workshops, training, and capacity enhancement initiatives.

(c) ***Transaction Advisory Services for the Batoka Gorge Hydro-electric Scheme.*** The objective of the Transaction Advisors is to provide legal and financial transaction advice to the Zambezi River Authority on the Development of the proposed Batoka Gorge Hydro-Electric Scheme on the Zambezi River. This will include an assessment of different potential transaction structures, including options for public or private funding, and public-private partnerships, with a view to recommending the most optimum, bankable structure that takes into consideration prevailing market conditions, priorities of the stakeholders involved, and the technical parameters and development schedule resulting from the updated feasibility study. This recipient executed activity will be supported through the provision of: i) Consulting services and technical assistance; and, ii) Operating expenses associated with workshops, training, and capacity enhancement initiatives.

(d) ***Legal and Institutional Support to the Zambezi River Authority.*** The objective of the Legal and Institutional Support is to carry out a program of activities to enhance the legal and institutional framework for the operation and safety of the Kariba hydropower complex, and enhance the Recipient's capacity for water resource management and control within the Zambezi River Basin. This recipient executed activity will be supported through the provision of: i) technical assistance; and, ii) Operating expenses.

(e) ***Dam Break Analysis for the Zambezi River Basin.*** The objective of the dam break analysis is to support the ZRA enhance the sustainable development and efficient management of the Zambezi River Basin through a collaborative exercise with other dam operators in the Zambezi River Basin in undertaking a dam break analysis. This will provide a methodology and the supporting system to allow forecasters to generate a dam failure forecast and evaluate the consequences of a potential dam breach in the Zambezi River Basin. This would build on and support further development of the ZAMWIS and include a detailed review of current dam inventory data for the basin and approaches to dam break modeling. This recipient executed activity will be supported through the provision of: i) Consulting services and technical assistance; ii) Non-consulting goods and services; and, iii) Operating expenses associated with workshops, training, and capacity enhancement initiatives.

## **B. Project Financing**

### ***Financing Instrument***

26. The financing instrument is a US\$6 million recipient executed grant to be implemented over three years provided through the multi-donor trust fund for Cooperation in International Waters in Africa (CIWA MDTF) to the Zambia River Authority. This represents part of a multi-donor initiative to support the riparian states in addressing the development of international waters in Africa. Contributing partners include the United Kingdom, Denmark, Norway and Sweden.

27. This Grant is part of a series of projects that will be supported through numerous grants, complementing an existing portfolio and pipeline of IDA projects among the eight riparian states



within the Zambezi River Basin over a 10 to 15 year period. The projects are intended to provide a broad program of support across the Zambezi River Basin in response to the common development goals of the riparian states and regional organizations relating to the integrated development and management of water resources in the Zambezi River Basin.

28. Under the grant funding arrangements, the Recipient may withdraw the proceeds of the Grant in accordance with standard conditions, procedures and guidelines as set out by the Bank. In addition, provisions have been included to support retroactive financing for a specified withdrawal period based on specific withdrawal conditions. No withdrawal shall be made for payments made prior to the date of the Grant Agreement, to be signed between the Bank and the Recipient, except that withdrawals up to an aggregate amount not to exceed US\$800,000 equivalent may be made for payments for Eligible Expenditures made not more than twelve (12) months prior to the date of the Agreement.

29. At the time of project approval, there is no commitment of IDA or IBRD to finance investments or civil works associated with any future decision for the construction of the Batoka Gorge Hydro-Electric Scheme.

30. An integrated project document with separate components aligned to different recipient-executed CIWA grants was considered at the concept stage. However, this approach was rejected during preparation to allow greater flexibility in processing aligned to the readiness of the different recipient-executed projects under the program. The integrated program document would also have restricted the flexibility to include additional recipient-executed grants under the broader program during implementation. The programmatic nature of the Bank's engagement within the context of the Zambezi River Basin is guaranteed through the CIWA Support Plan and a single administrative budget to ensure integration of all CIWA-supported activities.

### **C. Program Objective and Phases**

31. The project is one in a series of projects envisaged as part of a program of support to the riparian states and regional bodies in the Zambezi River Basin supported through the multi-donor trust fund for Cooperation in International Waters in Africa (CIWA MDTF). The program is envisaged as a series of projects at various levels across different sectors within the basin aimed at promoting the equitable and reasonable utilization of the water resources of the Zambezi watercourse as well as the efficient management and sustainable development thereof. The program is envisaged as a series of projects providing support to the Zambezi River Basin over a 10 to 15 year period with the programmatic objectives of: i) reducing the obstacles to cooperation and advancing investments; ii) support in the identification and preparation of strategic investment opportunities; iii) supporting improved management of water resources to ensure sustainability and optimum utilization; iv) supporting national level activities which relate to the development or management of shared waters; and v) consolidating financing from Cooperating Partners behind an ambitious program of infrastructure development and water resource management.

32. To maximize the impact of the CIWA Program in the Zambezi River Basin, activities will be supported at three levels: i) at the country level, ii) among sub-regional clusters, and, iii) across the Basin. CIWA will aim to leverage other financing and analytical instruments of the World Bank Group and other development partners. This mix of instruments will support i)

continuing dialogue, ii) analytical work and technical assistance, iii) preparation of a pipeline of projects, and iv) investment financing.

33. Projects under Phase 1 of the program are all aligned to the prioritized list of activities articulated in the IWRM Strategy and Implementation Plan for the Zambezi River Basin (ZAMSTRAT). The ZAMSTRAT presents the main challenges for the management of the water resources of the Zambezi River Basin and a series of recommended strategies and actions to address them. These include both water management and institutional development related activities and will be reviewed regularly within the context of the Zambezi ICP Partnership to ensure alignment. Additional grants may be identified as the program evolves.

34. Each project within the program is guided by the CIWA Support Plan (CSP) for the Zambezi River Basin. This establishes the broader strategic context and objectives for a long-term program that provides an integrating and enabling environment for individual projects within the broader basin context. The CSP, which is reviewed annually, enables CIWA, the riparian states and cooperating partners to maintain an overview of the program of support for internal planning and resource mobilization purposes. It also enables the support provided through the CIWA program to be viewed in the context of the overall strategic development plans of the Zambezi River Basin and the support being provided by other Cooperating Partners.

35. To maximize the impact of the CIWA Program in the Zambezi River Basin, activities will be supported at three levels: i) at the country level, ii) among sub-regional clusters, and, iii) across the Basin. CIWA will aim to leverage other financing and analytical instruments of the World Bank Group and other development partners. This mix of instruments will support i) continuing dialogue, ii) analytical work and technical assistance, iii) preparation of a pipeline of projects, and iv) investment financing.

36. The country level provides the foundation for enabling regional initiatives and cooperative ventures. Support toward realisation of the goals will include a focused effort to continue support in energy, water, environment, transport, irrigation but with increased and better coordination within and among sectors to enhance the capacity and confidence of national and sub-national institutions to engage in the regional cooperative process. The Bank's country level engagement will help to crowd in and capitalise on the WBG portfolio in key sectors. The program will help facilitate a discussion around increased alignment between the various instruments available to the riparian states to help them position themselves in relation to the broader commitments contained under regional frameworks, such as the SADC Protocol and ZAMCOM Agreement, and bilateral arrangements.

37. Sub-regional and sectoral support will assist organizations mandated with the development and operation of key infrastructure in the basin. This will be directed toward intensified engagement through technical assistance, support to feasibility studies to advance bilateral and multilateral investment opportunities within the basin context. This approach is in recognition of the provisions within the ZAMCOM Agreement, which acknowledge existing agreements, and is intended to re-enforce and facilitate alignment between existing institutions within the basin. This is exemplified by the Memorandum of Understanding between dam operators in Mozambique, Zambia, and Zimbabwe.

38. Basin level support to regional organizations, such as the Zambezi Watercourse Commission, will be directed toward sustaining the political process toward fostering commitments to cooperation. This will support processes aimed at realizing the gains through the

equitable and reasonable utilization of water along with cooperative development through basin wide activities. These will build on the country level foundations, through incremental contributions and support to implementation of measures envisaged under the ZAMCOM Agreement and IWRM Strategy. This will be provided through technical assistance and analytical work to demonstrate the benefits of cooperation, with engagement informed by those areas where the Bank has a comparative advantage.

#### **D. Lessons Learned and Reflected in the Project Design**

39. The project preparation process is informed by a long history of efforts to support cooperation in the Zambezi River Basin dating back to the 1940s. More recently, the Zambezi River Action Plan (ZACPLAN) was initiated by SADC in 1987 to promote joint management of the water resources of the Zambezi River Basin on both a technical and political level. The ZACPLAN process, including negotiations on ZAMCOM, was re-initiated in October 2001 with the assistance of the governments of Sweden, Norway and Denmark through the launch of the ZACPRO6, Phase II project.

40. The design of the program has been further informed by lessons learned from World Bank involvement in transboundary water issues. This includes support across Africa in the Nile, Niger, and Senegal River basins, along with various programs and initiatives in international waters across other regions. A Multi-Sector Investment Opportunities Analysis (MSIOA) for the Zambezi River Basin was undertaken to illustrate the benefits of cooperation among the riparian countries in the ZRB through a multi-sectoral economic evaluation of water resources development, management options and scenarios. This was undertaken from both the national and basin-wide perspectives through a highly consultative and iterative process with relevant stakeholders from the private and public sector. This process has informed the design of the project which has drawn on the consultative structures under the Zambezi Watercourse Commission and the Bank's ongoing support to various national activities in the riparian states.

41. Some of the key lessons that have been incorporated are: i) the importance of riparian ownership and early stakeholder engagement, with close consultative mechanisms established the Technical Committee of riparian states and the CIWA Basin Advisory Committee; ii) flexible levels of engagement capitalizing on a range of World Bank-supported programs and trust fund resources; iii) clear goals and results focus aligned with the agreed basin indicators and overall CIWA program; iv) the need to communicate results and outcomes to stakeholders and development partners in order to build support, with project level support to specific communication activities; and, v) the importance of donor coordination to increase program effectiveness with the establishment of the CIWA Basin Advisory Committee integrated into the regional consultative mechanisms and the Africa-wide CIWA Advisory Committee.

### **IV. IMPLEMENTATION**

#### **A. Institutional and Implementation Arrangements**

42. The grant recipient is the Zambezi River Authority (ZRA), a bi-lateral organization established by Zambia and Zimbabwe with responsibility for development of the shared sections of the Zambezi River between the two countries. The ZRA is governed by a Council of Ministers consisting of four members, two of whom are Ministers in the Government of the Republic of Zambia and two of whom are Ministers in the Government of Zimbabwe. The Board oversees

operations and is comprised of the Permanent Secretaries of the ministries of Energy and Finance, along with two independent Board members from each of the contracting states.

43. Implementation arrangements and structure for the Batoka Gorge HES were established by the Council of Ministers. A Project Steering Committee has been established with: i) Directors from the Ministries with the Energy portfolio as Chairperson and Co-Chairperson; ii) One senior official from each Ministry of Finance; and iii) Two senior officials from the national power utilities. The Zambezi River Authority serves as the Secretariat and provisions are included to involve other members into the PSC as and when the need arises. A Project Management Unit has been established with three members from the Zambezi River Authority; two members each from the national utilities in order to implement the decisions of the Project Steering Committee and manage the project activities on a day to day basis. Details are provided in Annex 3.

### **B. Results Monitoring and Evaluation**

44. The Results Framework outlined in Annex 1 has been designed to meet the requirements of the CIWA MDTF and provides the basis for monitoring progress of the project. Monitoring and Evaluation will be undertaken through the normal operations of World Bank project supervision and evaluation processes. The Zambezi River Authority will provide regular updates on progress toward the indicators through regular quarterly reporting to the Bank in accordance with provisions of the Grant Agreement. The indicators are also aligned with the expected outcomes articulated in the ZAMSTRAT, allowing the results to be aggregated to report on progress toward the overall basin level goals articulated in the CIWA Support Plan as well as those of the CIWA MDTF. In addition to an annual review of results and performance through the CIWA Basin Steering Committee, a mid-term review will be undertaken.

### **C. Sustainability**

45. The ZRA is a financially autonomous organization that generates operating revenue through water tariffs charged to the power utilities for water consumed in the generation of electricity. The formula used is intended to provide the ZRA with sufficient revenues to carry out the mandated functions and not to generate profits. The current tariff structure includes two parts, with a fixed monthly element supplemented by a volumetric charge billed monthly. The formula is reviewed every three years with tariffs adjusted annually according to the consumer price index (CPI) of the United States. The ZRA has experienced a steady supply from 2007 to 2011, averaging around 35,000 million cubic meters in the past 10 years. Tariffs have increased roughly 10% per annum from 2008 to 2011, with average annual revenues of around US\$10 to 12 million per year. In the absence of any debt obligations and a continuing commitment to sustainable tariffs the financial sustainability to the ZRA is assured.

46. The sustainability of the development associated with Batoka Gorge HES will be the subject of the studies supported under the project. This includes a comprehensive environmental and social assessment. The assessments will be carried out within the context of the various basin level assessments that have been undertaken to integrate any potential downstream developments within the basin level sustainable framework. This will also be guided by the ZAMSTRAT and the basin level support to the Zambezi Watercourse Commission under the CIWA-financed Zambezi River Basin Program. These will help to support basin level instruments, plans and models that are aimed at meeting the objectives of the agreement and the equitable and reasonable utilization of the resources within the Zambezi River Basin.

## V. KEY RISKS AND MITIGATION MEASURES

### A. Risk Ratings Summary Table

<b>Risk</b>	<b>Rating</b>
<b>Project Stakeholder Risk</b>	M
<b>Implementing Agency Risk</b>	
- Capacity	L
- Governance	S
<b>Project Risk</b>	
- Design	L
- Social and Environmental	M
- Program and Donor	L
- Delivery Monitoring and Sustainability	L
- Other	M
<b>Overall Implementation Risk</b>	<b>M</b>

### B. Overall Risk Rating Explanation

47. The overall risk is considered Moderate. The project is identified as a regional priority and one of the African Union / PIDA list projects. The current project design is simple, and limited to support for a series of strategic studies, including social and environmental safeguards. An iterative process of consultations with relevant stakeholders has informed project preparation and will be sustained throughout implementation. Other financing risks, such as those associated with the current non-accrual status of Zimbabwe, have been taken into consideration. The ZRA has sufficient capacity supported by reasonable governance and management arrangement to manage the project. Project design has also incorporated measures to mitigate the substantial procurement risk associated with the Project. For example, additional financial and procurement management capacity will be provided where required. Other moderate risks associated with taking forward the studies into development will require a high level political process that could be susceptible to electoral changes and require high level commitment to ensure success.

## VI. APPRAISAL SUMMARY

### A. Economic and Financial Analyses

48. The project is intended to advance further development of the Batoka Gorge HES, along with strategic studies aimed at reducing the economic vulnerability in the event of catastrophic dam failure through a dam break analysis and strengthening the institutional capacity of the ZRA to exercise its mandate within the Zambezi River Basin.

49. The foregone benefits associated with the delayed implementation of the Batoka Gorge HES are conservatively estimated to have cost US\$7 billion in electricity sales in the ten years since the scheme was originally scheduled to have been commissioned. The revenues based on water required to generate this electricity would have contributed an additional US\$9m each year for the ten years, doubling ZRA current revenue stream. Calculations based on the cost of unserved electricity in Zambia and Zimbabwe put the economic losses as a result of the costs incurred by customers due to lack of access to electricity at US\$4.5 billion per year.

50. Conjunctive operation of the Batoka Gorge HES with the downstream Kariba HES would increase the overall firm energy production with additional benefits to regional energy security. Development of Batoka Gorge HES upstream would store the high flows during the wet season

to provide additional water to be utilized during the lower flow periods within the Kariba HES. This levels the generation throughout the year increasing the generation of firm energy. The gain in firm energy production as a result of the conjunctive operation of the existing Kariba HES with the proposed Batoka Gorge HES has been shown to increase firm energy output by 7,201 Gwh/yr. The current upgrades to increase the installed capacity within the Kariba HES will not improve the stand-alone firm capability as they are constrained by the availability of water and can only serve for peaking capacity. However, with the development of the Batoka Gorge HES the present Kariba upgrade from 1,470 MW to 2,070 MW will allow for an additional 8,962 Gwh/yr of firm power over the stand-alone operations due to the increased availability of water throughout the year.

51. The upstream, trans-boundary nature of the proposed activities to be supported under the grant advocate the use of public funds and a strong role for the World Bank in facilitating the process. The grant resources will help the public sector entities decide on an appropriate structure for further development of the Batoka Gorge HES, including an assessment of the financing options and potential for involvement of the private sector. The project will also address regional public goods through information aimed at reducing economic vulnerability in the event of catastrophic dam failure. The trans-boundary characteristics of the proposed scheme, the high premium placed on the waters of the Zambezi River, and the historical context between Governments regarding future developments further strengthen the role for early, public sector interventions supported by the World Bank. The Bank's knowledge, demonstrated role as honest broker and possible facilitator for the mobilization of required capital investments places the World Bank Group in a strategic position to help advance the development and enhance the cooperation in international waters.

## **B. Technical**

52. The proposed grant is intended to support the studies and transaction advisors needed to advance the development of the Batoka Gorge HES. The studies will provide the necessary framework to inform the most appropriate model and guide selection of preferred development mechanisms. These studies and the support of the transaction advisors are intended to ensure economic efficiency and the distribution of long-term benefits derived from the scheme.

53. The proposed Batoka Hydro-electric Scheme (HES) is located on the Zambezi River approximately 54km downstream of the world famous Victoria Falls. The project site is located across the boundary between Zambia and Zimbabwe that runs through the mid-point of the Zambezi River. The scheme was identified in a study of power development on the Zambezi carried out in 1972 by the Central African Power Corporation (CAPCO), predecessor of Zambezi River Authority. The aim of the study was to identify possible power sources that the inter-governmental institution could develop to meet the power demands of Zambia and Zimbabwe. In 1981 an update of this study was done, where the dam site was moved 12 km upstream.

54. The Batoka Gorge HES was confirmed as the least cost option in respect of average specific energy generation cost for development on the Zambezi River in a feasibility study carried out in 1993. The scheme recommended in this study included a 181 m high RCC gravity arch dam, radial gated crest type spillway, two underground power stations on each side of the river with four 200 MW Francis turbines installed in each, giving a total capacity of 1600 MW for the scheme. The scheme is designed as a run-of-the river scheme with an estimated average

energy generation of 8,700 GWh/year. The reservoir is predicted to have a relatively small surface area of 26 Km<sup>2</sup> that would be fully located within the Batoka Gorge.

55. The preliminary design of the dam, tunnels and power houses were based on more than 200 drill holes and eight exploratory adits. The documentations (photos, description, and interpretation) of these geotechnical investigations exist although the core samples are no longer available. An update of this preliminary design and more detailed geotechnical investigations will be supported, as needed, as part of the project.

### **C. Financial Management**

56. A Financial Management Assessment of the Zambezi River Authority was carried out by the Bank's financial management team in August 2013. The conclusion of the assessment is that the ZRA satisfies the financial management minimum requirements as per the Bank's OP/BP 10.00. The risk rating for the ZRA financial management arrangements has been assessed as Moderate. The details of the assessment are provided in Annex 4.

### **D. Procurement**

57. A Procurement Capacity Assessment of the Zambezi River Authority was carried out in July 2012. Procurement under the grant is limited to a small number of relatively large contracts for consulting services. These have been initiated during preparation in accordance with the World Bank Procurement Guidelines and provision included for retro-active financing in the event that these processes are concluded prior to the effectiveness of the grant. The ZRA has well-established fiduciary procedures, carries out its own procurement and successfully executed the ZACPRO 6.2 project that resulted in the ZAMSTRAT, ZAMWIS and establishment of the Interim ZAMCOM Secretariat. The ZRA Procurement Guidelines are integrated as part of the Financial Manual, reflecting the position within the Finance Directorate. The procurement functions are managed from the headquarters in Lusaka by a single Assistant Supplies Officer (ASO) within the Finance Department who reports up through a supervisor, to the Finance Manager under the Finance Director / Corporate Secretary.

58. The conclusion of the assessment is that procurement under the proposed project would be of a size and type not generally performed by the ZRA ASO. Typical procurement under the responsibility of the ASO is limited to largely small value, non-complex assignments. Those envisaged under the project include a limited number of relatively large consultancies to support upstream development of the Batoka Gorge HES. The limited experience with large, complex competitive procurements relating to engineering assignments and large civil works programs will require enhanced mechanisms to strengthen the formal procurement arrangements, integrate the technical aspects with the procurement workflow processes under the management of the assigned procurement staff and prepare the ZRA for the further development stages of the Batoka Gorge HES. There is also a need to initiate a more integrated, formalized process of procurement planning and monitoring based on project objectives, reflecting justifiable quantities, realistic market prices, specific deliverables, etc. that are subject to formal approvals.

59. The Project Risk Rating in terms of Procurement is assessed as "substantial." Various mitigation measures have been identified to address the identified risks over the life of the project, following which the residual risk would reduce to "moderate." The ZRA has established dedicated project staff to manage the procurement and implementation of the key assignments.

Three of the main consultancies have been successfully launched during preparation. The details are outlined in Annex 4.

60. The following procurement, consultant and anti-corruptions guidelines apply to this project:

(a) “Guidelines on Preventing and Combating Fraud and Corruption in Projects Financed by IBRD Loans and IDA Credits and Grants”, dated October 15, 2006 and revised in January 2011.

(b) “Guidelines: Selection and Employment of Consultants under IBRD Loans and IDA Credits and Grants by World Bank Borrowers” dated January 2011.

(c) "Guidelines: Procurement of Goods, Works and Non consulting Services under IBRD Loans and IDA Credits and Grants by World Bank Borrowers” dated January 2011.

#### **E. Social (including Safeguards)**

61. The proposed project does not include financing for any civil works. It is intended to evaluate the design for the Batoka Gorge HES, including transmission lines and other associated infrastructure in order to provide a socially acceptable framework for further development. Environmental and Social Impact Assessments, along with Environmental Management Plans (EMPs), Resettlement Policy Frameworks (RPFs) and Resettlement Action Plans (RAP), will be carried out separately from the engineering study to identify issues that need to be addressed in proceeding with the project. As such, the proposed project triggers the following operational safeguard policies related to social impacts: Involuntary Resettlement OP/BP 4.12, Physical Cultural Resources OP/BP 4.11, Safety of Dams OP/BP 4.37 and Environmental Assessment OP/BP 4.01. The project does not in itself extend beyond the undertaking of studies and analysis.

62. The relatively small, confined nature of the Batoka Gorge means that there will be relatively little, if any resettlement from the reservoir area. However, earlier studies have identified that related infrastructure including access roads and transmission lines will have limited impacts on local communities. Various community development assets will be assessed for inclusion in the project to provide for employees and local communities. These provisions include housing, schools, health facilities, recreation and shops, the impacts of which will be included in the impact assessments.

63. The project includes provisions to review and assess the operations and impact of the Zambezi Valley Development Fund. The ZVDF was established in 1997 to enhance the socio-economic status of people displaced during construction of the Kariba Dam in the 1950s. The assessment will include a review of the Operation Guidelines, the portfolio of projects financed to date, their effectiveness and impact, the revenue mechanisms and finances. Based on this evaluation, and taking into consideration the socio-economic assessment of the Batoka Gorge HES and the requirements of the RAPs, the project will assess options to improve the impact of the ZVDF and identified opportunities to enhance the livelihoods of any potentially displaced communities in the project area. This will include a clear indication of all activities, the responsibilities of the different stakeholders involved, a clear timeframe and cost estimates.

64. Public consultation has been established as an important principle guiding implementation of the Batoka Gorge HES. The Terms of Reference for the ESIA have been consulted during preparation with a series of public meetings held during 2013 in Lusaka (May



14), Harare (May 16), Livingstone (April 29) and Victoria Falls (April 30) with a range of participants from private sector, tour operators, government agencies and international NGOs. They have also been disclosed through the InfoShop (February 28, 2014). Consultations have been established as part of an iterative process that will continue during implementation in accordance with a structure consultation plan to be prepared as part of the ESIA. The procedure of data acquisition, analysis and interpretation conducted will also be transparent and in accordance with accepted international standards and practice.

#### **F. Environment (including Safeguards)**

65. The project is rated as Category A and the operational safeguard policies related to environment impact triggered are: Natural Habitats OP/BP 4.04 and Environmental Assessment OP/BP 4.01. The Terms of Reference for the Environmental and Social Impact Assessment (ESIA) have been consulted during preparation with a series of public meetings held in Lusaka (May 14), Harare (May 16), Livingstone (April 29) and Victoria Falls (April 30) with a range of participants from private sector, tour operators, government agencies and international NGOs. They have also been disclosed through the InfoShop (February 28, 2014). The proposed project does not include financing for any civil works. The project includes support to preparation of a comprehensive environmental impact assessment and associated mitigation measures for the proposed Batoka Gorge HES. These will take account of previous assessments conducted in 1993 and 1998, which identified possible impacts related to construction of associated community assets, access roads, transmission lines and work camps. Other potential impacts include those resulting from the loss of natural habitat in the gorge due to inundation and the potential loss of white-water rafting opportunities downstream of Mosi-oa-Tunya / Victoria Falls. These will be assessed through a specific analysis of alternatives to examine the relationship between dam heights, reservoir operating levels and project configurations in order to mitigate or minimizing any potential environmental and social impacts, including those on whitewater rafting or development of future hydro-electric schemes within the Batoka Gorge.

66. The environmental assessment will be carried out within the context of the various basin level assessments that have been undertaken to assess the potential cumulative impacts of developments within the Zambezi River Basin. These include the Bank-executed MSIOA carried out in collaboration with regional bodies and riparian states which has identified over US\$16b in investments at the pre-feasibility and feasibility stage. These have been assessed to identify opportunities and were informed by the basin-level IWRM Strategy that was undertaken as part of the broader efforts to establish the Zambezi Watercourse Commission<sup>5</sup>. Through a parallel project financed under the CIWA MDTF, support is being provided to the ZAMCOM to develop a Strategic Plan for the basin. The Agreement defines the Strategic Plan to mean “a master development plan comprising a general planning tool and process for the identification, categorization and prioritization of projects and programmes for the efficient management and sustainable development of the Zambezi Watercourse.” It is envisaged within the Agreement that Member States will conduct their management and development plans, projects and programmes relating to the resources of the Zambezi Watercourse in accordance with this Strategic Plan.

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<sup>5</sup><http://www.zambezicommission.org/downloads/Zambezi%20River%20Basin%20IWRM%20Strategy%20ZAMSTRAT.pdf>

67. Specific provisions have been included in the ESIA to ensure a review and assessment of existing information and data available to determine any potential cumulative impacts that result from incremental changes caused by other past, present or reasonably foreseeable actions together with the project. These may not be a direct result of the project and can often be manifest away from the project, or as a result of a complex pathway. The project assessment will be based on the most likely future scenario derived from projections contained in adopted plans and planning documents. This will also incorporate the results from the water balance modeling conducted in the recent and on-going investment scenarios, dam synchronization, climate change impact and water-energy nexus assessments. Details are given in Annex 4.

68. Climate change impacts are similarly being assessed in the project specific studies, building on the existing body of knowledge. These will incorporate the recent analytic work already undertaken through the Bank analysis of the investment scenarios under the MSIOA, and the Dam Synchronization and Flood Releases in the Zambezi River Basin financed by GIZ, DFID and AUSAID. The studies will also benefit directly from the parallel on-going Bank activity “Addressing the Climate Vulnerability of African Infrastructure”. Currently under implementation, this activity is conducting state-of-the-art water balance modeling and climate impact assessment of the Zambezi River Basin using the latest climate projections from Intergovernmental Panel on Climate Change (IPCC). These studies will provide results on the potential impacts on future safe yield and firm power from infrastructure on the Zambezi River, which will guide analyses and solutions for sustainable development. Climate change mitigation is one of many drivers for the studies. These will benefit directly from the parallel CIWA support on the Water-Energy Nexus Assessment of Zambezi River Basin, which will assess greenhouse gas (GHG) emissions from the Southern African Power Pool under different development scenarios. These will provide results on the GHG mitigation of individual hydropower projects to be incorporated in the analyses conducted under the proposed grant. Details are given in Annex 4.

#### **G. Other Safeguards Policies Triggered**

69. OP 7.50, “Projects in International Waterways,” is triggered by the project. The Batoka Gorge HES is widely-recognized as an important regional project and listed in numerous strategic planning documents. This includes the “Top 10 Macro Strategic Water Infrastructure Projects” in the SADC Regional Water Infrastructure Programme released in 2011. It is also acknowledged as one of the priority projects under the Program for Infrastructure Development in Africa (PIDA). Notification of the proposed support to advancing the development of the Batoka Gorge HES was included in the concept presented by the ZAMCOM Secretariat to the ZAMCOM Technical Committee (ZAMTEC) at its first meeting on November 01, 2012. The ZAMTEC includes representatives from all riparian states and the full documentation was presented to the second ZAMTEC meeting in March 2013, along with the first meeting of the Council of Ministers held in Luanda, Angola, in May, 2013, without objection. Written notification was also made by the Ministers responsible for energy in Zambia and Zimbabwe to all riparians on January 22, 2013 in accordance with the provisions of the 2000 SADC Revised Protocol on Shared Water Courses and the ZAMCOM Agreement. These both require that State Parties “exchange information and consult each other and, if necessary, negotiate the possible effects of planned measures on the condition of a shared watercourse.”

**Annex 1: Results Framework and Monitoring**  
**Zambezi River Basin Development Project**

1. The results framework is directly aligned with the overall CIWA program results framework. This is intended to allow for simple aggregation of the results of the Basin Level Outcomes (BLO) from all of the CIWA-supported programs across Sub-Saharan Africa. It is an amalgamation of the results matrices of all of the first phase projects presented alongside the long-term objectives for CIWA's engagement in the basin.
2. The results framework provides the definition of successful strengthening in each of the CIWA result areas. The four result areas are:
  - (a) Regional cooperation and integration strengthened: This result aims to foster cooperative trans-boundary institutions for greater regional stability and creation of an enabling environment for shared sustainable growth.
  - (b) Water resources management strengthened: This result aims to underpin the evidence-based knowledge for planning and decision-making to maximize development opportunities and minimize climate risks.
  - (c) Water resources development strengthened: This result aims to support investments that improve resilience to climate related shocks, enhance food security, and enable countries to follow a lower carbon growth path.
  - (d) Stakeholder engagement and coordination strengthened: This result aims to enable greater voice of civil society, private sector and academia in the decision making processes related to cooperative management and development of shared basin resources.

**Results Framework and Monitoring**  
**Zambezi River Basin Development Project**

**CIWA Program Objective:** Cooperative management and development within the Zambezi River Basin strengthened to facilitate sustainable, climate resilient growth.

CIWA Program Results Indicators	Core	Unit of Measure	Baseline	Cumulative Target Values			Frequency	Data Source/ Methodology	Responsibility for Data Collection	Description
				YR 1	YR 2	YR3				
<b>Indicator One:</b> US\$ financing planned for cooperative management and development of international waters	<input type="checkbox"/>	US\$	0	0	0	US\$4b	Annual	Report	ZRA	Estimates escalated cost of Batoka Gorge HES
<b>Indicator Two:</b> Number of people directly benefiting from increased energy availability and improved energy security.	<input type="checkbox"/>	#	0	0	0	6,000,000	Annual	Report	ZRA	Potential beneficiaries from electricity access resulting from project development

**Project Development Objective (PDO):** is to advance preparation of the Batoka Gorge Hydro-Electric Scheme and strengthen cooperative development within the Zambezi River Basin

**INTERMEDIATE RESULTS**

**Intermediate Result One: Regional cooperation and integration strengthened**

<b>BLO 3.1:</b> Investment Integration with joint operations strengthened through dam break analysis		Text	No joint analysis available	Dam Break Analysis Terms of Reference (ToRs) agreed by JOTC	Contract on schedule	Dam break analysis completed	Annual	Report	ZRA	JOTC is Joint Operating Technical Committee
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**Intermediate Result Two: Water Resources Management Strengthened**

<b>BLO 2.2:</b> Institutional arrangements for catastrophic disaster management enhanced		Text	Limited coordination	Legal assessment			Annual	Report	ZRA	
<b>BLO 2.2:</b> Legal frameworks for transboundary water management and development harmonized			Overlapping institutional mandates	Identification of overlap	Harmonization roadmap agreed	Legal frameworks harmonised	Annual	Report	ZRA	

**Intermediate Result Three: Water Resources Development Strengthened**

<b>BLO 3.4:</b> Investment implementation with opportunities with regional benefits advanced	<input type="checkbox"/>	Text	Dated existing studies	Consultants procured and studies	Contracts on schedule	Updated feasibility & ESIA for	Annual	Report	ZRA	Batoka Gorge HES feasibility study, ESIA and
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**Results Framework and Monitoring**  
**Zambezi River Basin Development Project**

<b>CIWA Program Objective:</b> Cooperative management and development within the Zambezi River Basin strengthened to facilitate sustainable, climate resilient growth.										
CIWA Program Results Indicators	Core	Unit of Measure	Baseline	Cumulative Target Values			Frequency	Data Source/ Methodology	Responsibility for Data Collection	Description
				YR 1	YR 2	YR3				
				initiated		Batoka Gorge HES				transaction advice

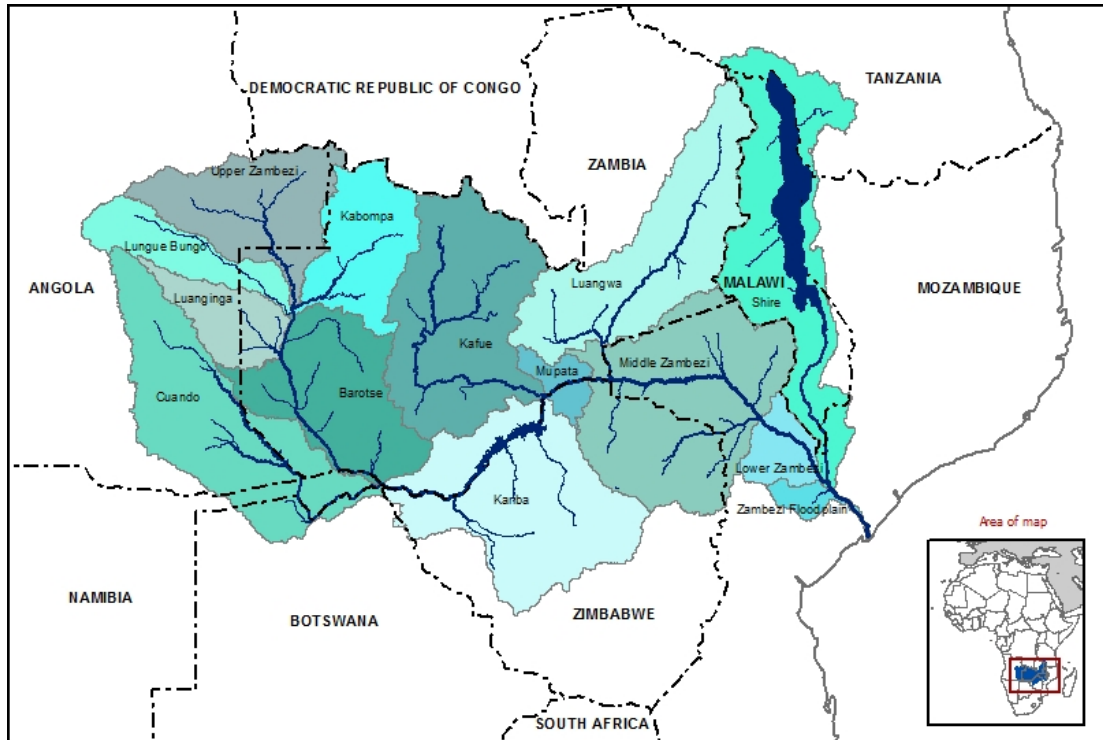
## **Annex 2: Strategic Basin Context**

### **Zambezi River Basin Development Project**

1. The Zambezi River lies within the fourth-largest basin in Africa after the Congo, Nile, and Niger River basins. Covering 1.37 million km<sup>2</sup>, the Zambezi River has its source in Zambia, 1,450 meters above sea level<sup>6</sup>. The main stem then flows southwest into Angola, turns south, enters Zambia again, and passes through the Eastern Caprivi Strip in Namibia and northern Botswana. The Zambezi River then flows through Mosi-oa-Tunya (Victoria Falls), shared by Zambia and Zimbabwe, before entering Lake Kariba, which masses behind Kariba Dam, built in 1958. A short distance downstream from Kariba Dam, the Zambezi River is joined by the Kafue River, a major tributary, which rises in northern Zambia. The Kafue River flows through the Copperbelt of Zambia into the reservoir behind the Itzhi Tezhi Dam (ITT), built in 1976. From there, the Kafue River enters the Kafue Flats and then flows through a series of steep gorges, the site of the Kafue Gorge Upper (KGU) hydroelectric scheme, commissioned in 1979. Below the Kafue River confluence the Zambezi River pools behind Cahora Bassa Dam in Mozambique, built in 1974. Some distance downstream, the Zambezi River is joined by the Shire River, which flows out of Lake Malawi/Niassa/Nyasa to the north. Lake Malawi/ Niassa/Nyasa, which covers an area of 28,000 km<sup>2</sup>, is the third-largest freshwater lake in Africa. From the confluence, the Zambezi River travels some 150 km, part of which is the Zambezi Delta, before entering the Indian Ocean.
2. The basin of the Zambezi River is generally described in terms of 13 sub-basins representing major tributaries and segments.

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<sup>6</sup> Reference: The Zambezi River Basin: A Multi-Sector Investment Opportunities Analysis, Vol.1, Summary Report, The World Bank Africa Region, Water Resources Management, June 2010



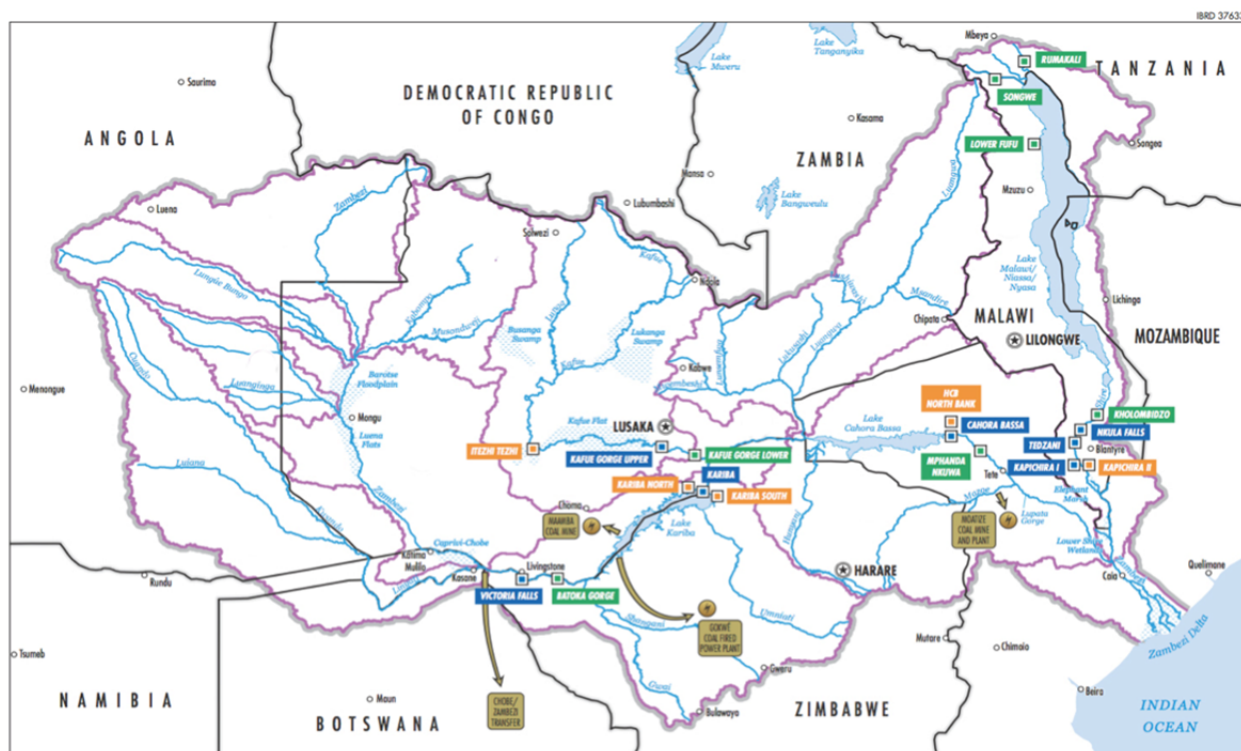
3. From a continental perspective, the ZRB contains four important areas of biodiversity:

- *Lake Malawi/Niassa/Nyasa*, a region of importance to global conservation because of the evolutionary radiation of fish groups and other aquatic species.
- *The swamps, floodplains, and woodlands of the paleo-Upper Zambezi in Zambia and northern Botswana*, including the areas of Barotseland, Busangu, Kafue, and Bangweulu, which together are thought to be areas of evolutionary radiation for groups as disparate as Reduncine antelope, suffrutices, and bulbous plants.
- *The Middle Zambezi Valley in northern Zimbabwe and the Luangwa Valley in eastern Zambia*, two of the last remaining protected areas extensive enough to support large populations of large mammals.
- *The Gorongosa/Cheringoma/Zambezi Delta* area of central Mozambique, which covers an area of enormous habitat diversity not found in such close proximity elsewhere on the continent.

4. The hydrology of the ZRB is not uniform, with generally high rainfall in the north and lower rainfall in the south. In some areas in the Upper Zambezi and around Lake Malawi/Niassa/Nyasa, rainfall can be as much as 1,400 mm/year, while in the southern part of Zimbabwe it can be as little as 500 mm/year. The mean annual discharge at the outlet of the Zambezi River is 4,134 m<sup>3</sup>/s or around 130 km<sup>3</sup>/year. Due to the rainfall distribution, northern tributaries contribute much more water than southern ones. For example, the northern highlands catchment of the Upper Zambezi sub-basin contributes 25%, Kafue River nine percent, Luangwa River 13%, and Shire River 12%—for a total of 60% of the Zambezi River discharge.

5. The population of the ZRB is approximately 30 million, more than 85% of whom live in Malawi, Zimbabwe, and Zambia within four sub-basins: Kafue, Kariba, Tete, and the Shire River and Lake Malawi/Niassa/Nyasa. Of the total population, approximately 7.6 million (25%) live in 21 main urban centers (with 50,000 or more inhabitants). The rest live in rural areas. The proportion of rural population varies from country to country, from over 50% in Zambia to around 85% in Malawi.

6. The ZRB is rich in natural resources. The eight riparian countries of the Basin represent a wide range of economic conditions. Annual gross domestic product per capita ranges from \$122 in Zimbabwe to more than \$7,000 in Botswana. Angola, Botswana, and Namibia have healthy current account surpluses, chiefly due to their oil and diamond resources. The main economic activities are fisheries, mining, agriculture, tourism, and manufacturing. Industries depend on the electricity produced in the hydropower plants (HPPs) of the Basin, as well as on other sources of energy (primarily coal and oil).



7. The evolution of international cooperation in the ZRB has developed over more than three decades. These efforts built on the earlier foundations established during the Federation and development of the Kariba hydropower complex. Negotiations toward the ZAMCOM Agreement date back to the early 1980s, although these negotiations were suspended in the early 1990s to allow for discussions on the 1995 SADC Protocol on Shared Watercourses. The Protocol was revised in 2000 and ratified in 2003 with fresh negotiations on the ZAMCOM Agreement resuming in 2002.

8. The “Agreement on the Establishment of the Zambezi Watercourse Commission” (the ZAMCOM Agreement) was subsequently signed on July 13, 2004 in Kasane, Botswana, by Ministers responsible for water from seven of the eight riparian states - Angola, Botswana,



Malawi, Mozambique, Namibia, the United Republic of Tanzania, and Zimbabwe. Zambia did not sign but reportedly pledged to do so before the August SADC Summit in that same year after further consultation at the national level<sup>7</sup>. The ZAMCOM Agreement came into force on June 19, 2011 after six of the eight riparian countries completed their ratification. Zambia acceded to the agreement in 2013 and Malawi, who signed on July 13, 2004, has not yet ratified.

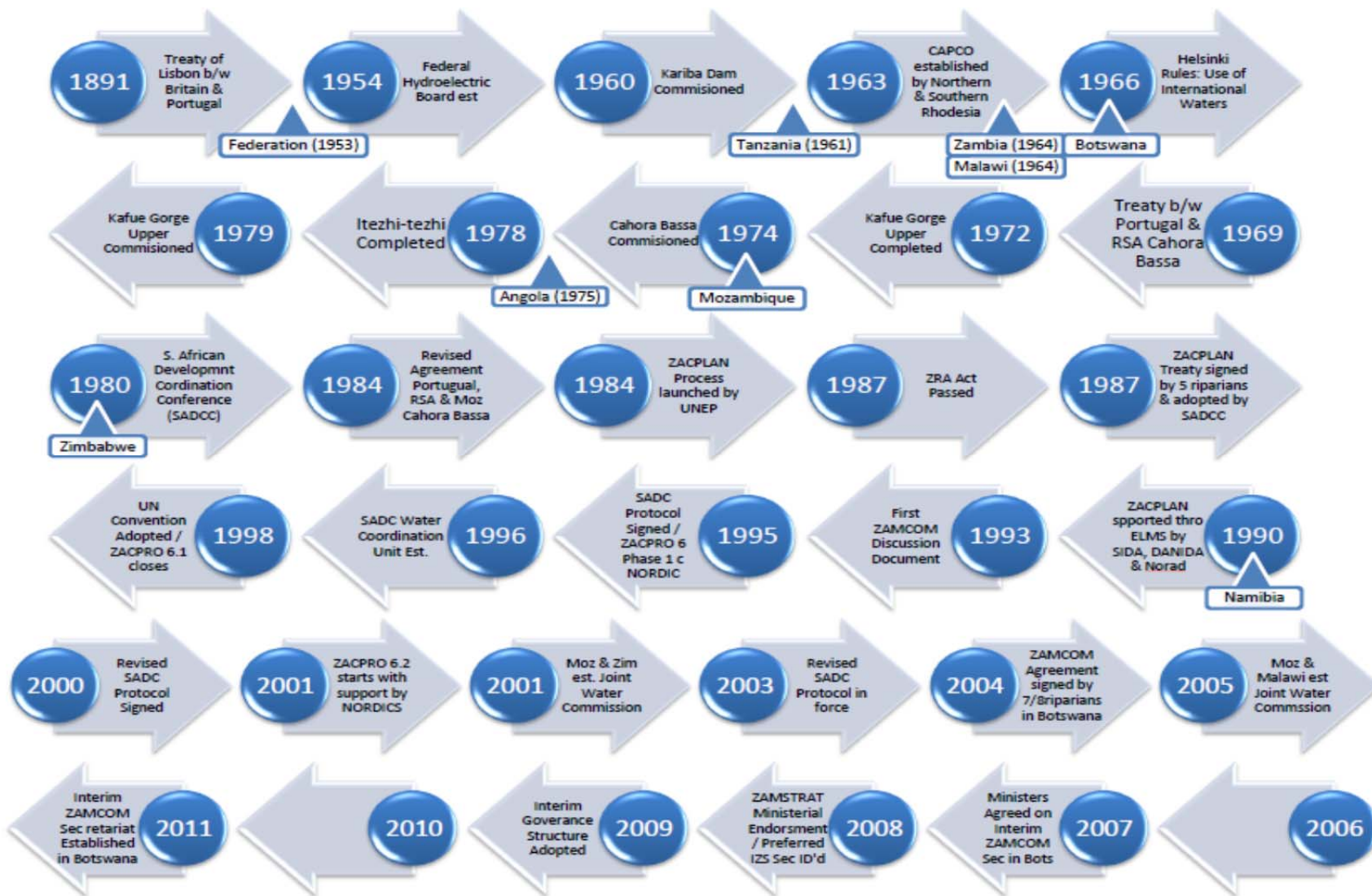
9. Botswana was selected by the signatories to host the Interim ZAMCOM Secretariat. The Interim Secretariat was established in May 2011 and has a three year implementation program to operationalise the ZAMCOM Agreement.

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<sup>7</sup> <http://www.sardc.net/editorial/sadctoday/v7-3-8-04/zambezi.htm>

**Table of International Water Agreements Entered into by Zambezi Riparian States.**

	SADC Protocol		UN Convention		Revised SADC Protocol		ZAMCOM Agreement	
	Signed	Ratified	Signed	Ratified	Signed	Ratified	Signed	Ratified
<b>Angola</b>	Aug 28, 1995	Aug 18, 1999	Not Signed	Not Ratified	Aug 07, 2000	Not Ratified	July 13, 2004	Dec 07, 2010
<b>Botswana</b>	Aug 28, 1995	Nov 21, 1997	Not Signed	Not Ratified	Aug 07, 2000	Feb 21, 2001	July 13, 2004	
<b>Malawi</b>	Aug 28, 1995	July 21, 1997	Not Signed	Not Ratified	Aug 07, 2000	May 31, 2001	July 13, 2004	Not Ratified
<b>Mozambique</b>	Aug 28, 1995	Dec 27, 2000	Not Signed	Not Ratified	Aug 07, 2000	Jan 12, 2001	July 13, 2004	Dec 31, 2004
<b>Namibia</b>	Aug 28, 1995	June 06, 1998	May 19, 2000	Aug 29, 2001	Aug 07, 2000	Sept 11, 2001	July 13, 2004	March 15, 2005
<b>Tanzania</b>	Aug 28, 1995	Feb 19, 1999	Not Signed	Not Ratified	Aug 07, 2000	Aug 07, 2003	July 13, 2004	Feb 08, 2010
<b>Zambia</b>	Aug 28, 1995	May 18 1998	Not Signed	Not Ratified	Aug 07, 2000	May 31, 2004	Not Signed	Not Ratified
<b>Zimbabwe</b>	Aug 28, 1995	Sept 03, 1998	Not Signed	Not Ratified	Aug 07, 2000	Not Ratified	July 13, 2004	May 19, 2011



Key: Independence

10. The principle objective of the ZAMCOM Agreement is “to promote the equitable and reasonable utilization of the water resources of the Zambezi watercourse as well as the efficient management and sustainable development thereof”. The ZAMCOM Agreement confers certain obligations (Article 5: Objectives and Functions of the Commission). Specifically, the Commission has the following functions:

- (a) collect, evaluate and disseminate all data and information on the Zambezi Watercourse as may be necessary for the implementation of the ZAMCOM Agreement;
- (b) promote, support, coordinate and harmonize the management and development of the water resources of the Zambezi Watercourse;
- (c) advise Member States on the planning, management, utilization, development, protection and conservation of the Zambezi Watercourse as well as on the role and position of the public with regard to such activities and the possible impact thereof on social and cultural heritage matters;
- (d) advise Member States on measures necessary for the avoidance of disputes and assist in the resolution of conflicts among Member States with regard to the planning, management, utilization, development, protection and conservation of the Zambezi Watercourse;
- (e) foster greater awareness among the inhabitants of the Zambezi Watercourse of the equitable and reasonable utilization and the efficient management and sustainable development of the resources of the Zambezi Watercourse;
- (f) co-operate with the institutions of SADC as well as other international and national organisations where necessary;
- (g) promote and assist in the harmonization of national water policies and legislative measures;
- (h) carry out such other functions and responsibilities as the Member States may assign from time to time; and,
- (i) promote the application and development of the ZAMCOM Agreement according to its objective and the principles referred to under Article 12.

11. The benefits of cooperation around development of the shared waters of the Zambezi River Basin have been well documented<sup>8</sup>. The potential social, economic and environmental outcomes envisaged over the next 10 to 15 years under the IWRM Strategy for the Zambezi River Basin include:

- (i) **Poverty reduced** throughout the basin as a result of expanded development, improved coordinated and sustainable water resources management;
- (ii) **Energy security** through hydropower investments (US\$10.7b) resulting in an additional 35,300 GWh/yr firm energy and an additional 60,000 GWh/yr average energy from the basin;
- (iii) **Agricultural production** increased, enhancing regional food security through an additional 343,000ha increasing irrigation to 775,000 ha/yr (85% in the mid-Zambezi);

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<sup>8</sup>The Zambezi River Basin: A Multi-Sector Investment Opportunities Analysis, Vol.1, Summary Report, The World Bank Africa Region, Water Resources Management, June 2010.

- (iv) **Increased employment**, particularly in the Agricultural Sector, with over 500,000 jobs created;
- (v) **Economic resilience** increased and growth benefits sustained through reduced exposure to floods (>\$US1b avoided losses on average per year) and adaptive measures to climate change;
- (vi) **Regional transport** costs and travel times reduced through bridge investments and navigation;
- (vii) **Water supplies** secured for urban and industrial demands (>1,000M m<sup>3</sup>/yr in the mid-Zambezi);
- (viii) **Environmental restoration** of the lower Zambezi and improved fisheries production through systematic introduction of basin wide environmental flows;
- (ix) **Tourism and Mining** contributions to GDP increased through integrated, sustainable development; and,
- (x) **Fisheries production** enhanced through improved management of water resources.

12. The ZAMCOM Agreement envisages that Member States shall conduct their management and development plans, projects and programmes relating to the resources of the Zambezi Watercourse in accordance with a Strategic Plan for the Zambezi Watercourse. The Agreement defines the Strategic Plan to mean “a master development plan comprising a general planning tool and process for the identification, categorization and prioritization of projects and programmes for the efficient management and sustainable development of the Zambezi Watercourse”.

### **Annex 3: Detailed Project Description**

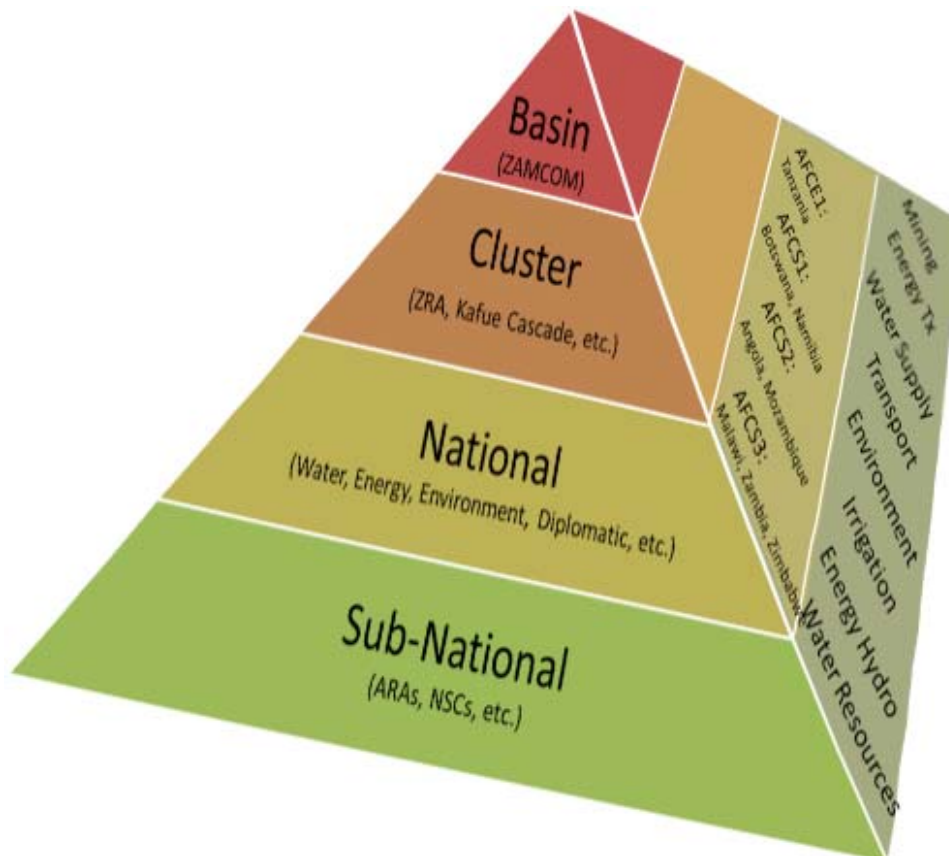
#### **Zambezi River Basin Development Project**

1. The project is part of a broader CIWA-supported program within the Zambezi River Basin aimed at strengthening cooperative management and development within the Zambezi River Basin to facilitate sustainable, climate resilient growth. To achieve the Program Objective, the CIWA Zambezi Program will support the riparian states and regional bodies to facilitate investment and growth by developing the resources of the basin. It will also engage the stakeholders to strengthen existing institutions and management regimes by supporting cooperative planning and development of water resources in the Zambezi River Basin.
2. The Zambezi Program is envisaged as a long-term engagement through a series of phases with projects at various levels across different sectors within the basin. For the first phase of the program, support will be provided through recipient-executed grants to the Zambezi Commission through the Interim Secretariat, the Zambezi River Authority and a Bank-executed analytical program. Additional grants may be identified as the program evolves.
3. To maximize the impact of the CIWA Program in the Zambezi River Basin, activities will be supported at three levels: i) at the country level, ii) among sub-regional clusters, and, iii) across the Basin. CIWA will aim to leverage other financing and analytical instruments of the World Bank Group and other development partners. This mix of instruments will support i) continuing dialogue, ii) analytical work and technical assistance, iii) preparation of a pipeline of projects, and iv) investment financing.
4. The country level provides the foundation for enabling regional initiatives and cooperative ventures. Support toward realisation of the goals will include a focused effort to continue to support in energy, water, environment, transport, irrigation but with increased and better coordination within and among sectors to enhance the capacity and confidence of national and sub-national institutions to engage in the regional cooperative process. The Bank's country level engagement will help to correlate and capitalise on the WBG portfolio in key sectors. The program will help facilitate a discussion around increased alignment between the various instruments available to the riparian states to help them position themselves in relation to the broader commitments contained under regional frameworks, such as the SADC Protocol and ZAMCOM Agreement, and bilateral arrangements.
5. The Bank portfolio across the eight riparian states in the Zambezi River Basin under the Sustainable Development Network is supporting more than US\$2 billion in water, energy, environment, agriculture, transport, and extractive industries. Specific water related programs are supported in all eight of the riparian states and the regional SADC Secretariat with the active portfolio account for more than US\$1 billion of this portfolio. A comprehensive analytical program has been developed over the years to set the foundation for complex investment programs, with the Multi-Sector Investment Opportunity Analysis for the Zambezi River Basin consolidating the Country Water Resources Assistance Strategies that have been prepared for Malawi, Mozambique, Tanzania and Zambia.
6. Sub-regional and sectoral support will assist organizations mandated with the development and operation of key infrastructure in the basin. This will be directed toward intensified engagement through technical assistance, support to feasibility studies to advance bilateral and multilateral investment opportunities within the basin context. This approach is in recognition of

the provisions within the ZAMCOM Agreement, that acknowledge existing agreements, and is intended to re-enforce and facilitate alignment between existing institutions within the basin. This is exemplified by the Memorandum of Understanding between dam operators in Mozambique, Zambia, and Zimbabwe.

7. Basin level support to regional organizations, such as the Zambezi Watercourse Commission, will be directed toward sustaining the political process toward fostering commitments to cooperation. This will support processes aimed at realizing the gains through the equitable and reasonable utilization of water along with cooperative development through basin wide activities. These will build on the country level foundations, through incremental contributions and support to implementation of measures envisaged under the ZAMCOM Agreement and IWRM Strategy. This will be provided through technical assistance and analytical work to demonstrate the benefits of cooperation, with engagement informed by those areas where the Bank has a comparative advantage.

**Organizing Framework for a Cooperative Support Program  
in the Zambezi River Basin**



1. Projects under Phase 1 of the CIWA Zambezi Program are all aligned to the prioritized list of activities articulated in the IWRM Strategy and Implementation Plan for the Zambezi River Basin (ZAMSTRAT). The ZAMSTRAT presents the main challenges for the management of the water resources of the Zambezi River Basin and a series of recommended strategies and actions to address them. These include both water management and institutional development related

activities and will be reviewed regularly within the context of the Zambezi ICP Partnership to ensure alignment.

2. Phase 1 of the CIWA Zambezi Program is focused on:

- i) providing recipient-executed grant resources from CIWA to the ZAMCOM to advance strategic integrated and cooperative management of water resources in the basin;
- ii) providing recipient-executed grant resources from CIWA to the ZRA to advance strategic water resources development in the basin;
- iii) a Bank-executed program to help build synergies between the CIWA Zambezi Program, leverage projects within the World Bank Group portfolio across the riparian states and contribute analytical work to promote equitable and reasonable utilization of the resources within the basin; and,
- iv) promoting consolidation of financing from international cooperating partners behind an ambitious program of infrastructure development and water resource management.

3. Details of the individual projects are provided for in the respective Project Appraisal Document and outlined in the Project Briefs below. It is expected that additional project briefs will be included in the CSP as part of the annual review if and as when new grants and activities are included.

70. The CIWA grant support to the Zambezi River Authority is intended to assist in advancing water resources development within the Zambezi River Basin. It is seen as an integral and important part of the overall program of support, balancing with the institutional and policy directed measures being supported under the complementary CIWA support to the Zambezi Watercourse Commission. At the time of project approval, there is no commitment of IDA or IBRD to finance investments or civil works associated with any future decision for the construction of the Batoka Gorge Hydro-Electric Scheme.

4. Specifically, the CIWA support to ZRA will finance the following activities

5. ***(a) Feasibility Studies for the Batoka Gorge Hydro-electric Scheme.*** The objective of the Engineering Studies is to assess, update and develop a full bankable feasibility study, complete up to tender design and documentation for the development of Batoka Gorge HES and associated transmission lines to evacuate the power. The existence of a full bankable feasibility study is intended to facilitate mobilization of the required resources for the development of the scheme within the shortest possible time and address the prevailing power supply shortages within the Southern African Power Pool. This will be supported through the provision of: i) Consulting Services; ii) Non-consulting goods and services; and, iii) Operating expenses associated with workshops, training, and capacity enhancement initiatives.

6. The proposed Batoka Gorge HES would be situated on the Zambezi River, approximately 54km downstream of the Victoria Falls. The project site is located across the boundary between Zambia and Zimbabwe and upstream of the existing Kariba Dam. The Batoka Gorge HES was conceived in 1972 by the Central African Power Corporation (CAPCO), the predecessor of the Zambezi River Authority. The aim of the study was to identify possible power sources which the intergovernmental institution could develop to meet the power demands of Zambia and Zimbabwe. In 1981 an update of this study was done, where the dam site was moved 12 km upstream. In 1992-93 a feasibility study was commissioned by the ZRA confirming the Batoka



Gorge HES as the least cost alternative in respect to average specific energy generation cost for development on the Zambezi River.

7. The recommended scheme included a proposal for a 181m high roller-compacted concrete (RCC) Gravity Arch dam, radial gated crest type spillway, two underground power stations on each side of the river with four Francis 200 MW turbines installed in each, giving a total capacity of 1,600 MW for the scheme. The scheme was designed as a run-of-the river scheme with an estimated average energy generation of 8,700 GWh/year. The reservoir would be fully contained within the Batoka Gorge with a surface area of 26km<sup>2</sup>.

8. The project would bring forward the Feasibility Studies, supporting an initial review of the existing documentation and status of information, confirm the site and layout of the scheme, updating any information required to advance development of the scheme in accordance with international good practice, and tender designs and documentation to assist the ZRA in finalizing a bankable project.

9. ***Environmental and Social Assessment of the Batoka Gorge Hydro-electric Scheme.*** The objective of the ESIA is to evaluate the design for the Batoka Gorge HES and develop the required Environmental and Social Impact Assessments, along with Environmental Management Plans (EMPs), Resettlement Policy Frameworks (RPFs) and Resettlement Action Plans (RAPs), as needed, for each infrastructure investment associated with the project. These will inform the Governments of Zambia and Zimbabwe, the ZRA, national power utilities, interested and affected parties and other stakeholders about potential environmental and social impacts associated with development of the Batoka Gorge HES. They are further intended to facilitate mobilization of the required resources for the development of the scheme within the shortest possible time and to be used during implementation and development of the project. This will be supported through the provision of: i) Consulting Services; and, ii) Operating expenses associated with workshops, training, and capacity enhancement initiatives.

10. The Environmental and Social Impact Assessment would conduct a review and update of the previous screening and preparatory studies for Batoka Gorge HES and hydropower development in the Zambezi River between Victoria Falls and Lake Kariba. The assessment will include any transmission lines required to evacuate the power to both countries and other associated infrastructure.

11. Environmental impact assessments were conducted in 1993 and 1998, which concluded that identified impacts could be mitigated. The potential impacts identified at the time included the loss of natural habitat in the gorge and possible reductions in opportunities for white-water rafting downstream of Victoria Falls resulting from inundation. Impacts related to associated construction of access roads, transmission lines and work camps were also noted, although not detailed.

12. ***Transaction Advisory Services for the Batoka Gorge Hydro-electric Scheme.*** The objective is to provide legal and financial transaction advice to the Zambezi River Authority on the Development of the proposed Batoka Gorge Hydro-Electric Scheme on the Zambezi River. This will include an assessment of different potential transaction structures, including options for public or private funding, and public-private partnerships, with a view to recommending the most optimum, bankable structure that takes into consideration prevailing market conditions, priorities of the stakeholders involved, and the technical parameters and development schedule resulting from the updated feasibility study. This will be supported through the provision of: i)

Consulting services and technical assistance; and, ii) Operating expenses associated with workshops, training, and capacity enhancement initiatives.

**13. *Legal and Institutional Support to the Zambezi River Authority.*** The objective of this activity is to assist the Zambezi River Authority in the creation of more effective legal and institutional arrangements aimed at enhancing the water resources management function of ZRA. This includes the identification of potential measures, options and detailed steps to harmonise existing legal instruments within the context of the Zambezi River Basin. These measures are intended to enhance the sustainable development and efficient management of the Zambezi River Basin through ensuring the legal framework and the policy structure between the two contracting states governing the Zambezi River Authority are in harmony and aligned with regional policy instruments and administrative regimes. This will be supported through the provision of: i) Consulting services and technical assistance; and, ii) Operating expenses associated with workshops, training, and capacity enhancement initiatives.

14. The Zambezi River Authority is central to creating an enabling environment for improved water resources development and management in the Zambezi River Basin. The Authority was established to help Zambia and Zimbabwe obtain the greatest possible benefit from the natural advantages offered by the waters of the Zambezi River and to improve and intensify the utilization of the waters for the production of energy and for any other purpose beneficial to the two countries. In order to further the realization of the purpose of the agreement between Zambia and Zimbabwe, the ZRA, as informed by its Corporate Strategy for 2011 - 2014 and by other higher level directives from both Governments of Zambia and Zimbabwe, intends to review its existing legal and institutional framework with a view to enhancing the value of the outputs of all water related goods and services derived from Lake Kariba and the Zambezi River. In addition the ZRA would like to reposition its current and future roles within the context and framework of emerging international norms related to trans-boundary water resources management and within the context the new regional water agreements under the SADC region such as the agreement on the Zambezi River Commission and the revised Protocol on shared water courses. The strategic positions and high level directives in part stem from the recognition that ZRA is yet to fully realize its mandate and has to date operated more as an energy utility as opposed to a water resources management utility. The current legal and institutional arrangement is derived from the political and historical background where energy development was the primary focus leading to the creation of organisational and management arrangements geared towards the energy sector for lake Kariba. The historical political economy landscape also slowed down the growth and infrastructure development function of ZRA for energy and other purposes.

15. The institutional and legal review will provide for: i) a comprehensive review of the Zambezi River Authority Act and recommendations aimed at enhancing the institutional and governance oversight roles; ii) the identification of measures to enable the Zambezi River Authority to enhance its water resources management authority, and function; and, iii) the devising of options and drawing up of a road map aimed at creating opportunities for greater levels of engagement in the entire Zambezi River Basin.

**16. *Dam Break Analysis for the Zambezi River Basin.*** The objective of this activity is to support the ZRA enhance the sustainable development and efficient management of the Zambezi River Basin through a collaborative exercise with other dam operators in the Zambezi River Basin in undertaking a dam break analysis. This will provide a methodology and the supporting system to allow forecasters to generate a dam failure forecast and evaluate the consequences of a

potential dam breach in the Zambezi River Basin. This would build on and support further development of the ZAMWIS and include a detailed review of current dam inventory data for the basin and approaches to dam break modeling. This will be supported through the provision of: i) Consulting services and technical assistance; ii) Non-consulting goods and services; and, iii) Operating expenses associated with workshops, training, and capacity enhancement initiatives.

17. The Zambezi River Basin has four major dam structures, the Kariba and Cahora Bassa on the main stem, the Itezhi Tezhi Dam and Kafue Gorge Upper on the Kafue River, all constructed and commissioned during the period 1956-79. Although these dams are all designed and maintained in accordance with international standards, a complete dam break analysis has never been conducted, which is today normal practice for large dam infrastructure. Such analysis normally involves modeling of potential dam failures under two basic scenarios, a partial dam failure in connection with high flow conditions, and a catastrophic failure of the dam on a day with normal (sunny day) flow conditions. These two scenarios provide a reasonable representation of the range of conditions resulting from the possible failure modes.

18. The proposed grant will support a stepwise dam break analysis program, starting with the Kariba Dam that is the oldest dam and has indications of required rehabilitation of the spillway gates and plunge pool. A dam break analysis would bring forward essential input for the design of such rehabilitation and will inform the downstream measures for the Cahora Bassa Dam, and possible new dams to guarantee dam safety in a catastrophic event. In a second step the assessment will encompass a complete dam break analysis of all built infrastructure on the Zambezi and Kafue rivers to assess the combined, or partially combined, event of dam failures. The results will provide inputs to future flood mitigation measures, especially in the flood-prone lower Zambezi plains and delta.

## **Annex 4: Implementation Arrangements**

### **Zambezi River Basin Development Project**

#### **Project Institutional and Implementation Arrangements**

1. The Zambezi River Authority (ZRA) has been mandated by the Governments of Zambia and Zimbabwe to develop the Batoka Gorge Hydroelectric Scheme. The ZRA is a statutory body jointly owned by the Governments of Zambia and Zimbabwe. The ZRA came into being on October 01, 1989 as a result of parallel legislation tabled before the parliaments of the Republics of Zambia and Zimbabwe. This followed the reconstitution of its predecessor, the Central African Power Corporation (CAPCO). The generating assets were subsequently handed over to the two national power utilities, the Zambia Electricity Supply Corporation (Zesco) and the Zimbabwe Power Corporation (ZPC). These two utilities now account for about 90% of ZRAs revenue. The ZRA has responsibility of the operation and maintenance of Kariba Dam Complex, investigation and development of new dam sites on the Zambezi River and analysing and disseminating hydrological and environmental information pertaining to the Zambezi River and Lake Kariba.

2. The ZRA is governed by a Council of Ministers consisting of four members from the two contracting states. The common Ministries in the council are those responsible for Energy and Finance. In terms of the Zambezi River Authority Acts, the Council of Ministers gives direction, through the ZRA Board of Directors, to the Authority to ensure the most efficient use of the Zambezi River and any other infrastructure developed on it. The Council may also prescribe anything which in its opinion is necessary or convenient for the better exercise of the functions of the ZRA.

3. The ZRA has four main strategic functions, which are outlined in the schedule to the Zambezi River Authority Acts Nos. 17 and 19 of 1987 of Zambia and Zimbabwe, respectively. These are:

- (a) In consultation with the national electricity undertaking investigate the desirability of constructing new dams on the Zambezi River and make recommendations thereon to the Council;
- (b) Subject to the approval of the Council, construct, operate, monitor and maintain any other dams on the Zambezi River;
- (c) Make such recommendations to the Council as will ensure the effective and efficient use of waters and other resources of the Zambezi River; and,
- (d) Submit development plans and programmes to the Council for approval.

#### ***Project administration mechanisms***

4. **The implementation structure for the Batoka Gorge HES** as directed by the Council of Ministers includes: i) a Project Steering Committee; and ii) a Project Management Unit. The composition and functions of these are detailed below.

5. The Project Steering Committee is comprised of the following: i) Directors from the Ministries with the Energy portfolio as Chairperson and Co-Chairperson; ii) One senior official from each Ministry of Finance; and iii) Two senior officials from the national power utilities.

The Zambezi River Authority serves as the Secretariat and provisions are included to co-opt other members into the PSC as and when the need arises. The PSC is responsible for:

- i. Recommending overall project plans and budgets;
- ii. Providing communication and the interface with the Governments of Zambia and Zimbabwe;
- iii. Facilitating consents, permits and approvals required from the host countries;
- iv. Ensuring that the necessary undertakings to make the project finances available are put in place;
- v. Coordinating all inter-governmental matters;
- vi. Integrating the Batoka HES project plans into national plans and Public Sector Investor Programs;
- vii. Integrating the Batoka Gorge HES project plans with utility development plans; and,
- viii. Overseeing the development of the Batoka Gorge HES project.

6. The Project Management Unit is comprised of: i) Three members from the Zambezi River Authority; ii) Two members from the national Zambian utility; and, iii) Two members from national Zimbabwean utility. Provisions are included to co-opt specialist members to the PMU as and when need arises. The functions of the unit are to implement the decisions of the Project Steering Committee and manage the project activities on a day to day basis.

## **Financial Management, Disbursements and Procurement**

### ***Financial Management***

7. A financial management assessment of the Zambezi River Authority (ZRA), the implementing entity was carried out in accordance with the Financial Management Manual for World Bank-Financed Investment Operations, issued by the Financial Management Sector Board on March 1, 2010 and the ORAF Financial Management Draft Interim Guidance Note issued by the AFTFM unit on September 30, 2010.

8. The objective of the assessment was to determine whether the implementing agency, ZRA has adequate financial management arrangements, to ensure that: (1) the funds are properly accounted for and used only for the intended purposes, in an efficient and economical way; (2) capability exists for the preparation of accurate, reliable and timely periodic financial reports; (3) internal controls exist which allow early detection of errors or unusual practices as a deterrent to fraud and corruption, (4) the assets are safeguarded. The results of the review are documented below.

9. The overall conclusion of the assessment is that the ZRA, which will be in charge of administering US\$6 million component B (*Enhancing Infrastructure Development in the Zambezi River Basin*) of the program, satisfies the financial management minimum requirements as per the Bank's OP/BP 10.00. The risk rating for the ZRA financial management arrangements has been assessed as Moderate.

### **Risk Assessment and mitigation**

10. The overall financial management residual risk rating for the PPA is assessed as Moderate. The table below summarizes the risks identified, the risk rating and mitigating measures, if any.

<b>Risk</b>	<b>Initial Risk Rating</b>	<b>Risk Mitigating Measures</b>	<b>Residual Risk Rating</b>
<b>Inherent Risk</b>			
<b>Country Level.</b>	<b>N/A</b>	<ul style="list-style-type: none"> <li>ZRA is a body corporate established by an Act by two states, Zambia and Zimbabwe. ZRA operates as an independent body.</li> </ul>	<b>N/A</b>
<b>Entity Level:</b> ➤ ZRA Lacks experience with implementing World Bank or Donor assisted projects and therefore unfamiliar with the disbursement procedures.	<b>M</b>	<ul style="list-style-type: none"> <li>The project will be closely supervised by a World Bank and the use of funds will be strictly monitored through the quarterly submission of interim financial reports, which should be adequate to detect any funds diversions</li> <li>Accounting Staff in ZRA will be trained in financial management and disbursement arrangements in World Bank -assisted projects.</li> </ul>	<b>M</b>
<b>Project Level:</b> ➤ The nature, size and design of the project:	<b>M</b>	<ul style="list-style-type: none"> <li>The activities to be funded under component B amounting to US \$6 million will be identified and fully supported by procurement plans and therefore will be ease to monitor.</li> </ul>	<b>M</b>
<b>Overall Inherent Risk</b>		<b>M</b>	<b>M</b>
<b>Control Risks</b>			
<b>Budgeting:</b> ➤ Lack of enough details and a system to monitor budget performance	<b>M</b>	<ul style="list-style-type: none"> <li>The total project cost of US\$ 6million will is fully allocated and budgeted for and all activities will be identified and supported by an approved procurement plan before implementation and any budget variations will require prior approval by the World Bank.</li> <li>Quarterly interim financial reports that will include comparisons of budget to actual with explanations for variations will be a requirement for reporting purposes.</li> </ul>	<b>L</b>
<b>Accounting:</b> ➤ Inadequate staff capacity to perform project accounting functions.	<b>M</b>	<ul style="list-style-type: none"> <li>The accounting functions of the project will be streamed lined within the accounting department of ZRA which will ensure existence of adequate segregation</li> </ul>	<b>L</b>

Risk	Initial Risk Rating	Risk Mitigating Measures	Residual Risk Rating
		<p>of duties and counter checking of transactions by other staff.</p> <ul style="list-style-type: none"> <li>• ZRA has adequate numbers of qualified and experienced accounting staff both at the higher levels and lower levels with two qualified Assistant accountants. These accounting staff will be trained in World Bank financial management and disbursements guidelines</li> <li>• ZRA has an Accounting and Financial Procedures Manual which if properly enforced will reduce the risk.</li> </ul>	
<p><b>Internal Control:</b> ➤ Weak control environment resulting from poor enforcement of procedures</p>	<b>M</b>	<ul style="list-style-type: none"> <li>• An Accounting and Financial Procedures Manual exists, to provide guidance to staff.</li> <li>• ZRA internal audit functions exist but this requires staffing to be increased from the current establishment of one. The recommended structure has two positions. Internal auditors to undergo financial management and disbursement training for internal auditors in World Bank-funded projects.</li> </ul>	<b>M</b>
<p><b>Funds Flow:</b> ➤ ZRA does not have experience with the Bank's disbursement procedures</p>	<b>M</b>	<ul style="list-style-type: none"> <li>• Training will be provided to ZRA staff in disbursements under World Bank assisted projects</li> </ul>	<b>M</b>
<p><b>Financial Reporting:</b> ➤ Untimely submission of the financial reports due to lack of experience with the bank's reporting requirements.</p>	<b>M</b>	<ul style="list-style-type: none"> <li>• Accounting Staff in ZRA will be trained in financial management and disbursement arrangements in World Bank assisted projects, which will include financial reporting.</li> <li>• The quarterly financial reports formats &amp; contents and the reporting timetables will be agreed with ZRA in advance.</li> </ul>	<b>M</b>
<p><b>Auditing:</b></p>	<b>L</b>	<ul style="list-style-type: none"> <li>• ZRA is up to date with the external</li> </ul>	<b>L</b>

<b>Risk</b>	<b>Initial Risk Rating</b>	<b>Risk Mitigating Measures</b>	<b>Residual Risk Rating</b>
➤ Unacceptable audit and untimely submission of the audit reports and lack of follow up on audit findings.		audit reports and the past three years unqualified audit opinions have been given	
<b>Overall control risk:</b>	<b>M</b>		<b>M</b>
<b>Overall risk rating:</b>	<b>M</b>		<b>M</b>

### **Strengths and Weaknesses**

11. The main strength identified is that the project will use the existing financial management arrangements at ZRA including staff, financial regulations and procedures. The accounting system is computerized through the use of tested SUN Accounting software. The ZRA Finance Director will have overall responsibility for the project's financial management and will be assisted by two qualified technicians. The weakness identified is the inadequate staffing in the internal audit department. It is recommended that ZRA should adopt the recommended structure by the Consultant and employ an additional internal auditor as per recommendation.

### **Budgeting**

12. ZRA will budget for all its expenditures under the project in such detail as to allow for regular and effective implementation monitoring of all the activities to be funded. The total project cost of US\$ 6 million will be agreed upfront with the Recipient and any variations will have prior approval by the World Bank.

### **Accounting**

13. The ZRA will use the existing Sun Accounting System to record and report on the project transactions. The Sun System is a tested accounting software as to its reliability.

### **Internal Control and Internal Auditing**

14. **Staffing.** The Finance Director at ZRA will have overall responsibility to account for the funds using the existing accounting staff. The accounting functions will be mainstreamed in the accounting department, so that no one individual staff performs all project functions, to ensure adequate segregation of duties. All the accounting staff have job descriptions that define their functions

15. **Internal Controls.** ZRA will apply the procedures as stipulated in the existing financial and administrative manuals.

16. **Internal Audit.** ZRA has an internal audit department that is currently not adequately staffed, with a single staff deployed in the department. However, it has been recommended that the number of staff be increased to two as per the findings and recommendations of the ZRAs own independent assessment.

### **Financial Reporting**



17. The project will produce on quarterly basis unaudited interim financial reports (IFRs) to manage and monitor the use of the funds. The IFRs should at the minimum show a statement of sources and uses of funds, with the uses of funds analyzed by activities, comparing actual expenditure with budget. The quarterly reports to be submitted to the World Bank 45 days after the end of the quarter. The formats and contents of the IFRs were discussed and agreed with ZRA during appraisal and negotiations.

### **Funds Flow and Disbursement Arrangements**

18. **Funds Flow.** Funds will flow from the World Bank to a Designated Account (DA) to be opened at a commercial bank acceptable to the Bank, to be managed by the ZRA Finance Director. The DA will hold the initial advance(s) and subsequent replenishments from the World Bank. Funds in the DA will only be used to finance eligible expenditures of the component.

19. **Banking Arrangements.** The ZRA will open and maintain one Designated Account (DA) in US \$ at a commercial bank for the purposes of implementing the project.

### **Disbursement Arrangements**

20. The project will use the Advance Disbursement method. Disbursements will be report based. The initial advance to the DA will be made based on a 6-month cash flow forecast. Withdrawal Applications (WA) using E-Disbursement will be completed by ZRA to request the World Bank to replenish amounts that are spent from the DA. Actual expenditures will be replenished to the DA through the submission of quarterly IFRs. The following will be the documentation to accompany the IFRs justifying expenditures for subsequent disbursements to the DA: (i) DA activity statement supported by copy/copies of bank statements; (ii) Summary statement of expenditure for contracts above the prior review threshold; (iii) Summary statement of expenditure for contracts below the prior review threshold.

21. Other disbursement methods other than the Advance method such as direct payments and reimbursement of funds will also be available to the Project. Withdrawal Applications for such payment methods should be accompanied by adequate and relevant supporting documents such as copies of the contract, contractors' invoices, appropriate certifications and evidence of receipt of goods or services. The project will use the direct payment method for all contracts that meet the minimum threshold for this method to apply. Details of withdrawal conditions and requirements will be advised in the Disbursement Letter that will be issued by the World Bank.

### **External Audit**

22. It is a requirement that the audit scope and the terms of reference and the auditor and the audit standards to be applied will be acceptable to the World Bank. An external audit will be carried out annually and the audited financial statements and audit report, together with the auditor's management letter and management response thereto, will be submitted to the Bank not later than 6 months after the end of the Recipient's financial year end.

### **Supervision Plan**

23. The objective of the financial management supervision is to ensure the continued adequacy of the recipient's financial management arrangements, compliance with relevant legal covenants of the financing agreement, and that the funds are used only for the purposes for which the funds were intended, with due regard to economy and efficiency.

24. Financial management supervision will be carried out using the risk-based model. The financial management risk for the project has been assessed as Moderate. In line with the moderate risk, financial management supervision intensity will be one field visit per year. In the interim, supervision will be by desk reviews of the financial component of the unaudited quarterly IFRs.

**Table 1: Financial Management Action Plan**

	<b>Action</b>	<b>Date due by</b>	<b>Responsible</b>
1.	Audit Terms of Reference agreed	Effectiveness	ZRA and IDA
2.	Recruit an additional internal auditor	Effectiveness	ZRA

### ***Procurement***

25. Procurement for the proposed project will be carried out in accordance with the “Guidelines: Procurement of Goods, Works and Non-consulting Services under IBRD Loans and IDA Credits and Grants by World Bank Borrowers” dated January 2011 and selection of consultants will be carried out in accordance with the "Guidelines: Selection and Employment of Consultants under IBRD Loans and IDA Credits and Grants by World Bank Borrowers” dated January 2011 as well as the provisions stipulated in the Grant Agreement. Procurement will be governed according to the following:

- (a) *Procurement of Works.* No major works are expected to be procured under this project.
- (b) *Procurement of Goods.* Goods procured under this project will include vehicles, computer hardware, software, data networking/communications, office equipment, office furniture and consumables. The procurement will be done using the Bank’s Standard Bidding Documents (SBD). No ICB procurement is expected. Shopping may be used for contracts with estimates values of less than US\$100,000 in accordance with paragraph 3.4 of the Guidelines. Direct Contracting can be used to contract suppliers for contracts that meet the criteria set out under paragraphs 3.6 and 3.7 of the Guidelines.
- (c) *Procurement of non-consulting services.*
- (d) *Selection of Consultants:* The project is expected to finance a number of consultancies, including consulting firms and individual consultants to be hired on a long- and short-term basis. Consulting services estimated to cost US\$200,000 or more per contract will be procured through Quality and Cost-Based Selection (QCBS) described under Section II (2.1-2.31) of the Consultant Guidelines, using Bank’s Standard Request for Proposal Consulting services. For audit and other contracts of a standard routine nature may be procured under Least Cost Selection (LCS) method described under paragraph 3.6 of the Guidelines. Consulting Assignments costing less than US\$200,000 may be procured using Consultants’ Qualifications Selection (CQS) described under paragraph 3.7 of the Guidelines. Single Source Selection can be used, subject to the Bank’s prior review to contract firms for assignments that meet the criteria set out under paragraphs 3.9 and 3.13 of the Guidelines. Contracts for Individual Consultants (IC) will be done by comparing the qualifications of at least three candidates, in accordance with Section V of the Guidelines. Short lists of consultants for services estimated to cost less than US\$200,000 equivalent per contract may be composed entirely of national consultants in

accordance with provisions of paragraph 2.7 of the Consultant Guidelines. In the case of engineering and civil works consulting assignments, the shortlists for assignments estimated to cost up to US\$300,000 may be entirely comprised of national consultants.

- (e) *Operating Costs.* Operational costs will include office space maintenance, administrative and procurement/financial management support, support staff salaries, travel, logistical, communication, and other office expenses.
- (f) *Others.* Provisions have been included under the grant to fund workshops, meetings, training exercises and study tours that provide opportunities for learning and interactions for technical specialists, senior managers and stakeholders. The Bank will review the ZRA's work program and training plans annually as required. If the total amount of each activity above exceeds US\$50,000, then these will be approved by the Bank. Budgets of such activities will be presented to the Bank's approval, and shall include the following information:
  - i. Workshop/training/study visit program envisaged;
  - ii. Personnel to attend the workshop/training/study visits;
  - iii. Selection method of institutions conducting such workshops/training/study tours;
  - iv. Duration of the workshop/training/study visit; and
  - v. Estimated detailed cost of the workshop/training/study visit.

**26. *Applicable legal and regulatory framework for National Competitive Bidding:*** All procurements under National Competitive Bidding procedures will be based on procedures acceptable to the World Bank as stipulated in the Zambia Public Procurement Act No. 12 of 2008, as amended by amendment No. 15 of 2011 and the Statutory instrument No. 63 of 2011 "Procurement Regulations" and the accompanying National Standard Bidding Documents of November 2012.

**27. *Modifications to National Competitive Bidding procedures:*** The modifications required to be made to the NCB procedures to make them acceptable for Bank-financed procurement are presented below.

28. The procurement procedure to be followed for National Competitive Bidding (NCB) shall be the open international bidding procedure set forth in the Public Procurement Act, 2008, Act No.12 of 2008, as amended by the Public Procurement (Amendment) Act, 2011, Act No. 15 of 2011 (the PPA), and the Public Procurement Regulations, 2011, Statutory Instrument No. 63 of 2011 (the Regulations); provided, however, that such procedure shall be subject to the provisions of Section I and Paragraphs 3.3 and 3.4 of Section III, and Appendix 1 of the "Guidelines for Procurement of Goods, Works, and Non-Consulting Services under IBRD Loans and IDA Credits & Grants by World Bank Borrowers" (January 2011) (the Procurement Guidelines), and the additional provisions in the following paragraphs:

- a. **Eligibility:** Eligibility to participate in a procurement process and to be awarded an Association-financed contract shall be as defined under Section I of the Procurement Guidelines; accordingly, no bidder or potential bidder shall be declared ineligible for contracts financed by the Association for reasons other than those provided in Section I of the Procurement Guidelines. No restriction based on nationality of bidders and/or origin of goods shall apply, and foreign bidders shall be allowed to participate in NCB

without application of restrictive conditions, such as, but not limited to, mandatory partnering or subcontracting with national entities.

- b. **Domestic Preference:** No margins of preference of any sort shall be applied in the bid evaluation.
- c. **Bidding Documents:** Procuring entities shall use bidding documents acceptable to the Association.
- d. **Bid Validity:** An extension of bid validity, if justified by exceptional circumstances, may be requested in accordance with Appendix 1 of the Procurement Guidelines. A corresponding extension of any bid guarantee shall be required in all cases of extension of bid validity. A bidder may refuse a request for extension of bid validity without forfeiting its bid guarantee.
- e. **Qualification:** Qualification criteria shall be clearly specified in the bidding documents. All criteria so specified, and only such specified criteria, shall be used to determine whether a bidder is qualified. Qualification shall be assessed on a “pass or fail” basis, and merit points shall not be used. Such assessment shall be based entirely upon the bidder’s or prospective bidder’s capability and resources to effectively perform the contract, taking into account objective and measurable factors, including: (i) relevant general and specific experience, and satisfactory past performance and successful completion of similar contracts over a given period; (ii) financial position; and where relevant (ii) capability of construction and/or manufacturing facilities

Prequalification procedures and documents acceptable to the World Bank shall be used for large, complex and/or specialized works. Verification of the information upon which a bidder was prequalified, including current commitments, shall be carried out at the time of contract award, along with the bidder’s capability with respect to personnel and equipment. Where pre-qualification is not used, the qualification of the bidder who is recommended for award of contract shall be assessed by post-qualification, applying the qualification criteria stated in the bidding documents.

- f. **Bid Evaluation:** All bid evaluation criteria other than price shall be quantifiable in monetary terms. Merit points shall not be used, and no minimum point or percentage value shall be assigned to the evaluation criteria or significance of price in bid evaluation. No negotiations shall be permitted.
- g. **Guarantees:** Guarantees shall be in the format, shall have the period of validity and shall be submitted when and as specified in the bidding documents.
- h. **Cost Estimates:** Detailed cost estimates shall be confidential and shall not be disclosed to prospective bidders. No bids shall be rejected on the basis of comparison with the cost estimates without the Association’s prior written concurrence.
- i. **Rejection of bids and re-bidding:** No bid shall be rejected solely because it falls outside of a predetermined price range or exceeds the estimated cost. All bids (or the sole bid if only one bid is received) shall not be rejected, the procurement process shall not be cancelled, and new bids shall not be solicited without the Association’s prior written concurrence.

- j. **Fraud and corruption:** In accordance with the Procurement Guidelines, each bidding document and contract shall include provisions stating the Association’s policy to sanction firms or individuals found to have engaged in fraud and corruption as set forth in the Procurement Guidelines.
- k. **Inspection and audit rights:** In accordance with the Procurement Guidelines, each bidding document and contract shall include provisions stating the Bank’s policy with respect to inspection and audit of accounts, records and other documents relating to the submission of bids and contract performance

29. As the Bank has not carried out a procurement legal review of the procurement legal framework in Zimbabwe, all NCB procurement undertaken in Zimbabwe will be based on application of procedures contained in Bank’s procurement guidelines using Bank’s standard bidding documents.

**a. Assessment of the Agencies capacity to implement procurement**

30. *Procurement Capacity.* A procurement assessment of the ZRA was conducted by the procurement specialists of the World Bank in July, 2012. The ZRA Procurement Guidelines are integrated as part of the Financial Manual, reflecting the position within the Finance Directorate. The ZRA is staffed with a single Assistant Supplies Officer (ASO) within the Finance Department who reports up through a supervisor, to the Finance Manager under the Finance Director / Corporate Secretary. The procurement functions are managed from the headquarters in Lusaka and draw on expertise from other divisions as needed for specific assignments.

31. Procurement actions under the proposed project are larger and more complex than the type and size generally performed by the ZRA in the course of its normal operations. Typical procurement under the responsibility of the ASO is limited to largely small value, non-complex assignments. The limited experience with large, complex competitive procurements relating to engineering assignments and large civil works programs will require enhanced mechanisms to strengthen the formal procurement arrangements, integrate the technical aspects with the procurement workflow processes under the management of the assigned procurement staff and prepare the ZRA for the further development stages of the Batoka Gorge HES.

32. The Risk Rating for Procurement is assessed as “substantial.” Various mitigation measures have been identified to address the identified risks over the life of the project, following which the residual risk would reduce to “Moderate”.

33. The ZRA will receive advice and support on procurement actions through the World Bank’s Country Office but will also address the following measures:

- (a) Develop, publicize, update and monitor procurement plans.
- (b) Institutionalize involvement of technical staff in planning and implementation of procurement with option to outsource additional capacity.
- (c) Additional staff at higher level will be required for more complex and competitive bidding
- (d) Training and outsourcing skills to bridge gaps in and works (construction of dams and related consulting assignments) contracts generally (including works consultants)

- (e) Training plan and capacity enhancement needed for existing staff in competitive procurement and contract management and through establishment of additional staff position preferably at level 5 or 6 equivalent positions to Assistant Accountant or HR officer. The level could be higher if more procurement and complex procurement were to be undertaken on regular basis.
- (f) Improving the packaging and use of framework contracts. Include framework contracts in the procurement guidelines.

34. *Procurement Planning.* The ZRA has developed a procurement plan for the project. This plan has been agreed with the Bank. The procurement plan will be available in the project's database and the Bank's external website. The procurement plan will be updated by the Project Team and submitted for review and clearance by the Bank at least on an annual basis to reflect the actual project implementation needs.

35. The project procurement plan provides the basis for developing a more integrated, formalized process of procurement planning and monitoring based on project objectives, reflecting justifiable quantities, realistic market prices, specific deliverables, etc. that are subject to formal approvals.

36. *Prior Review.* The World Bank will conduct a prior review for all the ZRA procurement, as per the table below:

**Table 1. Prior Review Threshold**

Expenditure category	Contract Value Threshold (US\$)	Procurement Method	Contracts Subject to Prior Review
<b>1. Works</b>	≥ 10,000,000	ICB	All
	≥ 200,000 - <10,000,000	NCB	As in procurement plan
	<200,000	Shopping	None
	All values	Direct Contracting	All
<b>2. Goods and Services (other than Consultants' Services)</b>	≥ 3,000,000	ICB	All
	≥ 100,000 - <3,000,000	NCB	As in procurement plan
	<100,000	Shopping	None
	All values	Direct Contracting	All
	All values	UN Agency	All
<b>3. Consulting Firms</b>	≥ 200,000	QCBS	All
	<200,000	CQS, LCS, QBS	As in procurement plan
		Single Source	All
<b>4. Individual Consultants</b>	≥ 100,000	IC	All
	<100,000	IC	None
		Single Source	All

NOTES:

- Contracts selected on basis of CQS should not exceed US\$200,000 equivalent. This same value will constitute the limit up to which a short list of firms may comprise entirely national firms.
- Short list comprising entirely of national consultants of Zambia and Zimbabwe: Short list of consultants for services, estimated to cost less than US\$200,000 equivalent per contract, may comprise entirely of national consultants in accordance with the provisions of paragraph 2.7 of the Consultant Guidelines. In the case of Engineering & Contract Supervision contracts the short list may comprise of entirely national firms from the participating countries of Zambia and Zimbabwe for cost estimates up to US\$300,000.
- Contracts with a cost estimate below US\$200,000 for motor vehicles only may be procured on basis of Shopping procurement method, whilst for other goods use of shopping procurement method will before contracts estimated below US\$100,000 and below US\$200,000 in the case of works contracts

37. *Procurement Post Reviews (PPRS) and Independent Procurement Reviews (IPRs)*. For compliance with Bank's procurement procedures and based on the assessment of procurement risk for this project which is substantial risk (SR), the Bank will carry out PPRS or IPRS based on a sample of contracts below the prior review threshold in the case of PPRs. The sample of contracts to be reviewed under IPRS will include some contracts which would have been subject of banks prior review. Such review (ex-post and procurement audit) of contracts will be based on a sample of 15 percent. Based on continuing assessment of risk and the success of risk mitigation measures implemented, the sample size may be reduced as risk mitigation measures are successfully implemented. Note that "High Risk" will represent a sample size of 20 percent, "Substantial risk" will represent a sample size of 15 percent, "Moderate risk" 10 percent, and "Low risk" 5 percent. These changes will be communicated to the ZRA as outcomes of the PPR / IPR exercise, which also result in the revisions of the prior review and National Competitive Bidding thresholds. The review thresholds indicated above

38. Procurement post-reviews will be done on annual basis.

#### **b. Frequency of Procurement Supervision**

39. In addition to the prior review supervision to be carried out by the Bank, semi-annual implementation support missions to visit the ZRA and carry out post review of procurement actions are planned.

40. *Information sharing and disclosure requirements*. The ZRA will post on its website the following information: procurement plan, expressions of interest, request for proposals, and bid documents. The bidding results will be made available on the website within a specific period. The names of the evaluation committee members should also be made public through the website. Where works are being carried out, it is important to post visible signs containing the name of the contractor, scope of work being carried out, project cost, and completion dates. Information on all contracts implemented by the ZRA will be regularly updated on the website.

#### ***Environmental and Social***

##### *a: Social impacts*

71. The proposed grant will not finance any civil works but is intended to evaluate the design for the Batoka Gorge HES, any transmission lines required to evacuate the power to both countries and other associated infrastructure that would be included in further development of the Batoka Gorge HES. This will inform development of the required Environmental and Social Impact Assessments to be implemented under the grant, along with Environmental Management Plans (EMPs) and Resettlement Action Plans (RAP), as needed, for each infrastructure investment. These will be carried out separately from the feasibility study to identify issues that need to be addressed in proceeding to the next steps of design, construction and operation, and in sourcing financing for implementation of the project. The project does not in itself extend beyond the undertaking of studies and analysis.

72. The relatively small, confined nature of the Batoka Gorge means that there will be little, if any, resettlement from the reservoir area. However, earlier studies have identified the need for advanced infrastructure which may have associated social impacts requiring appropriate resettlement instruments. This infrastructure includes upgrading of existing roads and construction of new roads to each bank from the main roads linking Livingstone to Lusaka (Zambia) and Victoria Falls to Bulawayo (Zimbabwe). The works previously identified also

include rehabilitation of 9 km of road and the construction of 22 km of new road in Zambia, along with rehabilitation and upgrading of 40 km of road and the construction of 14 km of new road in Zimbabwe. Along with construction of new townships and access roads, there will be a need to construct transmission lines to deliver power to each country's respective power grid. Studies on Transmission System Development were conducted in 2004 and in 2010. Options considered have estimated a range of 60-1060 km of transmission lines for Zambia, and nearly 850 km of transmission lines for Zimbabwe. These will be re-evaluated as part of the activities to be implemented under the grant and appropriate instruments developed as needed. For those where the alignment and impacts are known, resettlement actions plans will be prepared. Where the exact impacts are not confirmed or subject to final decisions by Contractors during construction, such as the final routing of associated transmission lines, a Resettlement Policy Framework (RPF) will be prepared.

73. During the original project plan it was envisioned that each side of the river would include an equal number of community development structures. This community development would provide permanent townships for a permanent workforce of an estimated 1,500 people, including employees of the ZRA, the power utilities, and other government agencies. The community development structures were identified as including the following:

Housing Units:	
• Low Density	50
• Medium Density	100
• High Density	600
Health Clinics	2
Primary Schools	2
Shops	2
Post Office	1
Sports/ Recreation Centers	2
Administration Offices	1

74. Extending the benefits of the project development to benefit local communities is an underlying foundation embedded within the process of project formulation. The social assessment and instruments to be developed under the grant-financed activities include provisions to review and assess the operations and impact of the Zambezi Valley Development Fund (ZVDF). The ZVDF was established in 1997 to enhance the socio-economic status of people displaced during construction of the Kariba Dam in the 1950s. The assessment will include a review of the Operation Guidelines, the portfolio of projects financed to date, their effectiveness and impact, the revenue mechanisms and finances. Based on this evaluation, and taking into consideration the socio-economic assessment of the Batoka Gorge HES and the requirements of the RAPs, the project will assess options to improve the impact of the ZVDF and identified opportunities to enhance the livelihoods of any potentially displaced communities in the project area. This will include a clear indication of all activities, the responsibilities of the different stakeholders involved, a clear timeframe, and cost estimates.

75. Public consultation has been established as an important principle guiding implementation of the Batoka Gorge HES. The Terms of Reference for the ESIA have been consulted during preparation with a series of public meetings held in Lusaka (May 14), Harare



(May 16), Livingstone (April 29), and Victoria Falls (April 30) with a range of participants from private sector, tour operators, government agencies and international NGOs. They have also been disclosed through the InfoShop (February 28, 2014). During preparation of the ESIA an effective, comprehensive public consultation strategy will be prepared to provide the framework for an iterative consultative process during implementation. The strategy will articulate the specific objectives, a list of stakeholders to be consulted, methods for reaching these stakeholders, the scheduling of consultation activities, and how the consultation efforts will be analyzed. Records of interagency and consultation meetings will be maintained, including consultations for obtaining the informed views of the affected people and local non-governmental organizations. The record will specify any means other than consultations (e.g., surveys) that were used to obtain the views of affected groups and local NGOs and minutes will be kept on record for all consultation meetings with project affected persons and included in an annex of the ESIA. These measures will also provide feedback mechanisms to ensure that all relevant materials are provided to affected groups in a timely manner, prior to consultation and in a form and language that is understandable and accessible to the groups being consulted. The procedure of data acquisition, analysis and interpretation itself will also be carried out in a transparent manner and in accordance with accepted international standards and practice.

*b: Environment impacts*

76. The proposed activities to be financed under the grant do not include any civil works. The project is intended to support a comprehensive environmental impact assessment to identify potential impacts and outline appropriate mitigation measures to be implemented during further development of the proposed Batoka Gorge HES. The assessment will take account of previous impact assessments conducted in 1993 and 1998 and provide an updated baseline assessment. The assessment will predict and assess the potential positive and negative impacts, including direct and indirect impacts, short and long-term duration; along with any potential cumulative impacts. This will be done in quantitative terms, to the extent possible, and will include an economic and financial analysis of alternatives. The Terms of Reference for the ESIA have been consulted during preparation with a series of public meetings held in Lusaka (May 14), Harare (May 16), Livingstone (April 29) and Victoria Falls (April 30) with a range of participants from private sector, tour operators, government agencies and international NGOs. They have also been disclosed through the InfoShop (February 28, 2014).

77. The proposed Batoka Gorge HES is situated on the Zambezi River approximately 54 km downstream of the world famous Mosi-oa-Tunya / Victoria Falls and upstream of the existing Kariba Dam. The area is characterized by five major vegetation types, all of which are relatively well represented above the intended full supply level. The steep narrow gorge limits the presence of large mammals, but creates a suitable habitat for a number of important bird species. The environmental assessment will specifically review the previous studies and carry out field investigations to determine the presence of terrestrial wildlife and biodiversity, with special focus on particularly endemic, rare or endangered species, or those species for which the Batoka Gorge area may be of regional or global significance, including the birds Taita Falcon *Falco fasciinucha* and Rock Pratincole *Glareola nuchalis*.

78. Earlier assessments concluded that the impacts associated with development of the Batoka Gorge HES are likely to result from the inundation and loss of natural habitat in the gorge downstream of Mosi-oa-Tunya / Victoria Falls and impacts related to associated construction of associated community assets, access roads, transmission lines and work camps.

This inundation also has the potential to impact on the white-water rafting opportunities below the falls. A specific analysis of alternatives will examine the relationship between dam heights, reservoir operating levels and project configurations in order to mitigate or minimizing any potential environmental and social impacts, including those on whitewater rafting or development of future hydro-electric schemes within the Batoka Gorge.

79. Numerous basin-wide assessments of water management and development within the Zambezi River Basin provide an important context for the assessment of climate resilience and examining the potential cumulative impacts associated with infrastructure development. As part of the efforts to facilitate the process of establishing the Zambezi Watercourse Commission, an Integrated Water Resources Management Strategy was prepared for the Zambezi River Basin in 2007 with financial support from the Governments of Sweden, Denmark and Norway. The World Bank *Multi-Sector Investment Opportunities Analysis of the Zambezi River Basin* (2010) carried out in collaboration with regional bodies and riparian states conducted an economic analysis of the potential infrastructure development of the river basin. This process identified over US\$16b in investments at the pre-feasibility and feasibility stage. The analysis incorporated the results from a water balance modeling conducted in the recent and on-going investment scenarios, dam synchronization, climate change impact and water-energy nexus assessments. These both included an assessment of the water resources for the entire basin to provide a sound basis for development of strategies for effective management in line with the objectives of the ZAMCOM Agreement in promoting equitable and reasonable utilization and the efficient management and sustainable development of the waters of the Zambezi River.

80. The climate of the Zambezi River Basin is controlled primarily by the movement of air masses associated with the Inter-Tropical Convergence Zone (ITCZ). The basin is located along the border of the predominately humid Central Africa region and the mainly semi-arid southern African region. Rainfall is markedly seasonal with a rainy season during November to March (summer) and the dry season from April to October (winter). Rainfall and river runoff of the Zambezi River show high seasonal and annual variability.

81. The IPCC (2001) indicated that the Zambezi River Basin may have one of the most significant responses to climate change due to the resonating effect of increase in temperature and decrease in rainfall on potential evaporation and runoff. This has been highlighted by many scientists and civil society organisations (CSOs) as a major uncertainty for infrastructure development in the Zambezi River. At the same time, the scientific community acknowledges that climate change is inherently an uncertain phenomenon, and future climate projections show much disparity. The effect of climate change will therefore be specifically highlighted in the studies conducted under the proposed grant and are being complimented through a series of parallel analyses.

82. The *Assessment of the Impacts of Climate Change on Multi-sector Investment Opportunities in the Zambezi River Basin* (2011), conducted by the World Bank, indicated that climate change is more likely to reduced runoff than to increase it. Mean results of runoff projections based on 56 alternative GCM scenarios (IPCC AR4) indicated reductions in runoff of about 20% in mid-21th century. The SADC project on *Dam Synchronization and Flood Releases in the Zambezi River Basin* project (2011), financed by the Governments of Germany, United Kingdom and Australia, conducted a thorough review of projected climate change impacts in the Zambezi River Basin. They concluded that projected impacts on flows in the Zambezi River of climate change show large disparity, with the worst scenarios being a reduction in flows of 26-

40%. The Dam synchronization study also conducted an assessment of dam operations, showing the cumulative effects on hydropower production along the Zambezi river basin under different management scenarios.

83. To provide a well-informed risk assessment and risk management plan for the proposed Batoka Gorge HES, the project will also draw on support from the World Bank study on *Addressing the Climate Vulnerability of African Infrastructure*. This is specifically assessing the economic impacts of climate change on large infrastructure, such as hydropower, in the seven largest river basins in Africa. The results will include detailed water balance modeling with WEAP (Water Evaluation and Planning), and impact assessment of a wide range of climate scenarios from the recent IPCC AR4 and AR5, for the Zambezi River Basin. The Bank study will further address the possibility of Robust Decision Making for the design of large hydropower schemes under deep uncertainty in inflows created by the array of climate change projections.

84. The parallel Bank-executed CIWA support to the Zambezi River Basin will conduct a study focused on the *Water-Energy Nexus* of the river basin. The results, anticipated in early 2014, will include LEAP (Long-range Energy Alternatives Planning) modeled power simulations of the Southern Africa Power Pool (SAPP), linked to the WEAP model for Zambezi River Basin. The results will show the feedback mechanisms between the water management and development in the Zambezi River Basin and the power generation in Southern Africa, and will illustrate the tradeoffs between irrigation and hydropower due to limited water resources. The LEAP model will further give estimates of greenhouse gas (GHG) emissions under different development scenarios in the SAPP. These results will inform the feasibility and ESIA studies for Batoka Gorge HES on essential areas such as climate change mitigation potential and cumulative impacts of the proposed scheme.

*c: Other Safeguards Policies Triggered*

85. Operational Policy 7.50, “Projects in International Waterways,” is triggered by the project. Notification of the proposed support to advancing the development of the Batoka Gorge HES was included in the concept presented by the ZAMCOM Secretariat to the ZAMTEC at its first meeting on November 01, 2012. The ZAMTEC includes representatives from all riparian states and the full documentation was presented to the second ZAMTEC meeting in March 2013 and to the first meeting of the Council of Ministers held in Luanda, Angola, in May, 2013, without objection. Written notification to all riparians was also made by the Ministers responsible for energy in Zambia and Zimbabwe on January 22, 2013.

86. The 2000 SADC Revised Protocol on Shared Water Courses requires, under Article 4 Section 1 (a) (Information Concerning Planned Measures) that “State Parties shall exchange information and consult each other and, if necessary, negotiate the possible effects of planned measures on the condition of a shared watercourse”. The Batoka Gorge HES is widely recognized as an important regional project and listed in numerous strategic planning documents. This includes the “Top 10 Macro Strategic Water Infrastructure Projects” in the SADC Regional Water Infrastructure Programme released in 2011. It is also acknowledged as one of the priority projects under the Program for Infrastructure Development in Africa (PIDA).

***Monitoring & Evaluation***

41. Monitoring and Evaluation will be undertaken through the normal operations of World Bank project supervision and evaluation processes. The project level results frameworks will be aggregated to report on progress toward the overall basin level goals and those of CIWA.

42. An annual programmatic review process will be aligned with the meetings of the ZAMTEC, the CIWA Advisory Committee and Bank processes. The review will be used to determine if the objectives of the program remain relevant, review progress, determine whether additional activities should be included in the program and the budget for the upcoming year and/or adjust the program to reflect evolving circumstances within the basin.

43. The following Development Objective Results Indicators are the global indicators of the CIWA Multi-Donor Trust Fund and used for all CIWA projects to measure progress toward enhanced management of water resources and the development of physical investments in a climate resilient manner:

***Indicator 1: US\$ financing mobilized for cooperative management and development of international waters resources projects supported by the project.***

44. This indicator reflects the intended impact of enabling growth through investments in cooperative water resources management and development projects. It reflects the planned and actual investment financing of all projects which CIWA has influenced during one or more stages of project preparation including but not restricted to support for facilitation of investment dialogue, project identification, pre-feasibility, ESIA's, feasibility, transaction negotiation and resource mobilization. Investment financing from all sources will be included.

***Indicator 2: Number of people directly benefiting from improved water resources management and development in target basins through projects supported by the project.***

45. This indicator reflects the planned and actual direct beneficiaries of projects influenced by CIWA and will be disaggregated by gender where possible. Indirect beneficiaries are assumed to be all the people living within the basins that CIWA is supporting.

46. These indicators will be determined from the aggregated results of each Project in the Program. The project level results matrix in each project will be structured to be consistent with the four CIWA Intermediate Results Areas which are:-

- (a) Regional cooperation and integration strengthened.
- (b) Water resources management strengthened.
- (c) Water resources development strengthened.
- (d) Stakeholder engagement and coordination strengthened.

47. The specific projects implemented in line with the CIWA Support Plan for the Zambezi River Basin provide the individual definition for what successful strengthening in each of the result areas is.

**(a) Intermediate Result 1: Regional Cooperation and Integration Strengthened**

48. *Indicator:* Trans-boundary basin institution strengthened to improve regional cooperation based on progress as defined in the CIWA Support Plans (CSP)

- (a) This result aims to foster cooperative trans-boundary institutions for greater regional stability and creation of an enabling environment for shared sustainable growth.

- (b) The indicator is based on the assumption that the existence of a strong basin institution is a good indicator of strong regional cooperation.
- (c) This indicator reflects the focus of CIWA’s long-term engagement with basin institutions in order to more deeply understand and support those institutions and ultimately help foster regional cooperation.
- (d) The progress towards strengthening trans-boundary basin institutions will be assessed on:
  - i. Extent of data-sharing,
  - ii. Extent of public access to information,
  - iii. Facilitation of prior notification,
  - iv. Clarity of evidence for benefits of cooperation,
  - v. Quality of institutional legal and policy frameworks,
  - vi. Effectiveness of national/regional linkages and sustainability of core financing.

**(b) Intermediate Result 2: Water Resources Management Strengthened**

49. *Indicator:* Improved analytic tools, data (including real time monitoring systems) and capacity.

- (a) This result aims to underpin the evidence-based knowledge for planning and decision-making to maximize development opportunities and minimize climate risks.
- (b) The indicator is based on the assumption that if a basin institution has improved analytic tools, data and capacity it will be better able to assess and monitor water resource management status, challenges and opportunities and inform key basin officials and decision-makers. This in turn will enable stronger management of water resources.
- (c) The progress towards improving analytic tools, data and capacity of basin institutions will be assessed on:
  - i. Quality of decision support systems,
  - ii. Extent of monitoring systems (hydro-met) and data collection,
  - iii. Quality of disaster risk management systems,
  - iv. Quality and timely implementation of the basin management plans,
  - v. Monitoring of the state of the basin
  - vi. Quality of policy at national level relating to international waters.

**(c) Intermediate Result 3: Water Resources Development Strengthened**

50. *Indicator:* Number of investment opportunities with regional benefits that have been advanced through CIWA support.

- (a) This result aims to support investments that improve resilience to climate related shocks, enhance food security, and enable countries to follow a lower carbon growth path.

- (b) The indicator is based on the assumption that through a regional perspective, basin institutions will identify and advance opportunities that seek to optimize the regional benefits and reduce the risks of unilateral approaches.
- (c) This indicator will aggregate the number of investment projects that CIWA has influenced to progress at least one step in the project cycle defined as follows: i) Pre-identification (Unlocking Potential) ii) Identification, iii) Pre-feasibility, iv) Feasibility, v) Investment Financing facilitation, vi) Detailed Design, vii) Construction, viii) Commissioning, ix) Ongoing Operations and Maintenance.

**(d) Intermediate Result 4: Stakeholder Engagement and Coordination Strengthened**

51. *Indicator:* Improved engagement with civil society, private sector and academia.

- (a) This result aims to enable greater voice of civil society, private sector and academia in the decision making processes related to cooperative management and development of shared basin resources.
- (b) The indicator is based on the assumption that improving engagement with civil society increases public accountability, demonstrates best practice for safeguards and provides a mechanism for addressing grievances. Furthermore, engagement with the private sector aims to improve competitiveness in procurement and increase the potential for investment financing. Finally, engaging with academia seeks to enhance the long-term development of national professional capacity.
- (c) The progress towards improving engagement with civil society, private sector and academia will be assessed on:
  - i. Clarity of plans and process of engagement,
  - ii. Extent of participation in the project development cycle (including investment reviews, identification of opportunities, pre-feasibility and feasibility activities, project implementation) and
  - iii. Extent of public access to information.

*Role of Partners*

52. CIWA has established two levels to facilitate management and governance of the supported activities. This includes: i) at the CIWA Program Level to guide the strategy and activities of the work of CIWA as a whole (Figure 1); and, ii) at the CIWA Basin Level with specific international river basins and regions which are responsible for the detailed activities within a river basin window (Figure 2).

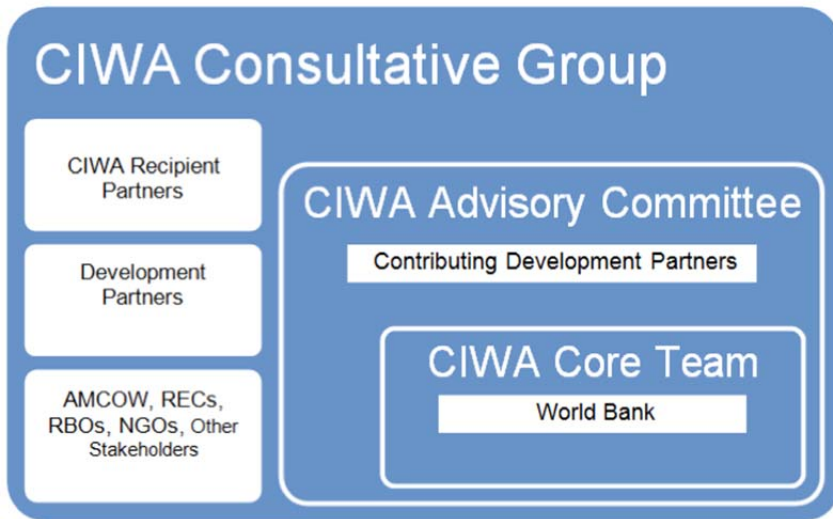


Figure 1: CIWA Structures

undertaken in terms of the agreed plan. The BAC is intended to operate in a manner consistent with existing arrangements. This will ensure coherence and harmonization of support, as well as maximizing the value of financial resources.

54. **The CIWA Basin Advisory Committee** is intended to operate in a manner consistent with the existing ZAMCOM Organs, stakeholder arrangements and ICP bodies. The operating guidelines recognize that the support provided by CIWA to river basins will always be within a wider context of national programs, other development partners, international agencies and regional bodies, many of which will not be contributors to CIWA. The program of CIWA support will be prepared and executed within the context of this broader dialogue with the engagement strategy and projects/activities of each River Basin Window governed by the Basin Steering Committee.

55. The CIWA Basin Advisory Committee for the Zambezi River Basin is seen as a sub-set of the existing structures. These include the SADC Water Strategy Reference Group and the Zambezi-ICP Partnership detailed below.

56. The Southern Africa Development Community (SADC) has established a partnership with International Cooperating Partners (ICPs) to guide cooperation. This cooperation is articulated through the “Windhoek Declaration on a New SADC-ICP Partnership” that was adopted during the April 2006 SADC Consultative Conference. The Windhoek Declaration outlines the overall objective, commitments by SADC and ICPs and the structure for effective dialogue, including

53. Within the individual basin programs, CIWA requires establishment of a CIWA Basin Advisory Committee. This is intended to guide CIWA funded activities in the basin, ensure achievement of objectives, the efficient use of resources and the achievement of the agreed results. The CIWA Basin Advisory Committee is carried out in terms of the MOU between CIWA and the River Basin. The BAC meets at least once a year and operates on a consensus basis to review detailed activities and projects

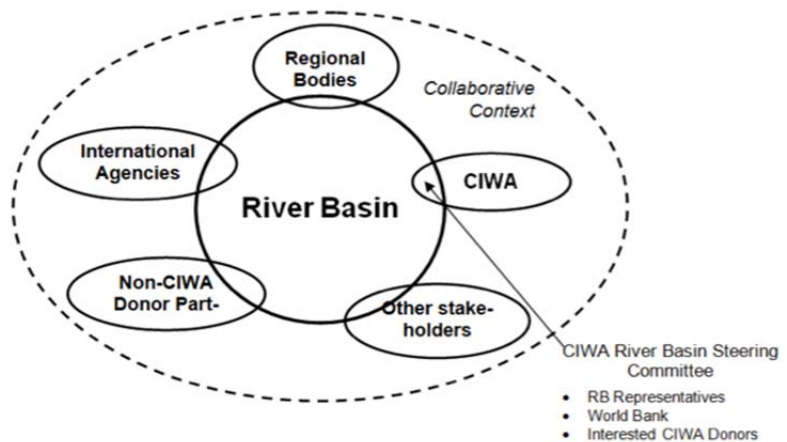


Figure 2: Basin Advisory Committee

areas of cooperation between SADC and ICPs. A review initiated in 2012 was intended to improve the effectiveness of the SADC–ICP partnership, with a view to facilitating an enhanced and more strategic dialogue, while adhering to the priorities and interests of SADC and the ICPs. A key driver for achieving greater aid effectiveness is the concept of thematic coordination groups in core intervention areas as incorporated in the Windhoek Declaration.

57. With this thematic structure, the Water Strategy Reference Group (WSRG) was established to serve as a vehicle for the implementation of the Windhoek Declaration in the SADC Water Sector. This acknowledges water as being a core intervention area and a key instrument in the promotion of regional integration through transboundary water resources in the SADC. The WSRG is intended to contribute to increased aid effectiveness based on the principles of SADC and/or other recipients' ownership, contribute to ICP harmonisation, and alignment of ICP delivery of assistance with regional partners' conditions and rules and regulations, and contribute towards the joint responsibility for the achievement of results on the RSAP. The WSRG is a strategic advisory group to the SADC Secretariat that acts as an interface for policy and technical dialogue between SADC and ICP decision makers. The group also provides input to specific strategic documents and processes. A lead ICP is appointed by the WSRG to reduce transaction costs by recipients and ICPs and to improve the quality and coherence of dialogue and support.

58. Within the Zambezi River Basin, a consultative forum has been established in accordance with the agreed principles of the SADC framework and in line with other basin level consultative forums. The Zambezi-ICP Partnership (ZICP) is a strategic advisory body to the ZAMCOM Secretariat that acts as an interface for policy and technical dialogue between the ZAMCOM Organs and the ICPs. The ZICP Partnership also provides input to specific strategic documents and processes. Within this framework The ZICP Partnership has the following tasks:

- i. Serve as a resource mobilization mechanism, mainly through sharing information on funding gaps.
- ii. Serve as a setting for open dialogue, networking, confidence-building, in order to create shared understanding between the ZAMCOM Secretariat, the ICPs and other stakeholders on strategic issues related to implementation of the Zambezi Strategic Plan.
- iii. Serve as a forum for coordinating support to water related activities in the Zambezi River Basin to avoid overlaps and achieve maximum synergies and complementarities of the assistance provided.
- iv. Serve as a forum to support the exchange of ideas and enhancing knowledge on strategic issues of consultations in relation to the implementation of the ZAMCOM Agreement, in general, and the Zambezi Strategic Plan, in particular. This is primarily to ensure regular and effective institutionalized dialogue at policy and technical levels as well as shape up strategic thinking.
- v. Serve as a platform for exchanging and disseminating information. This includes receipt of technical and financial information on the implementation of the Zambezi Strategic Plan, including relevant ZAMCOM decisions, ZAMCOM Secretariat activities as well as basin-wide and national progress towards the objectives of the ZAMCOM Agreement. The basis of discussion shall be a report from ZAMCOM Secretariat and a consolidated Zambezi-ICP report on current funding.

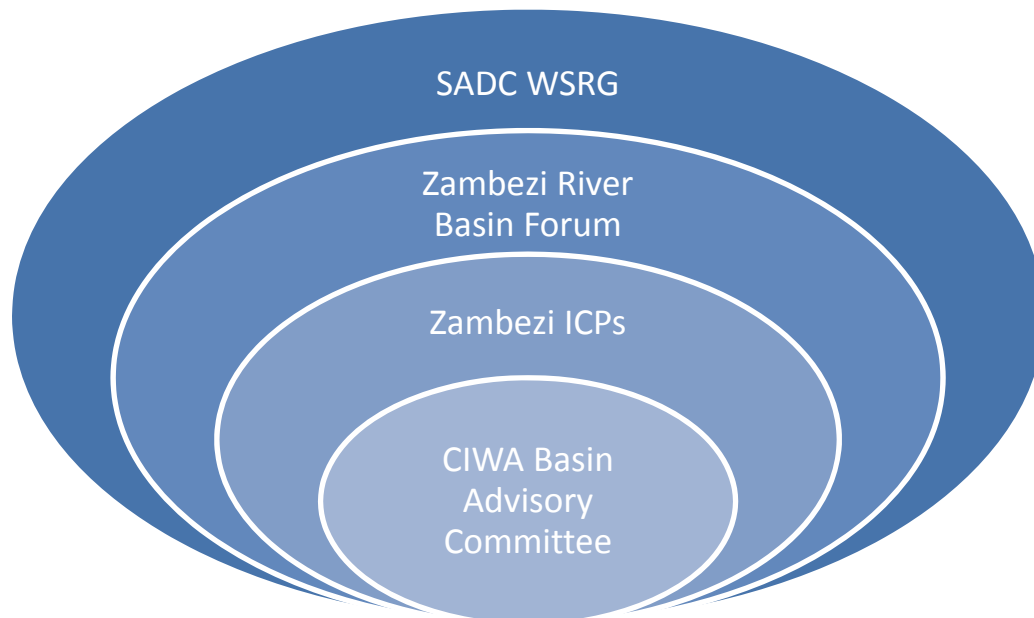


- vi. Serve to enhance effective planning for future interventions thereby balancing the objectives of the Zambezi Strategic Plan with the availability of, and constraints on, ICP funding.
- vii. Serve as a platform where ICPs discuss sustainability in terms of financial support to the Zambezi basin by ensuring that regional cooperating partners take an active role.

59. The CIWA Basin Advisory Committee for the Zambezi River Basin will meet prior to the meeting of ZICP Partnership and the broader Zambezi forum to ensure consensus positions among the members of the Committee (see Figure 3). Composition of the Zambezi River CIWA Basin Advisory Committee may include representatives from: i) riparian states; ii) the river basin organization; iii) CIWA contributing partners; iv) the World Bank; and, v) by invitation, any other interested parties as observer.

60. Responsibilities of the Zambezi River CIWA Basin Advisory Committee include:

- i. Reviewing and agreeing updates to the program of CIWA support at least annually;
- ii. Providing strategic advice and input related to current and potential CIWA support and CIWA funded activities;
- iii. Reviewing and advising on the progress, effectiveness, efficiency, and results of all CIWA funded activities, projects and programs;
- iv. Reviewing all fiduciary, financial management, administrative, M&E and other functions related to CIWA funding, especially where programs are Recipient Executed, and advising how these may be strengthened, modified or rectified as required;
- v. Reviewing institutional arrangements and capacity related to CIWA funded activities and advising how these may be strengthened, modified or rectified as required;
- vi. Promoting donor cooperation and coordination in the respective basin; and,
- vii. Promotion of stakeholder engagement and communications.



**Figure 3:** Consultative mechanisms for the Zambezi River CIWA Basin Advisory Committee

## Annex 5: Operational Risk Assessment Framework

### Zambezi River Basin Development Project (P133380)

#### Risks

##### Project Stakeholder Risks

<b>Stakeholder Risk</b>	Rating	Moderate				
<p><b>Risk Description:</b> Riparians may not support the program due to differentiated distribution of activities and funds across countries and sub-basins, undermining consensus and cooperation.</p> <p>Stakeholder groups (such as local and international NGOs, tourism agents etc.) react negatively to supporting the updated Feasibility Studies for the Batoka Gorge Hydro-Electric Scheme.</p>	<b>Risk Management:</b> Consultation with riparian states during preparation, complimented by notification, has ensured information is available. The full documentation has been presented to the ZAMCOM technical Committee and the Council of Ministers without objection. Updates will be communicated through regular meetings of the ZAMCOM structures. <p>The ToRs for key studies have been consulted and principles established for iterative consultative process during implementation. Consultations have been established as part of an iterative process that will continue during implementation in accordance with a structure consultation plan to be prepared as part of the ESIA.</p>					
	Resp: Both	Status: In Progress	Stage: Both	Recurrent:	Due Date:	Frequency :

##### Implementing Agency (IA) Risks (including Fiduciary Risks)

<b>Capacity</b>	Rating	Low				
<p><b>Risk Description:</b> Limited human resource capacity could delay implementation and undermine the quality of the studies.</p>	<b>Risk Management:</b> An initial assessment has concluded that the ZRA's financial management and procurement capacities are sufficient for the purposes of the recipient-executed grant. Additional support could be provided, as needed, under the grant and where necessary, training will be provided to meet World Bank Recipient Executed financial management and procurement requirements and resources would be available to supplement capacity as needed.					
	Resp: Client	Status: In Progress	Stage: Both	Recurrent:	Due Date:	Frequency :

			s				
<b>Governance</b>	Rating	Substantial					
<p>Risk Description:</p> <p>The studies will recommend the preferred structure for implementation of a multi-billion dollar infrastructure investment and so could be susceptible to governance risks.</p>	<b>Risk Management:</b>						
	Governance structures have been established to ensure official oversight and there is a strong commitment to ensuring a transparent process, informed by previous experience, with Bank assistance to ensure international best practice.						
	Resp: Both	Status: In Progress	Stage: Both	Recurrent:	Due Date:	Frequency :	
	<b>Risk Management:</b>						
Limited procurements subject to internationally competitive bidding with internal oversight and Bank prior review.							
Resp: Both	Status: In Progress	Stage: Both	Recurrent:	Due Date:	Frequency :		
<b>Project Risks</b>							
<b>Design</b>	Rating	Low					
<p>Risk Description:</p> <p>The design is simple and limited to support for studies under an existing institution with the mandated responsibility. The binational nature of ZRA introduces a more complicated political arrangement that could result in some delays.</p>	<b>Risk Management:</b>						
	The governance structures established mitigate risks associated with implementation and have proved effective during preparation. The establishment of the Zambezi Watercourse Commission also provides an enabling environment to advance the project outputs and ensure integration with regional processes and priorities.						
	Resp: Client	Status: In Progress	Stage: Both	Recurrent:	Due Date:	Frequency :	
	<b>Risk Management:</b>						
The ZRA has a dedicated environmental division and carries out regular environmental and compliance monitoring. Tools proposed to be developed under the project will be done in accordance with safeguard policies and enhance the capacity required to integrate sustainable practices at the basin level.							
<b>Social and Environmental</b>							
<b>Social and Environmental</b>	Rating	Moderate					
<p>Risk Description:</p> <p>Although the project will not finance construction of large infrastructure, the financing of feasibility studies for the Batoka Gorge HES could be subject to</p>	<b>Risk Management:</b>						
	The ZRA has a dedicated environmental division and carries out regular environmental and compliance monitoring. Tools proposed to be developed under the project will be done in accordance with safeguard policies and enhance the capacity required to integrate sustainable practices at the basin level.						
	Resp: Client	Status: In Progress	Stage: Both	Recurrent:	Due Date:	Frequency :	
	<b>Risk Management:</b>						
The ZRA has a dedicated environmental division and carries out regular environmental and compliance monitoring. Tools proposed to be developed under the project will be done in accordance with safeguard policies and enhance the capacity required to integrate sustainable practices at the basin level.							

<p>international criticism.</p> <p>The Zambezi River Basin includes a number of important and globally recognized natural habitats and there is a potential back flooding of important white water areas downstream of Victoria Falls.</p> <p>Potential legacy issues associated with Bank's previous support to the construction of the Kariba Dam in the 1950s could emerge as an issue among local communities and international NGOs.</p>	<p>Notification has been made by ZRA in accordance with the provisions of the SADC Protocols, Basin Agreements and O.P. 7.50 on the updated feasibility study and environmental and social assessment.</p> <p>The project includes support to preparation of a comprehensive environmental impact assessment and associated mitigation measures for the proposed Batoka Gorge HES. This includes a review and assessment of the operations and impact of the Zambezi Valley Development Fund established to enhance the socio-economic status of people displaced during construction of the Kariba Dam in the 1950s.</p>					
<p><b>Program and Donor</b></p>	<p>Rating</p>	<p>Low</p>				
<p><b>Risk Description:</b></p> <p>Lack of harmonized agendas among cooperating partners in the basin may lead to a risk of duplication of efforts or inability to prioritize within the program.</p> <p>Lack of sufficient and long-term funding from CIWA of all of the project components may compromise successful implementation.</p>	<p><b>Risk Management:</b></p> <p>A coordination mechanism has been established to align support from ICPs to the Zambezi program and meets bi-annually. Many of the partners are providing support through CIWA to reduction transaction costs and improve coordination and the CIWA Basin Advisory Committee will facilitate alignment and dialogue among the partners.</p> <p>The first phase of the proposed program is fully funded. The CIWA team is soliciting finance for continue phases of the program of support. The success of this will be based in part on the success of the program.</p>					
<p><b>Delivery Monitoring and Sustainability</b></p>	<p>Rating</p>	<p>Low</p>				
<p><b>Risk Description:</b></p> <p>Successful delivery of overall program could be at risk if individual activities fail.</p> <p>Risk of reduction in funding compromising the sustainability of the program and ultimate outcomes.</p>	<p><b>Risk Management:</b></p> <p>Indicators are aligned to overall CIWA program and so re-enforces monitoring and reporting. Continuous dialogue with financiers and cooperating partners to secure long-term funding.</p>					
	<p>Resp: Bank</p>	<p>Status: In Progress</p>	<p>Stage: Both</p>	<p>Recurrent:</p>	<p>Due Date:</p>	<p>Frequency :</p>

<b>Other (Optional)</b>	Rating	Moderate				
<p>Risk Description:</p> <p>The success of the Batoka Gorge Hydro-Electric Scheme depends on the successful implementation of a resolution between Zambia and Zimbabwe to settle the outstanding debt obligations relating to the distribution of CAPCO / Kariba assets. Failure to meet the agreed schedule of repayments could delay actions.</p>	<p><b>Risk Management:</b></p> <p>A series of analyses have been prepared in conjunction with the ZRA management team to identify options for resolution of the impasse. The Bank has already facilitated ministerial discussions which resulted in an agreed repayment schedule. The issue of interest remains outstanding but the project is designed to continue building trust between the two nations and to provide incentives for cooperation.</p>					
	Resp: Both	Status: In Progress	Stage: Both	Recurrent:	Due Date:	Frequency:
<b>5. Overall Risk</b>						
<b>Overall Implementation Risk:</b>		Rating	Moderate			
<p>Risk Description:</p> <p>Studies for the development of the 1600MW hydropower project on the mainstem of the Zambezi River will attract significant stakeholder attention during implementation. Governance structures, including a focusing on an iterative process of consultations, will help to manage associated risks. The process for taking forward the studies into development will also require a high level political process that could be susceptible to electoral changes and require high level commitment to ensure success.</p>						

**Annex 6: Implementation Support Plan**  
**Zambezi River Basin Development Project**

**Strategy and Approach for Implementation Support**

1. The strategy for supporting implementation of the CIWA program in the Zambezi River Basin is guided by the basin level agreements and governance structures and has been developed based on the complex interaction between a series of projects among the riparian states and the corresponding risk profile. The ORAF (Annex 5) rates the overall implementation risk moderate. The bi-national nature of the project, within the regional context of the eight riparian states of the Zambezi River Basin, means that project support requires a high level of frequent engagement with a wide range of different stakeholders. This is supported by partnerships established among the riparian states within the context of the SADC structures and the basin level partnerships. The CIWA MDTF governance structures provide additional supporting structures to guide implementation. The multiple structures further advocate for a local presence and frequent engagement that informs development of the implementation support plan.

**Implementation Support Plan**

2. During the first 18 months of implementation, support will continue to be provided on a regular basis through regionally based on average every three staff, with bi-annual support missions with a larger, comprehensive team of technical specialists. This will provide guidance during implementation of the studies and ensure continuity in the process of advancing the further development of the Batoka Gorge HES. It will also provide the time required for the engagement at the basin level to support other projects within the program series.

3. It is envisaged that the core Bank team will continue to participate in the SADC and Zambezi River Basin level governance arrangements, as well as being represented at the programmatic CIWA MDTF level governance arrangements. This will ensure alignment with various partners and the overall objectives of the CIWA program.

4. In order to provide timely implementation support through missions and on-demand guidance, the majority of the Bank task team, particularly fiduciary and safeguards staff, will continue to be based in the region. The table below indicates the level of effort required annually that will be needed from the Bank to provide implementation support for the project. The resource estimates are based on standard CIWA co-efficients for preparation and supervision of individual projects. These have been discussed and agreed within the CIWA Advisory Committee.

*What would be the main focus in terms of support to implementation during:*

<b>Time</b>	<b>Focus</b>	<b>Skills Needed</b>	<b>Resource Estimate</b>	<b>Partner Role</b>
First twelve months	Study guidance	Full complement outlined below	US\$150k	Advisory & alignment
12-48 months	Transaction structuring	Full complement outlined below	US\$300k	Advisory & alignment

*Skills Mix Required (annually)*

<b><i>Skills Needed</i></b>	<b><i>Number of Staff Weeks</i></b>	<b><i>Number of Trips</i></b>	<b><i>Comments</i></b>
Task Team Leader	10	4	Regional base
International Water Resources	6	2	Washington based
Hydropower specialist	8	2	Washington based
Dam specialist	8	2	Washington based
Legal Infrastructure	6	2	Washington based
Country Lawyer	3	1	Washington based
Financial Transaction Specialist	6	2	Washington based
Environmental Specialist	8	2	Washington based
Social Specialist	8	2	Washington based
Procurement Specialist	4	2	Regional base
Financial Management Specialist	4	2	Regional base
Operations Analyst	6	2	Washington based
Program Assistant	4	1	Regional base
Program Assistant	4		Washington based

***Partners***

<b><i>Name</i></b>	<b><i>Role</i></b>
Denmark	CIWA Basin Advisory Committee
Norway	CIWA Basin Advisory Committee
Sweden	CIWA Basin Advisory Committee
United Kingdom	CIWA Basin Advisory Committee

Annex 7: Map of the Zambezi River Basin

