

Hydropower Sustainability Tools

Better hydro for biodiversity and people

February 18, 2020

João Costa, IHA Sustainability





Contents

- | Background
- | Global uptake
- | Beyond project level
- | Opportunities and challenges

Guidelines



Assessment tools



**Hydropower
Sustainability**
Assessment Protocol



Contents

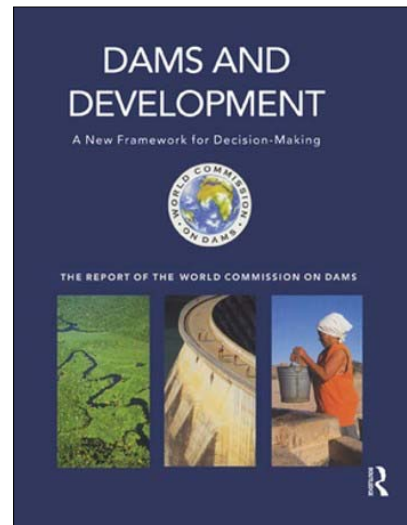
| Background

- Global uptake
- Beyond project level
- Opportunities & challenges

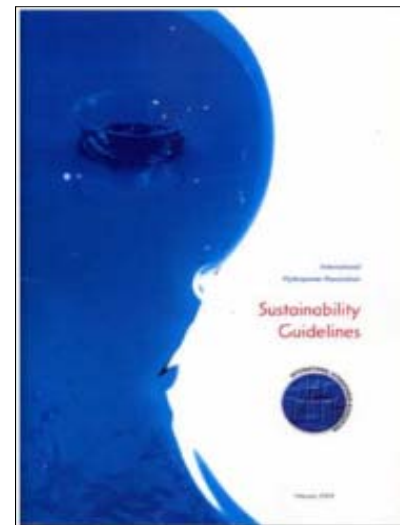
Contents

| Background

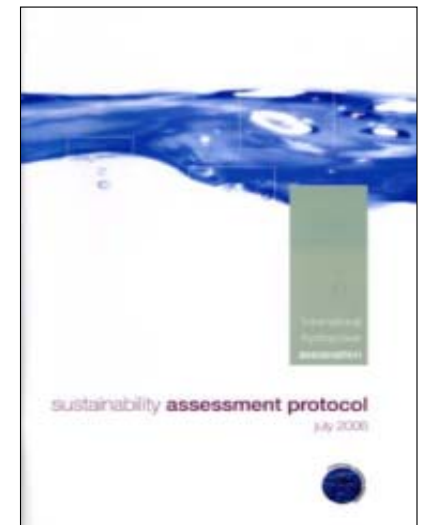
- Global uptake
- Beyond project level
- Opportunities & challenges



2000



2004



2006

Hydropower
Sustainability
Assessment Forum



2007

2010



2010



2018

Define good practice



Measure performance



Contents

| Background

- Global uptake
- Beyond project level
- Opportunities & challenges

Social



- Communications and consultation
- Project benefits
- Communities and livelihoods
- Resettlement
- Indigenous peoples
- Labour and working conditions
- Public health
- Cultural heritage

Environment



- Biodiversity and invasive species
- Erosion and sedimentation
- Water quality
- Waste, noise and air quality
- Reservoir management
- Downstream flow regimes
- ES assessment and management
- Climate change mitigation and resilience

Technical



- Demonstrated need and strategic fit
- Siting and design
- Hydrological resource
- Asset reliability and efficiency
- Infrastructure safety

Economic



- Governance
- Procurement
- Integrated project management
- Financial viability
- Economic viability

Contents

| Background

- Global uptake
- Beyond project level
- Opportunities & challenges

Cross cutting issues

Human Rights

Livelihoods

Multi-Purpose Projects

Transparency

Legacy

Integrated Water Resource Management

Gender

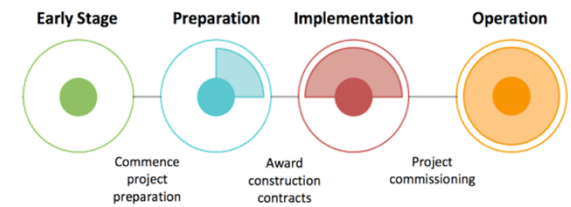
Transboundary

Grievance Mechanisms

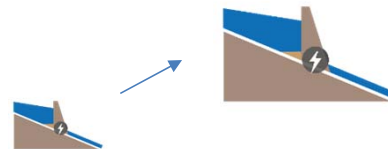
Comprehensive



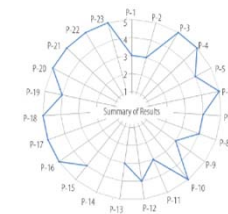
All stages



All projects



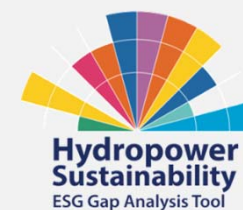
Performance



Contents

| Background

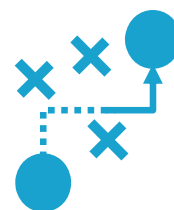
- Global uptake
- Beyond project level
- Opportunities & challenges



Cost and time effective



Access to climate bonds



Action Plan



Consistent in quality and content

Contents

| Background

Global uptake

Beyond project level

Opportunities & challenges

Multi-stakeholder governance



Contents

| Background

- Global uptake
- Beyond project level
- Opportunities & challenges

Contents

| Background

Global uptake

Beyond project level

Opportunities & challenges



Joerg Hartmann

Joerg holds a PhD in environmental and development economics. From 1998 to 2007, he worked for Germany's development bank KfW on water and natural resources management. In his last three years at this bank, Joerg was country director for Tanzania and chaired the water donors group, which pooled investment resources to reach Tanzania's MDGs on water. From 2007 to 2011, he led WWF's global hydropower and water security work, both at the policy level and through field support for WWF's river basin programmes. Joerg was a member of the Hydropower Sustainability Assessment Protocol between 2008-2010, has participated in a number of Protocol assessments, and previously chaired the Governance Committee of the multi-stakeholder Hydropower Sustainability Assessment Council. Joerg now works as an independent consultant for sustainable water resource solutions.

joerg.hartmann.water@gmail.com

Simon Howard

Simon is a Senior Environment Consultant with Mott MacDonald. He holds a Masters degree in Environmental Policy from Oxford University, and a Bachelors Degree in Environmental Science from Edinburgh University. Simon has 10 years of experience in international development, environment and social impact assessment and engineering. Simon has particular experience in the renewable energy sector having trained as a mechanical and electrical engineer with a leading London based consultancy. He went on to work for a number of years with bilateral and multi lateral donors developing rural electrification projects in South East Asia and the South Pacific. Simon has delivered training on the Hydropower Sustainability Assessment Protocol to 20 IHA Sustainability Assessment teams in Ghana, Laos, Iceland, Columbia, Canada, Nepal, Brazil and France.

Simon.Howard@mottmac.com

Helen Locher

Helen has played a leading role in development and implementation of the Hydropower Sustainability Assessment Protocol. Helen led a number of assessments on early Protocol versions between 2005-2008, initiated and led development of the Sustainable Hydropower Website (www.sustainablehydropower.org), coordinated the Hydropower Sustainability Assessment Forum (2008-2010), developed the training materials for IHA Sustainability Partners and Accredited Assessors with the 2010 Protocol, and has undertaken a number of assessments with the 2010 Protocol. During her career, Helen has participated in and led Protocol assessments in Australia, Brazil, China, Colombia, Iceland, India, Kazakhstan, Laos, Malaysia, Papua New Guinea, and South Africa. Helen holds a Bachelor degree in Earth Science, a Master degree in Environmental Science, and a PhD in Civil Engineering (focused on mining wastes and sediment transport downstream of a hydropower station). Helen worked for Hydro Tasmania between 1997-2015, where she developed and managed Hydro Tasmania's aquatic environment program, led the environmental and social assessment and management process for changes to hydropower operations arising from connecting Hydro Tasmania into the mainland electricity market, and held various senior environment and sustainability roles. Helen has also served for nine years on Tasmanian government boards relating to resource planning and development and environmental protection. In 2015 she was honored with the IHA's Mosonyi Award for excellence in hydropower, recognizing her significant contributions to advancing sustainable hydropower on a global scale.



Beyond project level

Evidence-based approach

Review documents



Visual inspection



Interviews



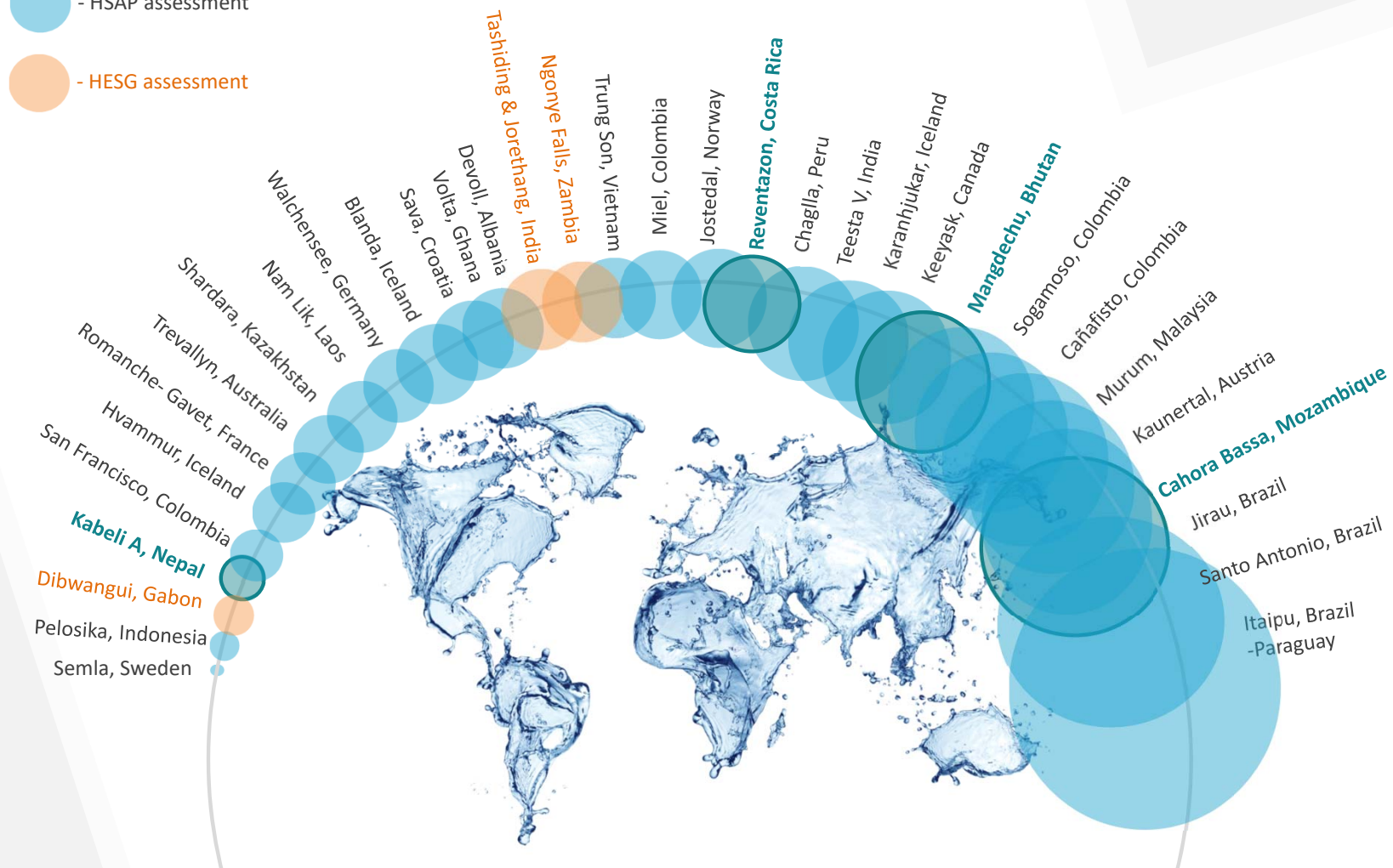
Contents

| Background

- Global uptake
- Beyond project level
- Opportunities & challenges

Official assessments

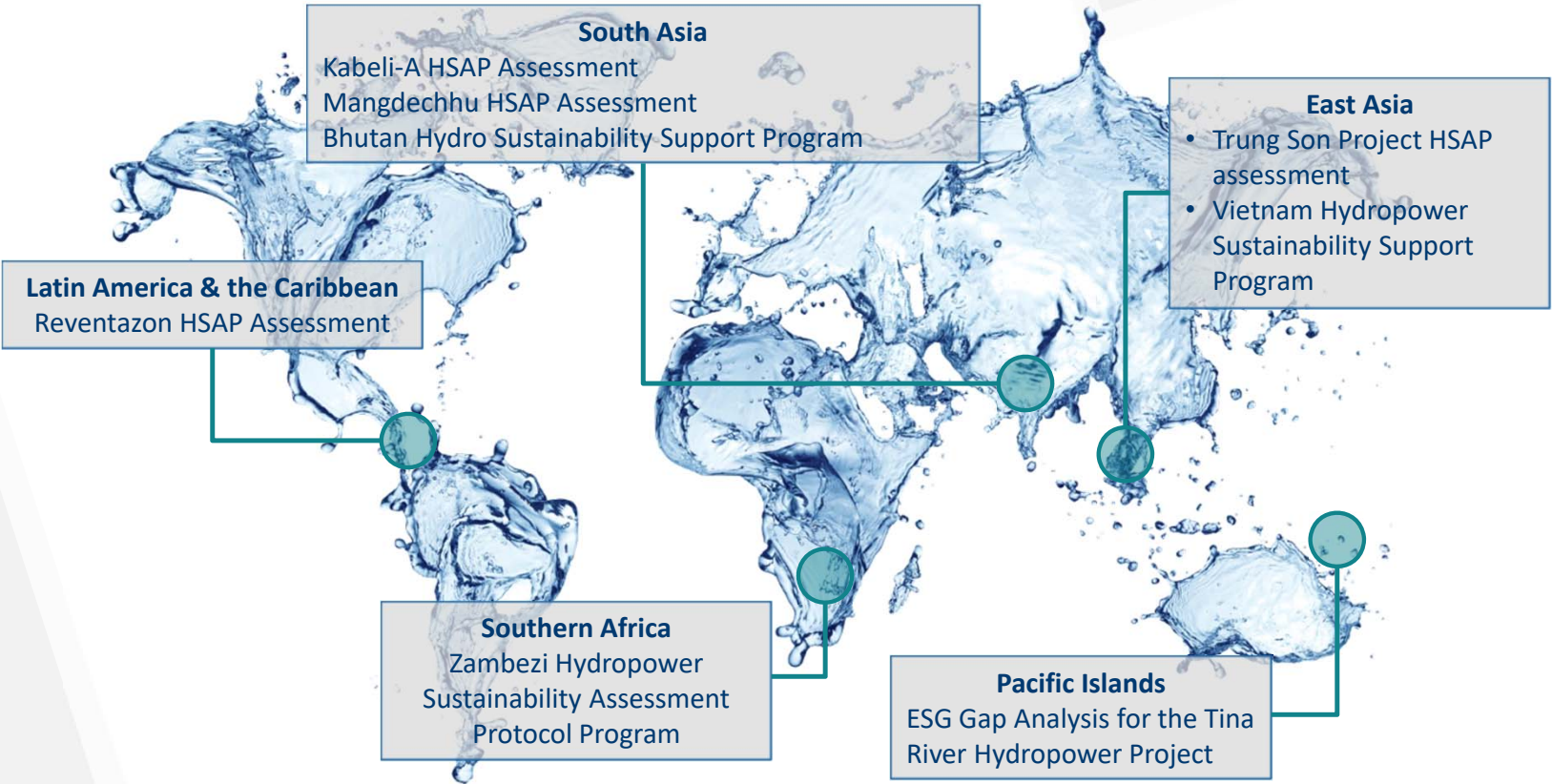
- HSAP assessment
- HESG assessment



Contents

- | Background
- | **Global uptake**
- Beyond project level
- Opportunities & challenges

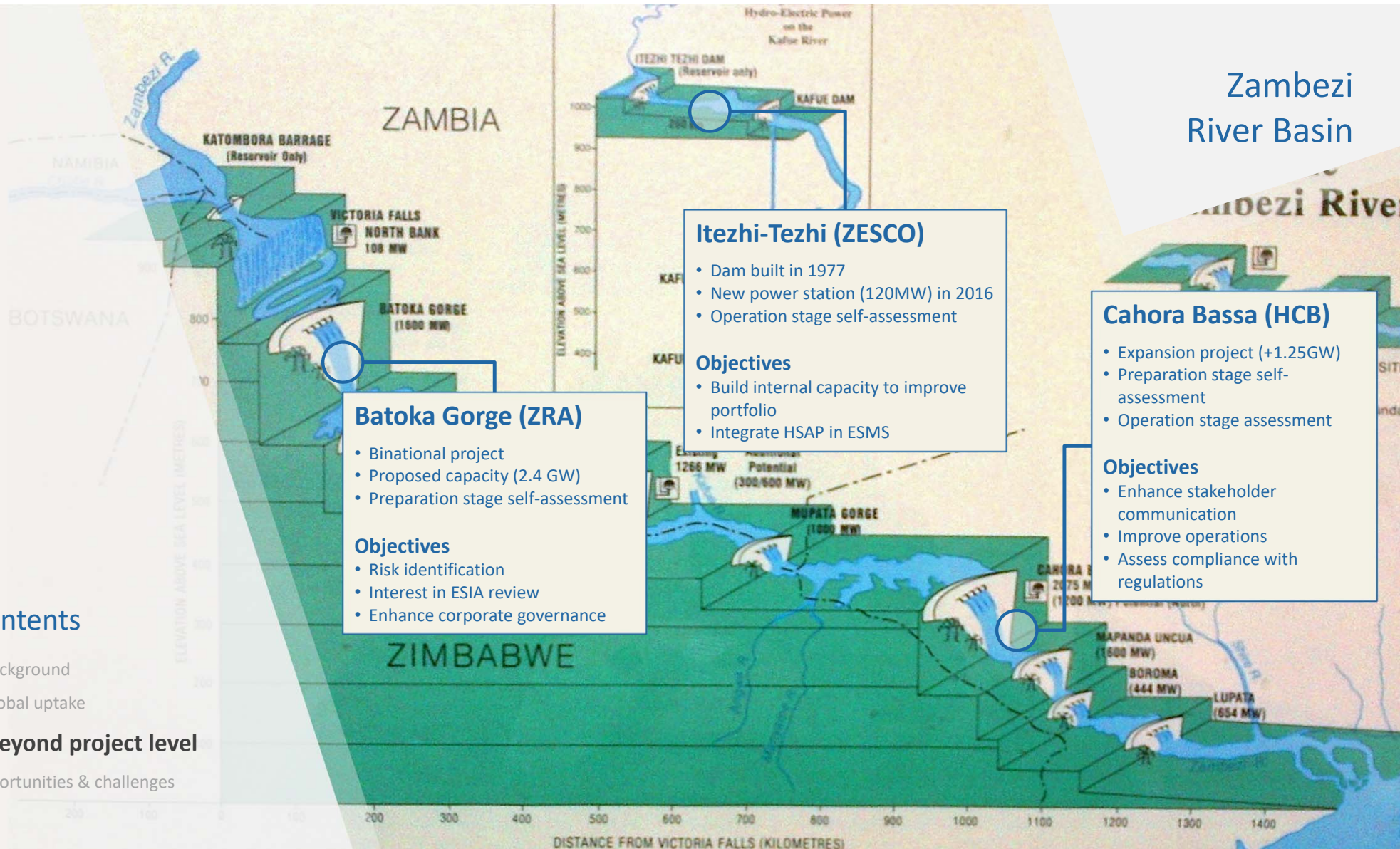
Beyond official assessments
World Bank's experience



Contents

- | Background
- | **Global uptake**
- Assessment experience
- Opportunities & challenges

Zambezi River Basin



Batoka Gorge (ZRA)

- Binational project
- Proposed capacity (2.4 GW)
- Preparation stage self-assessment

Objectives

- Risk identification
- Interest in ESIA review
- Enhance corporate governance

Itezhi-Tezhi (ZESCO)

- Dam built in 1977
- New power station (120MW) in 2016
- Operation stage self-assessment

Objectives

- Build internal capacity to improve portfolio
- Integrate HSAP in ESMS

Cahora Bassa (HCB)

- Expansion project (+1.25GW)
- Preparation stage self-assessment
- Operation stage assessment

Objectives

- Enhance stakeholder communication
- Improve operations
- Assess compliance with regulations

Contents

| Background

| Global uptake

| **Beyond project level**

Opportunities & challenges

Zambezi River Basin

Key learnings from basin-level approach

- Bring to the surface common threads among different operators
- Foster transboundary or regional collaboration
- Knowledge-sharing and mutual accountability

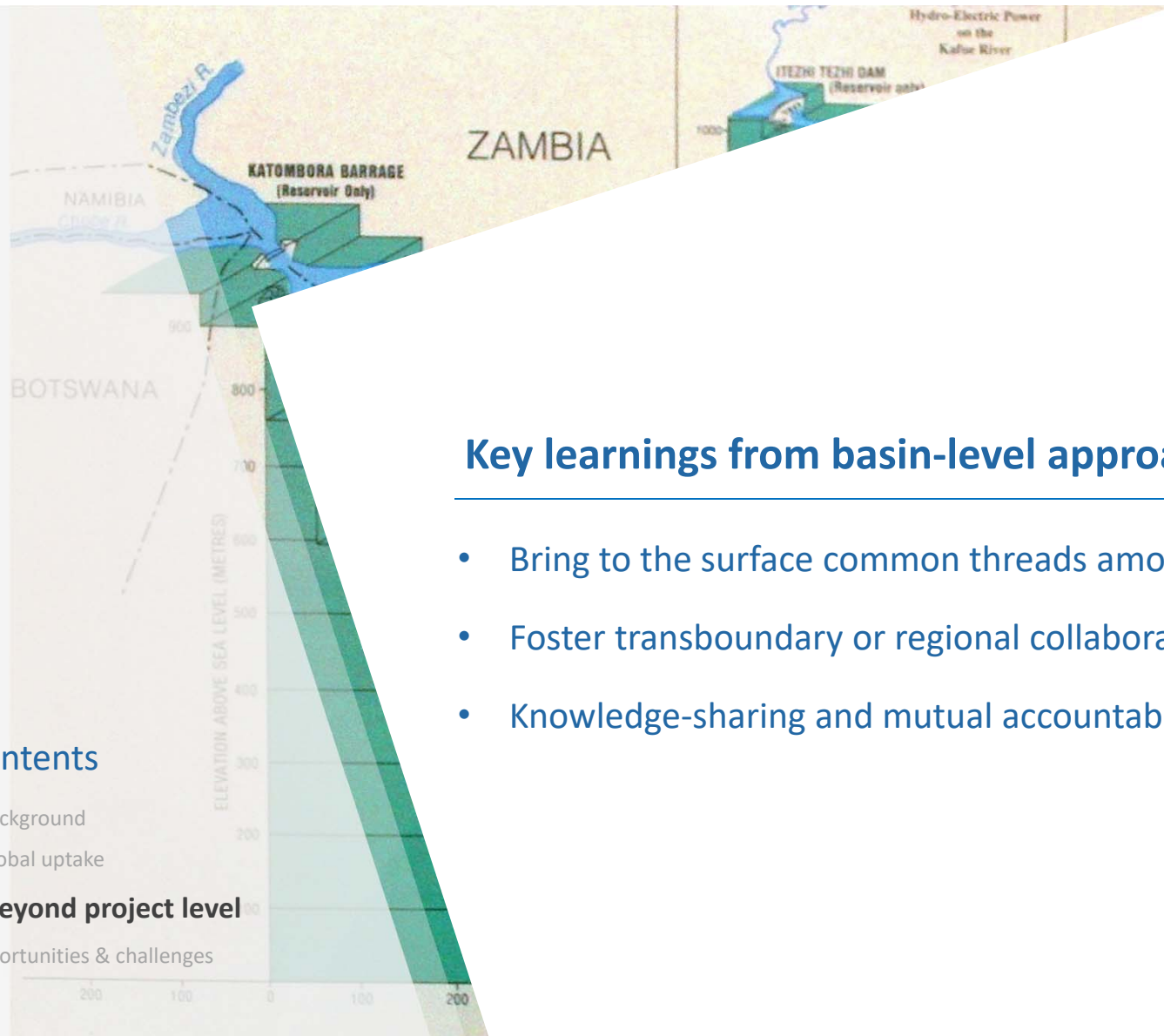
Contents

| Background

| Global uptake

| **Beyond project level**

Opportunities & challenges



The assessment

- **Developer:** confidential
- **Date:** 2016
- **Project Stage:** Implementation

Findings under the topic: ES Issues Management

- There has been no Cumulative Impact Assessment or Strategic Environmental Assessment (SEA) for current and proposed hydropower and other development in the river basins.
- Cumulative impacts are relevant to this project, in the project area arising from multiple construction activities (including the hydropower project and major roadworks) and also from a basin perspective with multiple planned hydropower projects.
- The lack of proper scoping of cumulative impacts leads to reactive management of environmental and social issues, and may in turn lead to significant cumulative impacts in the project area, basin and/or downstream being “missed”.
- The weaknesses identified in the EIA and the lack of scoping of cumulative impacts constitute a significant gap against the criteria for basic good practice.

Contents

- | Background
- | Global uptake

| **Beyond project level**

Opportunities & challenges

Project-level assessment + basin-level planning

- An assessment can highlight the need for an SEA or basin level study
- Coordinated assessments across the river basin can inform an SEA or river basin planning
- Assessments after an SEA or river basin planning could contribute in the project supervision and verification of conformance/compliance

Contents

| Background

| Global uptake

| Beyond project level

| **Opportunities & challenges**

Thank you

João Costa

jc@hydropower.org

Working with IHA:

- | Training across sectors: private, government, consultant, MDB
- | Managing capacity building programs in developing countries
- | Assisting developers in assessments

To learn more about training and enquire about assessments, please visit:

www.hydrosustainability.org

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