Batoka Gorge Hydro-Electric Scheme

Zambezi River Authority

Zambezi River Basin

Hydropower Sustainability Assessment Protocol

Contents

In partnership:

THE WORLD BANK IBRD • IDA | WORLD BANK GROUP

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ZAMBEZI RIVER AUTHORITY

Introduction

The hydropower resources of the Zambezi River Basin are central to sustaining economic development and prosperity across southern Africa.

The combined GDP among the riparian states is estimated at over US$100 billion. With recognition of the importance of shared prosperity and increasing commitments toward regional integration, there is significant potential for collective development of the region's rich natural endowments. Despite this increasing prosperity, however, poverty is persistent across the basin and coefficients of inequality for some of the riparian states 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. Appropriate measures are therefore needed to balance these mutual dependencies among different users within a sustainable guiding framework.

The Basin has close to 5,000 MW of installed hydropower generation capacity, with the potential approaching 15,000 MW. Development of the hydropower sector according to the generation plan of the Southern Africa Power Pool (SAPP) would include some 53 projects, over more than 15 years. If the full hydropower potential in the Zambezi River Basin was developed this would have the potential to double the production of firm energy from 22,776 to around 43,000 GWh/year. Average energy production would also double from 30,000 to around 60,000 GWh/year due to the extension of existing facilities and the addition of new infrastructure. This is sufficient to meet all or most of the estimated 48,000 GWh/year demand of the riparian states.

IBRD 37633

SOUTHERN AFRICA
ZAMBEZI RIVER BASIN

- ZAMBEZI SUB-BASIN BOUNDARIES

EXISTING DAMS:

CAHORA BASSA	2,075 MW
KARIBA	1,470 MW
KAFUE GORGE UPPER	990 MW
NKULA FALLS	124 MW
VICTORIA FALLS	108 MW
TEDZANI	90 MW
ITEZHI-TEZHI	80 MW
KAPICHIRA	64 MW

PROJECTED DAMS/ RUN OF THE RIVER FACILITIES:

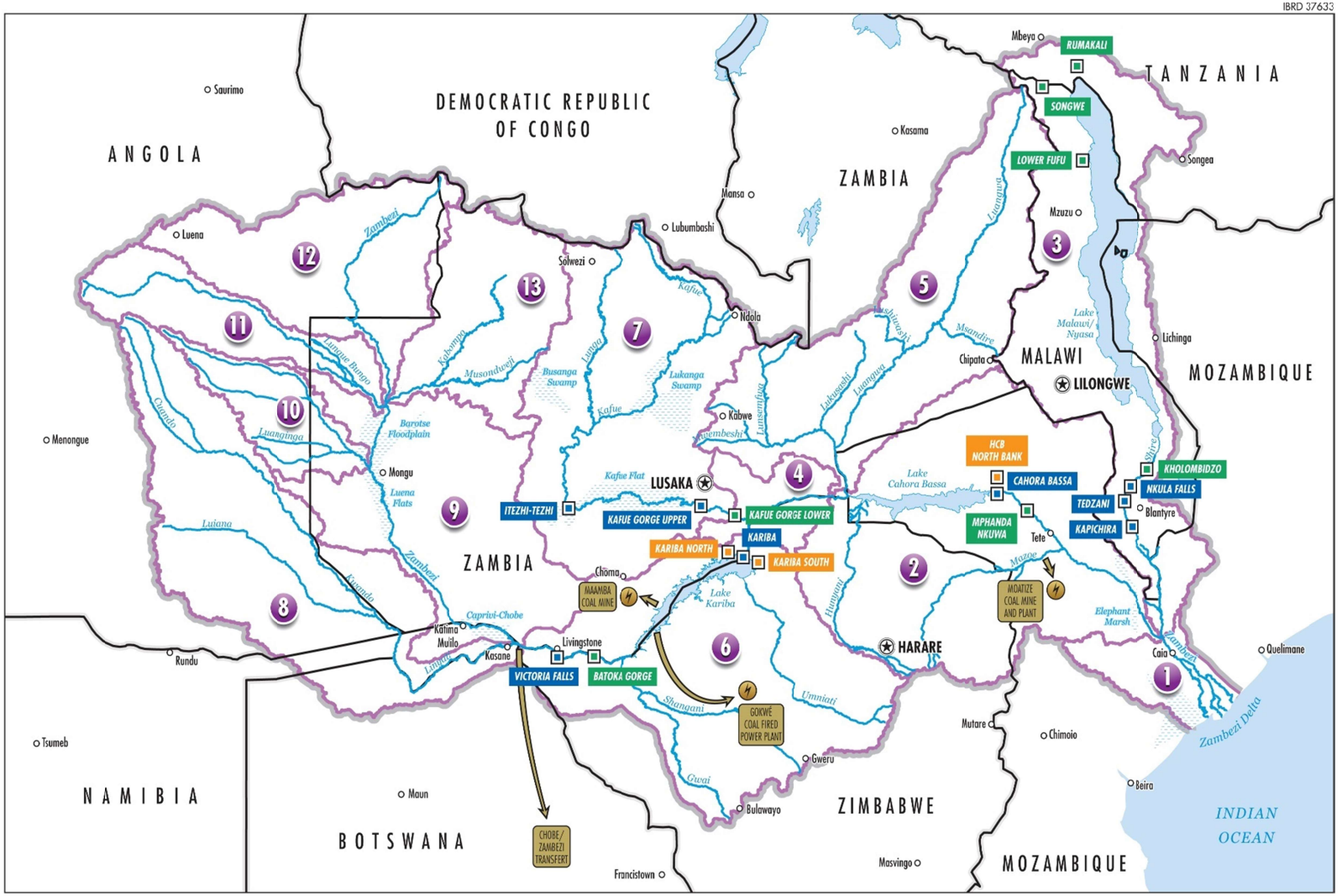
MPHANDA NKUWA	2,000 MW
BATOKA GORGE	1,600 MW
KAFURE GORGE LOWER	600 MW
KHOLOMBIZO	479 MW

EXTENSION:

HCB NORTH BANK	350 MW
KARIBA NORTH	300 MW
KARIBA SOUTH	300 MW

- MAIN PLANNED WITHDRAWALS
- NATIONAL CAPITALS
- MAJOR CITIES
- INTERNATIONAL BOUNDARIES

0 25 50 100 200 Kilometers
0 50 100 150 Miles

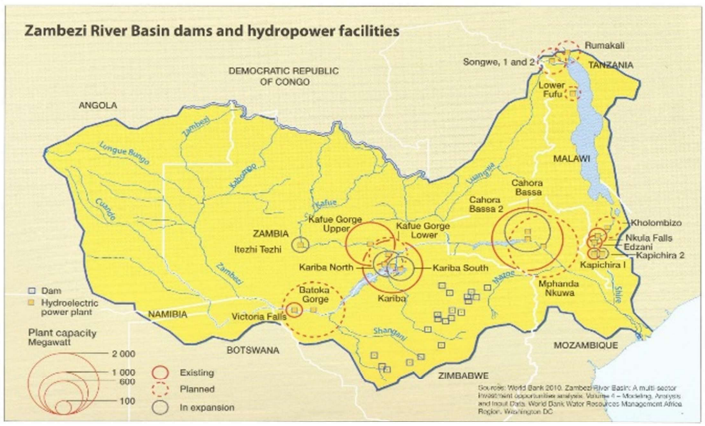


	1 ZAMBEZI DELTA		2 TETE		3 SHIRE RIVER/LAKE MALAWI-NYASA		4 MUPATA		5 LUANGWA		6 KARIBA		7 KAFUE	
	IRRIGATED AREA (ha/year)	EQUIPPED AREA (ha)	IRRIGATED AREA (ha/year)	EQUIPPED AREA (ha)	IRRIGATED AREA (ha/year)	EQUIPPED AREA (ha)	IRRIGATED AREA (ha/year)	EQUIPPED AREA (ha)	IRRIGATED AREA (ha/year)	EQUIPPED AREA (ha)	IRRIGATED AREA (ha/year)	EQUIPPED AREA (ha)	IRRIGATED AREA (ha/year)	EQUIPPED AREA (ha)
CURRENT SITUATION (CS)	7,664	6,998	52,572	35,159	60,960	42,416	21,790	14,200	17,794	10,100	44,531	28,186	46,528	40,158
IDENTIFIED PROJECTS (IP)	106,774	84,053	123,193	72,995	162,126	101,927	30,356	20,060	28,857	16,230	228,919	147,778	67,048	53,768
UPPER LIMIT POTENTIAL (HLI)	231,774	184,053	523,193	272,995	766,755	451,927	30,356	20,060	73,814	41,230	948,825	591,578	104,448	78,768

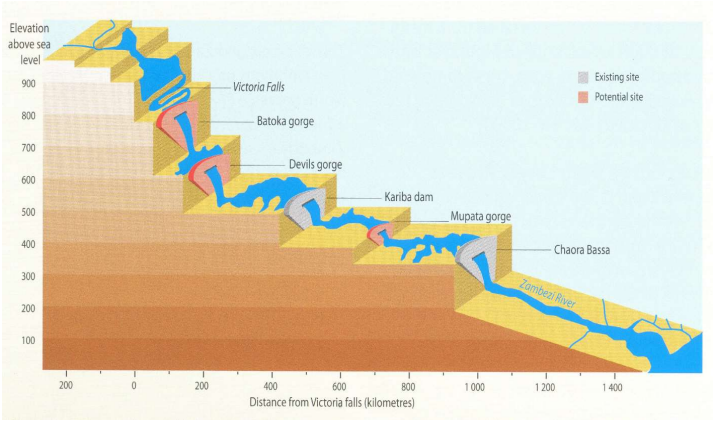
	8 CUANDO/CHOBE		9 BAROTSE		10 LUANGINGA		11 LUNGUE BUNGO		12 UPPER ZAMBEZI		13 KABOMPO	
	IRRIGATED AREA (ha/year)	EQUIPPED AREA (ha)	IRRIGATED AREA (ha/year)	EQUIPPED AREA (ha)	IRRIGATED AREA (ha/year)	EQUIPPED AREA (ha)	IRRIGATED AREA (ha/year)	EQUIPPED AREA (ha)	IRRIGATED AREA (ha/year)	EQUIPPED AREA (ha)	IRRIGATED AREA (ha/year)	EQUIPPED AREA (ha)
CURRENT SITUATION (CS)	765	620	340	200	1,000	750	1,250	1,000	3,250	2,500	595	350
IDENTIFIED PROJECTS (IP)	1,215	920	12,753	7,208	6,000	5,750	1,875	1,500	8,250	7,500	11,314	6,650
UPPER LIMIT POTENTIAL (HLI)	19,215	15,920	30,466	17,208	18,500	15,750	14,375	11,500	20,750	17,500	28,328	16,650

MARCH 2010

Hydropower Facilities in the Zambezi River Basin



Source: SADC/SARDC and others, 2012. Zambezi River Basin Atlas of the Changing Environment.



Source: SADC and ZRA, 2007. Rapid Assessment Report: Integrated Water Resources Management Strategy for the Zambezi River Basin. SADC Water Division, Gaborone.

More than US$16 billion worth of investments have been identified at the pre-feasibility or feasibility stage of preparation within the Zambezi River Basin[1]. Many of these proposed investments were identified long ago and have been in the pipeline for several decades. In addition to the challenges of financial mobilization within numerous competing demands, the geo-political history and contemporary transboundary nature of many of the resources creates a complex environment within which to advance the sustainable development of common pool resources.

Cooperation around the development and operation of hydropower resources within the Zambezi River Basin has the potential to provide substantial benefits.

The framework for this cooperation is provided by the eight riparian states through the "Agreement on the Establishment of the Zambezi Watercourse Commission (ZAMCOM)". The ZAMCOM Agreement promotes the equitable utilization, efficient management, and sustainable development of the Zambezi River Basin. Realizing the vision within this agreement requires a combination of strong institutions to drive the process, data collection and information sharing to inform decision-making, and infrastructure investments to provide for people's basic needs and boost economic growth within a sustainable framework.

In addition to the opportunities for cooperative development, it has been estimated that improved coordination in operation of the hydropower facilities envisaged under the Southern African Power Pool (SAPP) could provide an additional 23 percent of generation over uncoordinated (unilateral) operation.

Even in the absence of the full development scenarios outlined in the SAPP, coordinated basin-wide operation of existing hydropower facilities could increase firm energy production by seven percent over the current situation. The economic value of this basin-wide cooperation in terms of additional generation, with minimal investment, is estimated at over US$585 million over a 30-year period.

There are several additional benefits from improved cooperation beyond the energy sector. The gains from a coordinated basin-wide program could increase agricultural production and job creation, reduce vulnerabilities to hydro-climatic shocks and promote deeper co-operation and regional integration.

The results of a multi-sectoral investment analysis[1] show that improved cooperation around the development of planned investments in the basin have the potential to double the area under irrigation and provide more than 500,000 new jobs, while enhancing economic resilience by reducing the risks associated with floods that generate estimated losses of over US$1 billion per year on average.

The World Bank has been supporting a comprehensive program to strengthen cooperative management and development within the Zambezi River Basin. This program provides regional financing and analytical work that brings together the various commitments within a World Bank-financed portfolio of more than US$2 billion to facilitate dialogue among the riparian states and further drive the development of climate-resilient water resources for sustainable growth.

The application of the Hydropower Sustainability Assessment Protocol in the Zambezi River Basin represents part of this broader program of support to the riparian states toward enhancing development outcomes through improved cooperation and sustainable development.

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

The Hydropower Sustainability Assessment Protocol

The Hydropower Sustainability Assessment Protocol ('the Protocol') is a framework to compare the performance of hydropower projects using a defined set of globally-applicable sustainability criteria[2]. These criteria encompass a range of environmental, social, technical, and financial issues and provide a shared language for improved dialogue on sustainable hydropower.

The Protocol is the product of an intensive and transparent dialogue by the multi-stakeholder Hydropower Sustainability Assessment Forum (HSAF). Constituted in 2007, the HSAF included representatives from industry, civil society, donors, developing country governments, and commercial and development banks. Stakeholder views were solicited from over 20 countries involving 1,300 participants and pilot assessments carried out in 20 countries on six continents to reach consensus on the inclusion of aspects of sustainability and the definition of good and best practice. After completion of the Protocol, the Hydropower Sustainability Assessment Council was established along with a "Management Entity" for day-to-day implementation of the Protocol.

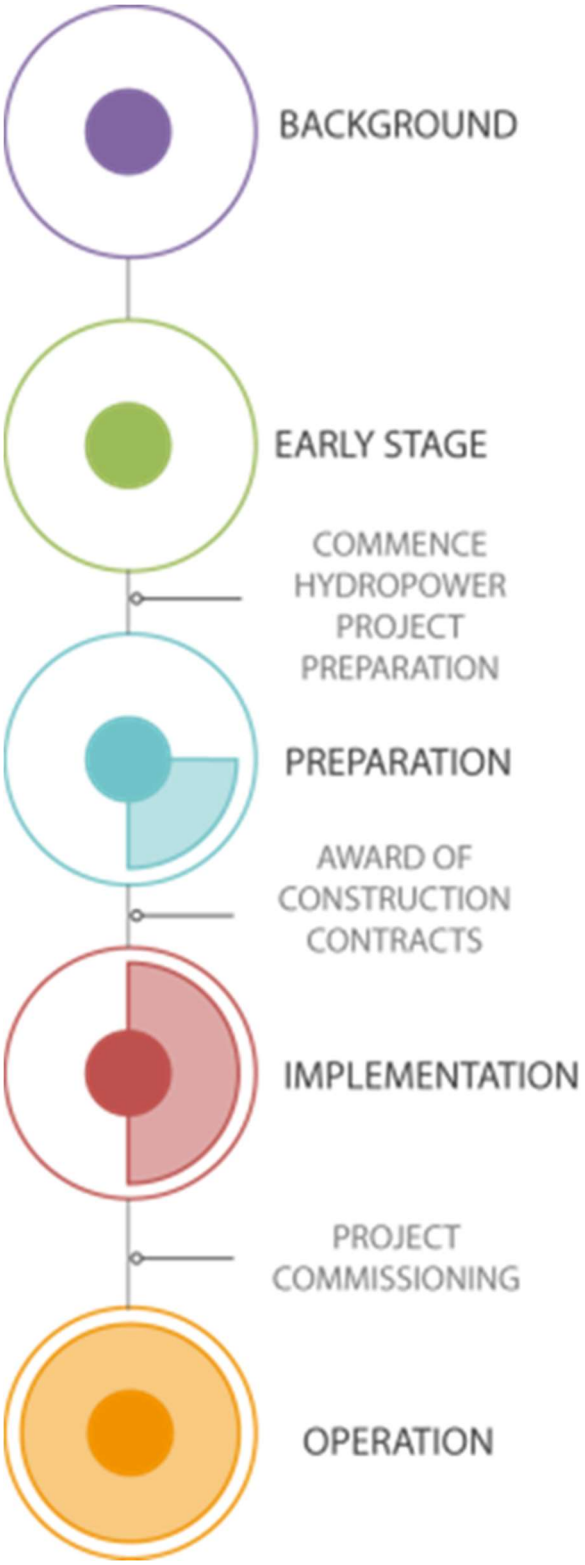
The Hydropower Sustainability Assessment Council consists of seven sectoral chambers. Each chamber represents a segment of stakeholders and ensure continuity in the multi-stakeholder approach that was used to develop the Protocol. The Chambers all elect two representatives to a Protocol Governance Committee (PGC) that provides oversight to the Protocol and its management, while the International Hydropower Association (IHA) serves as the Management Entity (Figure 3).

To reflect the different stages of hydropower development, the Protocol includes four assessment tools. These can be used separately with each corresponding to stages of project development, including: 1) the Early Stage; 2) the Preparation Stage; 3) Implementation; and, 4) Operation.

Each tool is made up of a set of sustainability topics of most relevance to that stage of the project, containing definitions of basic good practice and proven best practice for over 20 sustainability topics that combine environmental, social, technical, and economic/financial perspectives (Table 1).

A Protocol assessment identifies gaps that can be addressed, promoting the continuous improvement of sustainability performance. An assessment provides a platform for dialogue with a range of stakeholders, either through the sharing of results or involvement in the assessment. These may be official assessments carried out by independent IHA-accredited assessors or through informal or self-assessments (Box 1).

To date, over 25 official assessments have been conducted on projects with capacities from 3 to 14000 MW, in all regions of the world.



[2] Further information on the Protocol and its governance can be found on www.hydrosustainability.org

List of Protocol Topics:

	Sustainability Topics	Preparation	Implementation	Operation
Technical	Siting and Design	●		
	Hydrological Resource	●		●
	Demonstrated Need and Strategic Fit	●		
	Infrastructure Safety	●	●	●
	Asset reliability and efficiency			●
Environmental	Environmental and Social Impact Assessment and Management	●	●	●
	Erosion and Sedimentation	●	●	●
	Water Quality	●	●	●
	Waste, noise and air quality		●	
	Reservoir Planning / Preparation and Filling / Management	●	●	●
	Downstream Flow Regimes	●	●	●
	Biodiversity and Invasive Species	●	●	●
Social	Communications and Consultation	●	●	●
	Project Benefits	●	●	●
	Project Affected Communities and Livelihoods	●	●	●
	Cultural Heritage	●	●	●
	Indigenous Peoples	●	●	●
	Resettlement	●	●	●
	Public Health	●	●	●
	Labor and Working Conditions	●	●	●
Business and Economic	Financial Viability	●	●	●
	Economic Viability	●		
	Procurement	●	●	-
	Governance	●	●	●

Box 1. Ways of Using the Protocol

Official assessment. *This is an assessment conducted by a team of independent IHA-accredited assessors. Assessments rely on objective evidence to support findings that are factual, reproducible, and verifiable. At the end of an assessment, the assessors deliver a report using an approved format, including a set of scores indicating performance in relation to basic good practice and proven best practice. Reports are delivered in English, but can be translated.*

Informal self-assessment. *This is an assessment conducted internally within an organization. If the Protocol is used informally in this way, the report can be in any language, a shorter version of the report could be used, or only specific topics assessed. If made public, the report is required to carry a disclaimer stating that it is not an official assessment, in keeping with the Protocol's Terms and Conditions.*

Assisted self-assessment. *This is an informal self-assessment, but accredited assessors work with the developer or operator to advise them on how to interpret and use the Protocol. Using the findings of an assisted self-assessment, assessors can work with the developers, to identify an action plan, setting out the actions they will take to improve sustainability. This approach is very useful for capacity-building, or in situations where the project may have many gaps compared to the Protocol's basic good practice.*

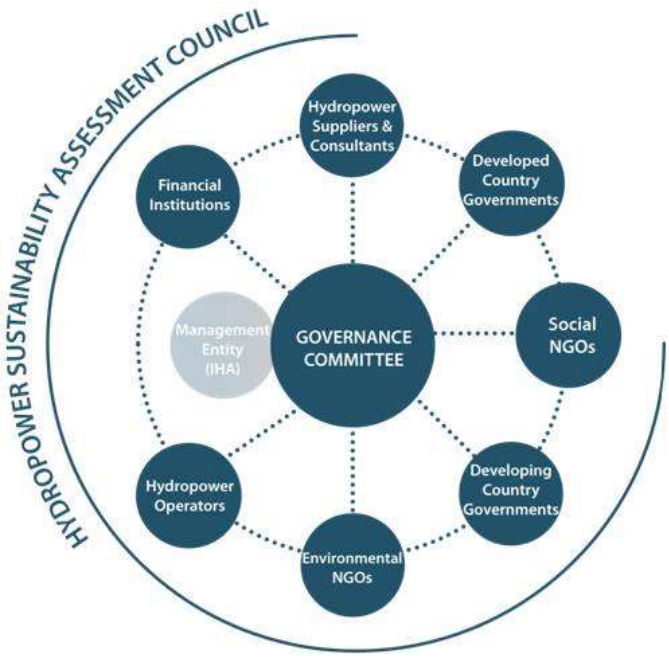
Verification. *An alternative to the assisted self-assessment is for Accredited Assessors to provide a verification of an internal self-assessment. This would require translation of the report into English and stakeholder interviews carried out by the accredited assessor. This process would deliver a critical review of the assessment report and verification of its findings.*

Templates for basic good practice only. *IHA is currently developing approved templates for conducting assessments that focus only on the environmental, social and governance topics at the basic good practice level. The intention is that assessments can be conducted at lower cost due to this lower scope.*

Checklists. *A further option is to develop and use shorter checklists based on the protocol that can be applied quickly and with minimal effort.*

Guidance. *At the most basic level, the Protocol can be used as a guidance document. For example, government agencies can use it to understand the range of hydropower sustainability issues, or the operator's personnel can refer to it in their day-to-day work, for example in developing terms of reference for an EIA.*

Structure of the Hydropower Assessment Council



Source: Hydropower Sustainability Assessment Protocol, 2017
http://hydrosustainability.org

The Project

The Batoka Gorge Hydro-Electric Scheme (HES) is one of a number of hydropower investments conceived as part of a cascade along the Zambezi River. The dam is proposed along the main stem of the river approximately 50 km downstream of Mosi-oa-Tunya (Victoria Falls) and upstream of the existing Kariba Dam Hydro-Electric Scheme.

The project was first identified in 1972 as a result of a study by the Central African Power Corporation (CAPCO), which sought to establish possible power sources that could be developed to meet the power demands of Zambia and Zimbabwe. Further studies in the 1980s focused on a preferred site 12 km upstream of the 1972 site with further feasibility and environmental studies conducted throughout the 1990s. In 2014[3] an update to the engineering assessment and an Environmental and Social Impact Assessment (ESIA) were launched.

The Batoka Gorge HES is proposed to include a 181 meter high, and 720 meter long roller-compacted concrete (RCC) gravity arch dam with a radial-gated spillway. Four intakes in the reservoir will take water through four tunnels (each tunnel would be approximately one kilometer in length) to two surface power plants downstream of the dam on either side of the river bank. The power stations would have an installed capacity of 1,200 MW each for a total installed capacity of 2,400 MW. At the full supply level of 762 mASL, the reservoir is estimated to store 1.39 billion cubic meters of water and have a surface area of 23 square kilometers.

It is envisaged that the Batoka Gorge HES would be implemented over a 7-year period. The total cost for the proposed program is estimated to be in the order of US$1.5 billion for the dam and US$1.1 billion for the costs associated with the two power stations, transmission and electro-mechanical equipment. This does not include annual operational costs or financing costs.

Proposed location of the Batoka Gorge Hydro-Electric Scheme

Photo credit: Douglas Smith

Project	Batoka Gorge
Country	Zambia and Zimbabwe
Location	Zambezi River, downstream of Victoria Falls
Capacity	2400 MW
Annual generation (GWh/year)	10,215 GWh per year
Developer / operator	Zambezi River Authority
Dam height	181 m
Length at crest	720 m
Reservoir area	23 km^2
Units (number, type, MW)	Two plants of 6 x 200 MW for total of 2,400 MW
Associated infrastructure: road(s) (length)	Enabling infrastructure, access roads,
Associated infrastructure: transmission line(s)	330kV in Zambia and 400kV in Zimbabwe

The Batoka Gorge HES is a bilateral project between Zambia and Zimbabwe, configured along the same lines as the Kariba Dam HES. The Zambezi River Authority (ZRA) is mandated with preparation of the project in cooperation with ZESCO, the national power utility in Zambia, and the Zimbabwe Power Company (ZPC). The power plants would be developed by the utilities through Special Purpose Vehicles ("SPVs") while the dam would be owned and operated by ZRA. The World Bank is supporting preparation through a grant from the multi-donor trust fund for Cooperation in International Waters in Africa (CIWA).

The ZRA is a corporation jointly and equally owned by the governments of Zambia and Zimbabwe with responsibility for the development and management of the shared sections of the Zambezi River between the two countries. ZRA is governed by a Council of Ministers consisting of four government ministers (i.e. Zambian and Zimbabwean energy and finance ministers). A 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.

In Zimbabwe, the project falls within the province of Matabeleland North and in the Hwange Rural District. In Zambia, the main project areas fall under the Southern Province in the Kazungula District. Other project affected areas may include those in Livingstone District, Zimba District and Choma District with downstream impacts in the District of Kalomo.

[3] Zambezi River Basin Development Project. World Bank Project Appraisal Document (2014) http://projects.worldbank.org/P133380?lang=en

The Process

ZRA assessed the Batoka Gorge HES using the Preparation stage tool of the Protocol. This was an assisted self-assessment with advice and support for the assessment provided by accredited assessors through a World Bank-supported program 'Application of the Hydropower Sustainability Assessment Protocol in the Zambezi River Basin'. Technical consulting services were provided by the International Hydropower Association (IHA).

The program consisted of introductory training, detailed training for the ZRA team, the assessment (including support during interviews and a site visit from accredited assessors), and review of ZRA's draft report by the accredited assessors. Table 3 provides a summary of the process and the people involved.

This was the first application of the Protocol by ZRA. The process involved collection of verbal, visual and documentary evidence to appraise project processes and performance against the Protocol's Preparation tool scoring criteria.

The assessment team conducted interviews in Lusaka, Livingstone, and Kazungula in Zambia, and Victoria Falls and Hwange in Zimbabwe. Interviews covered the views of the developer, employees, local government, and affected communities. For every topic, the assessors sought to interview those with the responsibilities and most direct understanding of the issues.

ZRA's objectives of the assessment

- To benchmark the proposed project implementation activities to international Basic Good Practice and/or Proven Best Practice that will ensure the sustainable implementation of the Batoka Gorge Hydro-Electric Scheme

- To enhance the risk identification and management mechanism as well as capture opportunities offered by the project in order to optimize corporate image and maximize stakeholder support

- To build internal capacity for the implementation of the Protocol

- To utilize the Protocol in reviewing the implementation and management of the BGHES ESIA studies with a goal of developing a robust and sustainable environmental and social impact plan that ensures stakeholder support, regulatory approval and environmental and social sustainability of project activities

- To utilize the Protocol to enhance corporate governance in ZRA for the development and implementation of the BGHES.

Upstream of the Batoka Gorge HES. *Photo Credit: Marcus Wishart*

Table 3. Key dates and participants

Location and key dates	
Introductory training	Livingstone, 31st May – 1st June 2016
ZRA detailed training	Lusaka, August 2016
Assessment	September 2016 to March 2017
First experience-sharing workshop	January 2017
Mid-assessment visit (interviews, site visit)	30th January – 3rd February 2017
Draft report completed	October 2017
Second experience-sharing workshop	August 2017
Final report completed	November 2017
Third experience-sharing workshop	December 2017
Who was involved?	
ZRA's internal client for the assessment	Christopher Chisense, Director for Water Resources and Environmental Management
ZRA's Lead Assessor	Boniface Mfula, Senior Manager (Water Resources and Environmental Management)
ZRA's Assessors	Mavis Nawa (Water Resources Officer), Samuel Mwale (Hydrology Technician), Pherry Mwiinga (Hydrologist), and Chrispin Namakando (Water Resources Engineer)
Interviewees	About twelve interviews were held in Zambia and Zimbabwe with local communities in the project area, with local government representatives, and with local stakeholders such as tourism authorities
Accredited Assessors	Doug Smith, IHA Consultant
Observers	Kimberly Lyon, Cecil Nundwe and Marcus Wishart of the World Bank

Action Planning for Improved Sustainability

The assisted self-assessment of Batoka Gorge HES was an opportunity for ZRA to understand how the project preparation was progressing in relation to international good practice and to identify areas where improvements could be introduced. It was also an opportunity for hands-on training in the Hydropower Sustainability Assessment Protocol.

The results of the self-assessment, though unofficial, are useful in highlighting areas for management attention and actions that can be taken to improve the project during preparation. The following results are preliminary and are based on the self-assessment by ZRA and feedback from the Accredited Assessors.

ZRA's internal team of assessors, with guidance from Accredited Assessors, determined that the Preparation Stage tool was most appropriate. ZRA's team of assessors determined that the Batoka Gorge HES project met or exceeded the criteria of Basic Good Practice for five topics so far: P-3 Demonstrated Need and Strategic Fit; P-4 Siting and Design; P-7 Hydrological Resource; P-11 Economic Viability; and P-17 Cultural Heritage.

For many of the topics that the assessors determined gaps against Basic Good Practice, these were related to communications and stakeholder engagement. This included both internal and external stakeholders. There were also gaps related to the delays in the ESIA and resettlement planning processes.

An Action Plan has been prepared by ZRA to address the priority gaps. This is focused initially on those gaps against Basic Good Practice before looking at gaps at Proven Best Practice.

An interview during the assessment for the Batoka Gorge HES.
Photo credit: Douglas Smith

Table 4. Initial draft of the Action Plan for the Batoka Gorge HES

	Significant Gaps	Actions
P-1 Communications and Consultation	There is no programme to maintain and sustain stakeholder engagement	Review the 2014 stakeholder engagement plan with respect to feedback mechanism (including review of interim notification plan & process) Develop a stakeholder engagement framework that goes beyond the ESIA process to cover the project life span.
	There are no plans that outline communication and consultation needs and approaches for various stakeholder groups and topics.	Review the adequacy of stakeholder mapping report (stakeholder engagement plan, public participation and identifying interests of specific groups).
P-5 Environmental and Social Impact Assessment and Management	ESIA review deliverables not benchmarked and aligned with the Protocol	Utilise the topics under the Protocol to identify gaps in the ESIA report and revise the ESIA report accordingly.
P-6 Integrated Project Management	Scheduling challenges with regards to inter-dependent deliverables for ESIA and EFS's.	Review the project governance structure and synchronise inter-dependent activities.
P-20 Erosion and Sedimentation	No framework to avoid, minimize, mitigate and compensate erosion and sedimentation issues due to project activities.	Carry out bathymetric survey and confirm sedimentation profiles.

Disclaimer: This assessment is an unofficial assessment as it does not comply with the necessary terms required of an Official assessment. The results of this assessment do not necessarily reflect the quality required of an Official assessment and may not be an accurate reflection of the sustainability of the assessed project.

Key Lessons Learned and Future Use of the Protocol

Choice of tool

The ZRA team used the Preparation Stage tool for the assessment of the Batoka Gorge HES and prepared a report similar to an official assessment. This includes a substantial project description, and findings on both basic good practice and proven best practice for each topic.

Auditing or self-assessment?

The support to the application of the Protocol in the Zambezi River Basin was deliberately structured around self-assessment coupled with training and capacity building. The team conducting the assessment was drawn from staff involved in the review of outputs from the preparatory studies for Batoka Gorge HES. This contrasts with the approach of other utilities, such as ZESCO, whose team more resembled a corporate auditing team not involved in the operations.

Availability of information

The success of the assessment relies on the availability of information. In a preparation stage assessment, the project's environmental and social impact assessments, environmental management plans, and resettlement or land acquisition plans are key items of documentary evidence. The availability of the yet-to-be-completed ESIA, management plans, and resettlement plans has implications for the findings and the team's ability to provide in-depth evaluation in the case of the Batoka Gorge HES.

Delivering a full assessment report requires dedicated effort

Producing a full assessment report proved to be challenge. Unlike an official assessment with dedicated Accredited Assessors, a self-assessment often relies on the developer's or operator's own staff to take on the role of internal assessor in addition to their normal responsibilities. In the case of the self-assessments under the Zambezi River Basin Program, all the operators chose to prepare substantial assessment reports in a style similar to an official assessment. While this helps the operators gain a deeper understanding of the Protocol and how to carry out an assessment, it may not be practical to do this on a continuous basis. This points to the need for a more concise, checklist style of reporting rather than a long and detailed full assessment report, particularly if it is to form the basis of a regular reporting tool.

Interviews require good preparation

In a Protocol assessment, assessors arrive at credible findings by collecting different types of evidence, including interviewing a diverse group of stakeholders. Project staff are among the most important stakeholders as they are most knowledgeable about the project. During the self-assessments, the internal assessors needed to interview project staff, including their own colleagues and sometimes their superiors. This can be challenging, especially on topics the interviewers are themselves very knowledgeable as their questions can give the impression they do not already know the answers. This can pose a risk of embarrassment and make it difficult to ask critical questions.

It can also be a challenge for operator/developer staff to interview external stakeholders as these stakeholders can be genuinely confused about the purpose of the interview. In the affected communities, for example, an interview for a Protocol assessment can draw large groups from the community, who are interested to learn about project progress or who have unresolved issues to raise. This can be very helpful to the assessor to get inputs from several different stakeholders at one time, but it can also make it difficult to ask follow-up questions, and there may not be enough time to get through the range of questions the assessor prepared in advance.

Conducting interviews for a Protocol assessment is a skill, which improves with practice. Throughout the process, many of the assessors proved that they were excellent interviewers by preparing questions related to the Protocol's criteria in advance, asking follow-up questions, identifying documentary evidence during the interviews, and summarizing the key points carefully at the close of the interview. It also helps to explain as clearly as possible the purpose of the interview and encourage interviewees to express their views openly.

Combining training and assessment

Continuity is important to sustaining the process and building capacity. There were long periods between the initial training and the mid-assessment visit by Accredited Assessors (which coincided with site-based interviews), as well as between the mid-assessment and delivery of the report. While intended to allow time for analysis of information and preparation of reports, future self-assessments should consider an initial round of internal interviews that can be arranged quickly immediately following the training on the Protocol. The site visit and interviews with external stakeholders can then be arranged later to maintain momentum and distribute commitments over time.

Objectivity

It is inevitable in a self-assessment or internal audit that there would be some loss of objectivity compared to an independent official assessment. There was a tendency to over-score and significant gaps against basic good practice were reported against proven best practice in order to deliver a higher score. This may be driven partly by the possibility of the assessors' reluctance to present critical findings to their managers or to question the project. Solutions to this may include: review of the assessment reports by Accredited Assessors; review of initial drafts by a second internal assessor; and careful selection of the assessors, among others.

Future use of the Protocol

As part of the continued application of the Protocol in the Zambezi River Basin, a number of follow-up activities have been proposed:

- Development of annual project performance summaries across the basin for discussion within the JOTC and ZAMCOM;
- Review and integration of elements from the Protocol in Environmental and Social Management Systems;
- Undertaking official assessments for existing facilities under operation;
- Integrating elements of the Protocol into the assessments and management plans for new projects.

Acknowledgements

This assisted self-assessment was carried out as part of a broader World Bank Technical Assistance program in the Zambezi River Basin and was led by a team from the Global Water Practice, including: Marcus Wishart (Team Leader), Kimberly Lyon (Water Resources Analyst), and Cecil Nundwe (Water Resources Specialist). Technical services were provided by the International Hydropower Association Sustainability Ltd. with training and facilitation by Douglas Smith (Accredited Assessor), Aida Khalil (Accredited Assessor), under the guidance of Frank Faraday (Sustainability Program Manager), and Cameron Ironside (Sustainability Director).

The Joint Operations Technical Committee of Dam Operators in the Zambezi River Basin (ZAMDO-JOTC) is acknowledged for providing a forum for regional collaboration on issues relating to hydropower sustainability in the Zambezi River Basin. The program was only possible because of the interest and enthusiasm of the members of the ZAMDO-JOCT, including the participating dam operators: the Zambezi River Authority, ZESCO, and Hidroeléctrica Cahora Bassa, along with other contributing stakeholders in the basin, including: the Zambian Water Resources Management Authority (WARMA), Zimbabwe Power Company (ZPC), Zimbabwe National Water Authority (ZINWA), Administração Regional de Águas do Zambeze (ARA-Zambeze) in Mozambique, and the Zambezi Watercourse Commission (ZAMCOM) Secretariat.

The team from the Zambezi River Authority who carried out this assessment of the Batoka Gorge Hydroelectric Scheme was comprised of Mr. Boniface Mfula (Sr. Manager, Water Resources and Environmental Management); Mr. Pherry Mwiinga (Hydrologist); Mrs. Mavis Nawa (Water Resources Office); Mr. Chrispin Namakando (Water Resources Engineer); and Mr. Samuel Mwale (Hydrologist Technician). The assessment was carried out with the support and guidance of Eng. Munyaradzi Munodawafa (Chief Executive) and Christopher Chisense (Director, Water Resources and Environmental Management).

This program was financed through a grant from Sweden to the Kariba Dam Rehabilitation Project and the Water Partnership Program as part of the broader Zambezi River Basin Program convened through the multi-donor trust fund for Cooperation in International Waters in Africa (CIWA).

World Bank. 2018. Zambezi Hydropower Sustainability Protocol Assessment: The Batoka Gorge Hydro-Electric Scheme. Washington, DC: World Bank. http://documents.worldbank.org/curated/en/574651518042899815/Batoka-Gorge-Hydro-Electric-Scheme