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Hydropower & Sustainability

Global Governance in the Field of Hydropower

Sebastian Gebauer

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Things I want to Discuss

1. What is Hydropower?
2. Global Relevance of Hydropower
3. Global Governance and Advocacy Coalitions
4. The World Commission on Dams
5. The Hydropower Sustainability Assessment Protocol

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What is Sustainability?

„Sustainable development is development that meets the needs of the present without compromising the ability of future generations to meet their own needs.” Our Common Future, 1987

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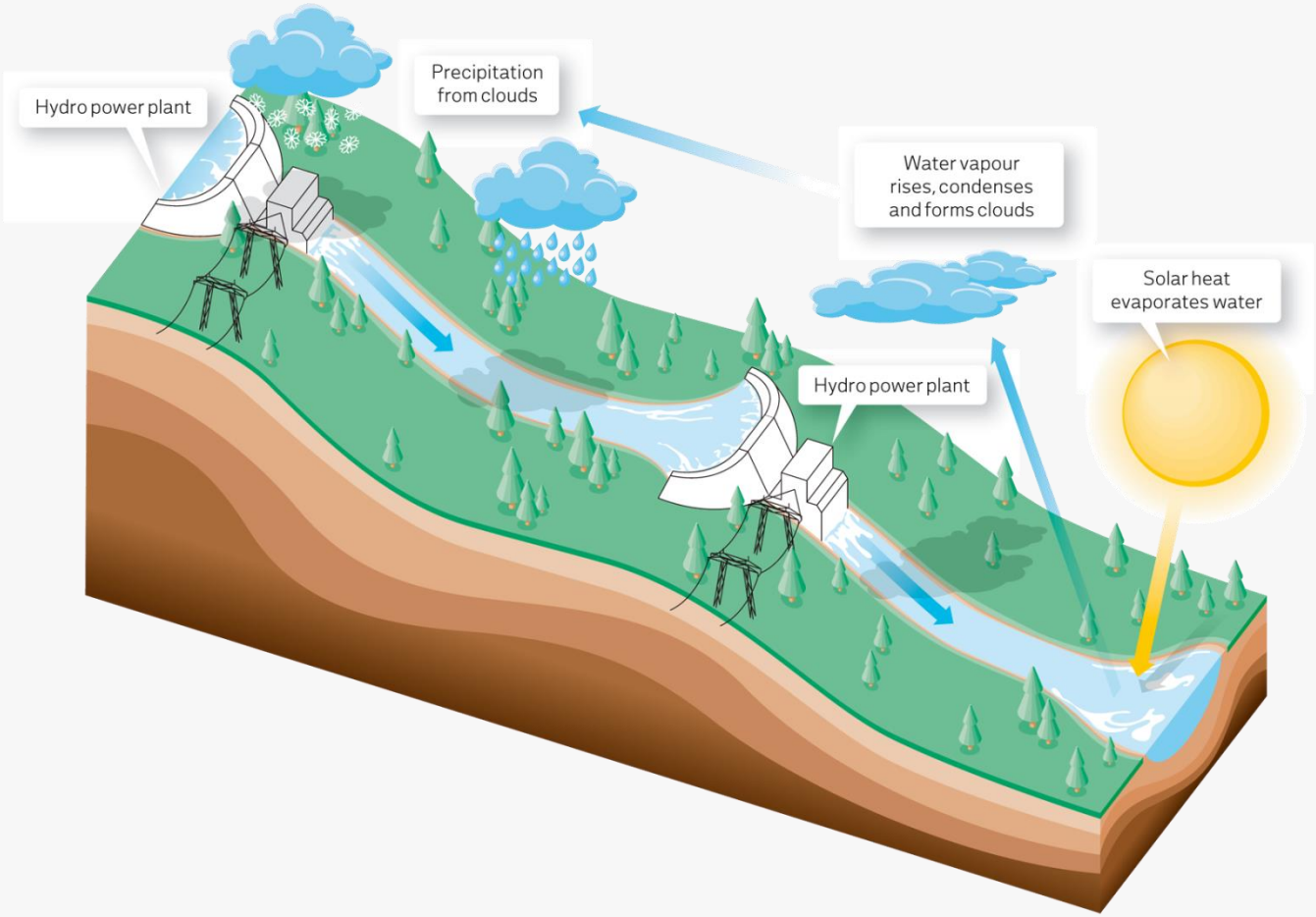
The Water Cycle



Source: Vattenfall - vattenfall.de

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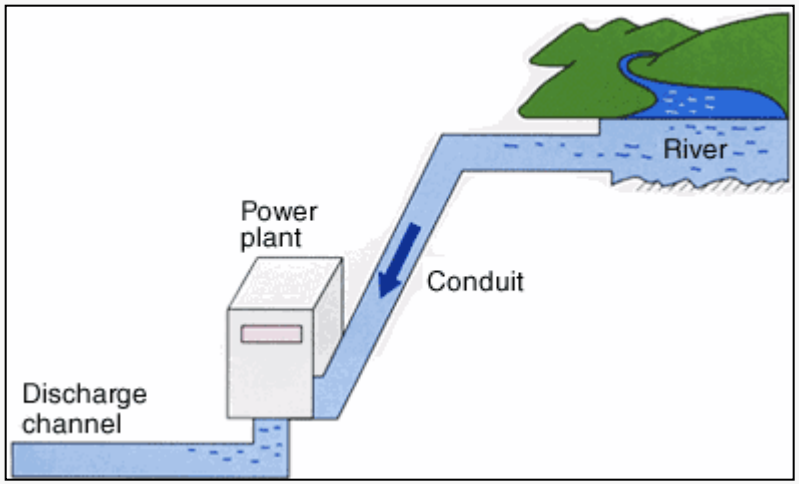
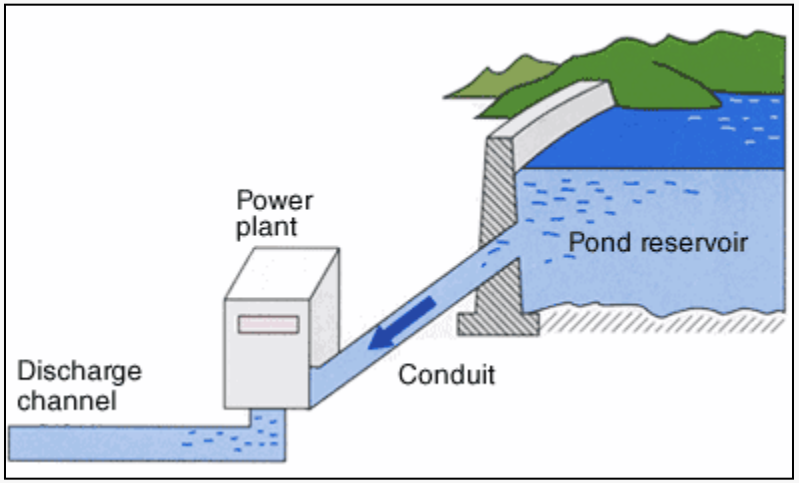
RoR-Type / Reservoir Type Hydro Power





Source: TEPCO

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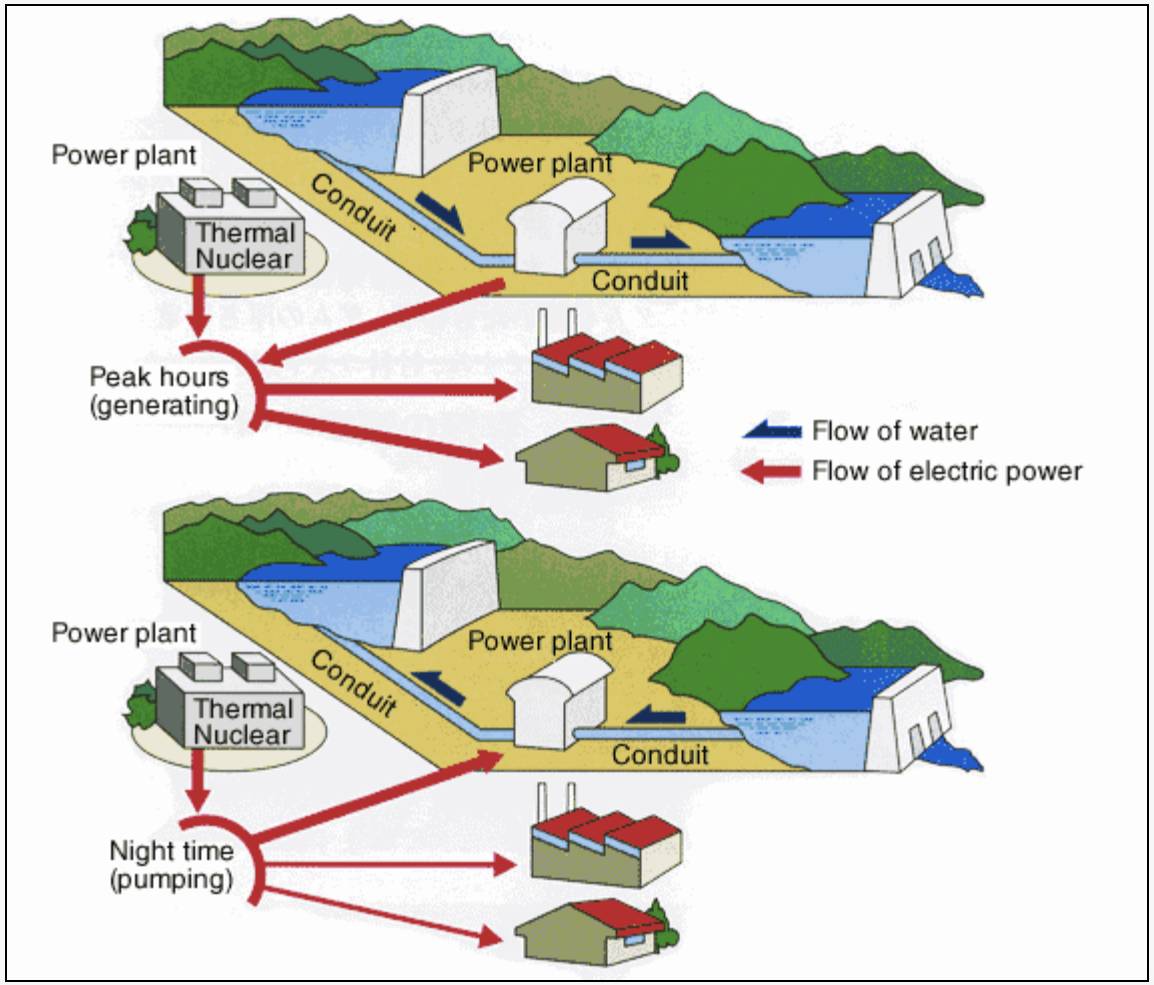
Pumped Storage Type Hydro Power



Source: TEPCO

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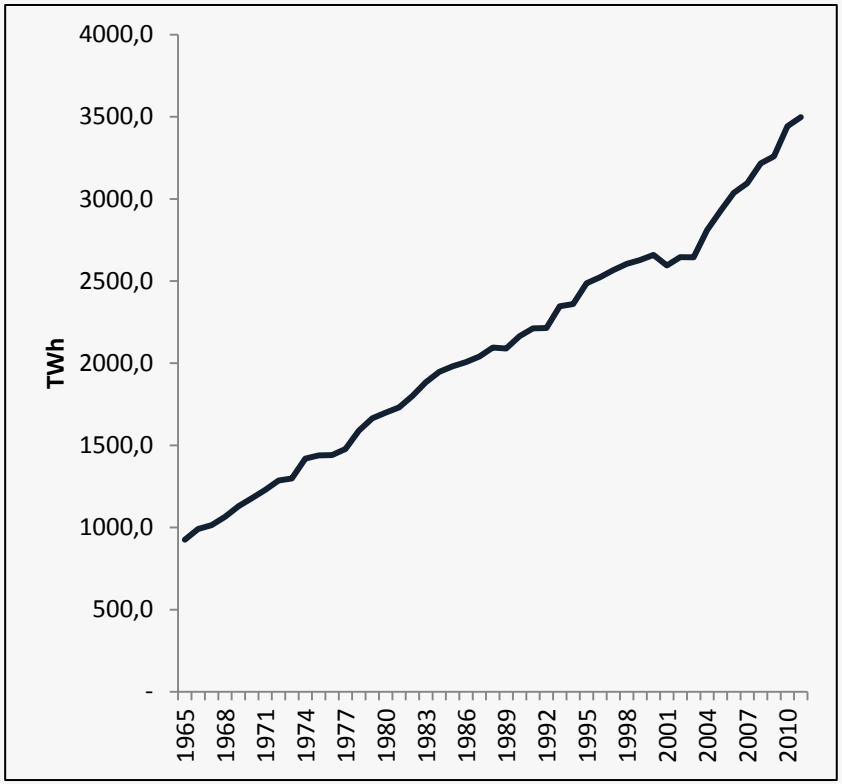
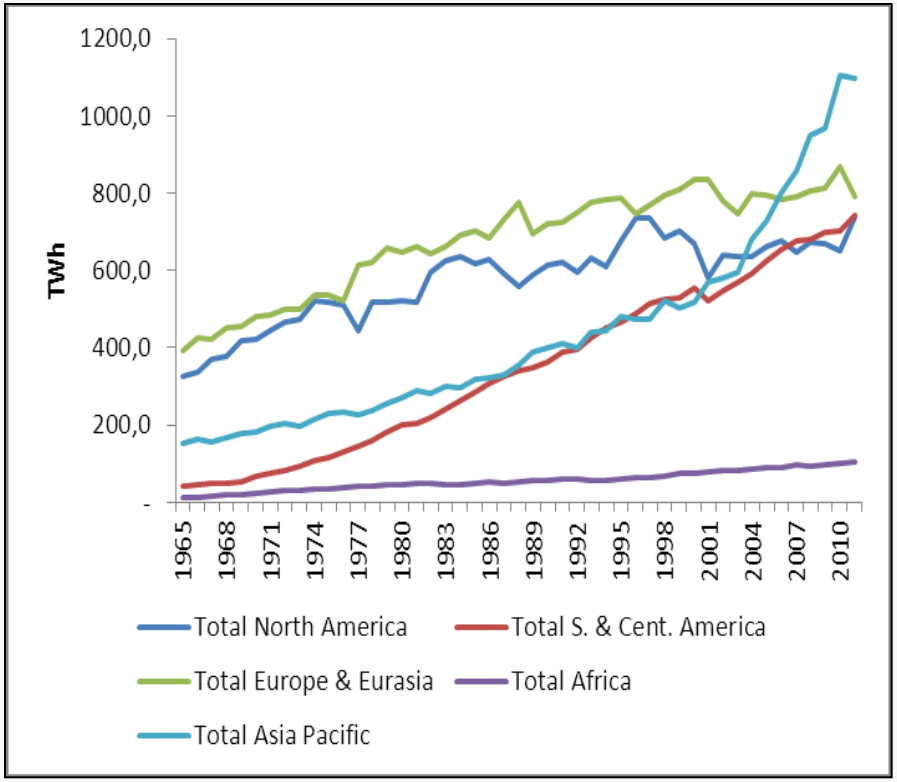
GLOBAL RELEVANCE OF HYDROPOWER



Data Source: BP 2012



Data Source: BP 2012

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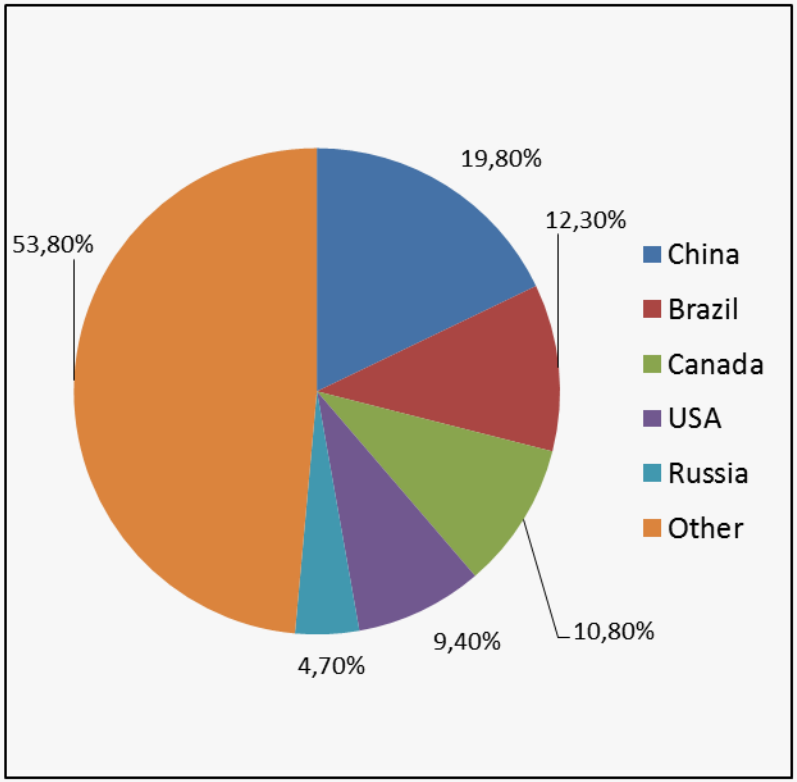
Global Relevance of Hydropower

Country	Share in electricity production
Norway	95,3%
Brazil	86,7%
Venezuela	68,0%
Canada	61,0%
Sweden	42,2%

Data Source: BP 2012



Data Source: BP 2012

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From Big...

Source: Itaipu.gov.br

Source: China Three Gorges Corporation

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… To Small

Off-Grid Micro Hydro Waikato; Source: Maverick Energy

Small Hydro / Mini Hydro / Pico Hydro

- Used throughout the world
- Both on- and off-grid
- < 50 MW, usually less (< 5 MW)

- Important for small, isolated regions
- Rural electrification, poverty reduction

- In Europe: refurbishment of existing plants

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HYDROPOWER GIANTS

Source: China Three Gorges Corporation

Dam Name	Year	Installed Capacity (MW)	Country
Sanxia (Three Gorges)	2 010	18 200	China
Wangjiahe	2008	12 630	China
Xiluodu	2010	12 600	China
Itaipu	1991	12 600	Brazil
Guri	1986	10 000	Venezuela

Data Source: ICOLD 2013

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GLOBAL PROTESTS AGAINST DAMS

Source: AFP/Berliner Zeitung

Source: International Rivers

Source: International Rivers

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PROTESTS IN EUROPE

Protests against the Wasserkraftwerk Schwarze Sulm.
Source: http://www.news.at/a/schwarze-sulm-kampf-kraftwerk.

Protests against the PSW Atdorf
Source: Grüne Kreis Waldshut
http://www.gruene-wt.de/energie/pumpspeicherwerk.html

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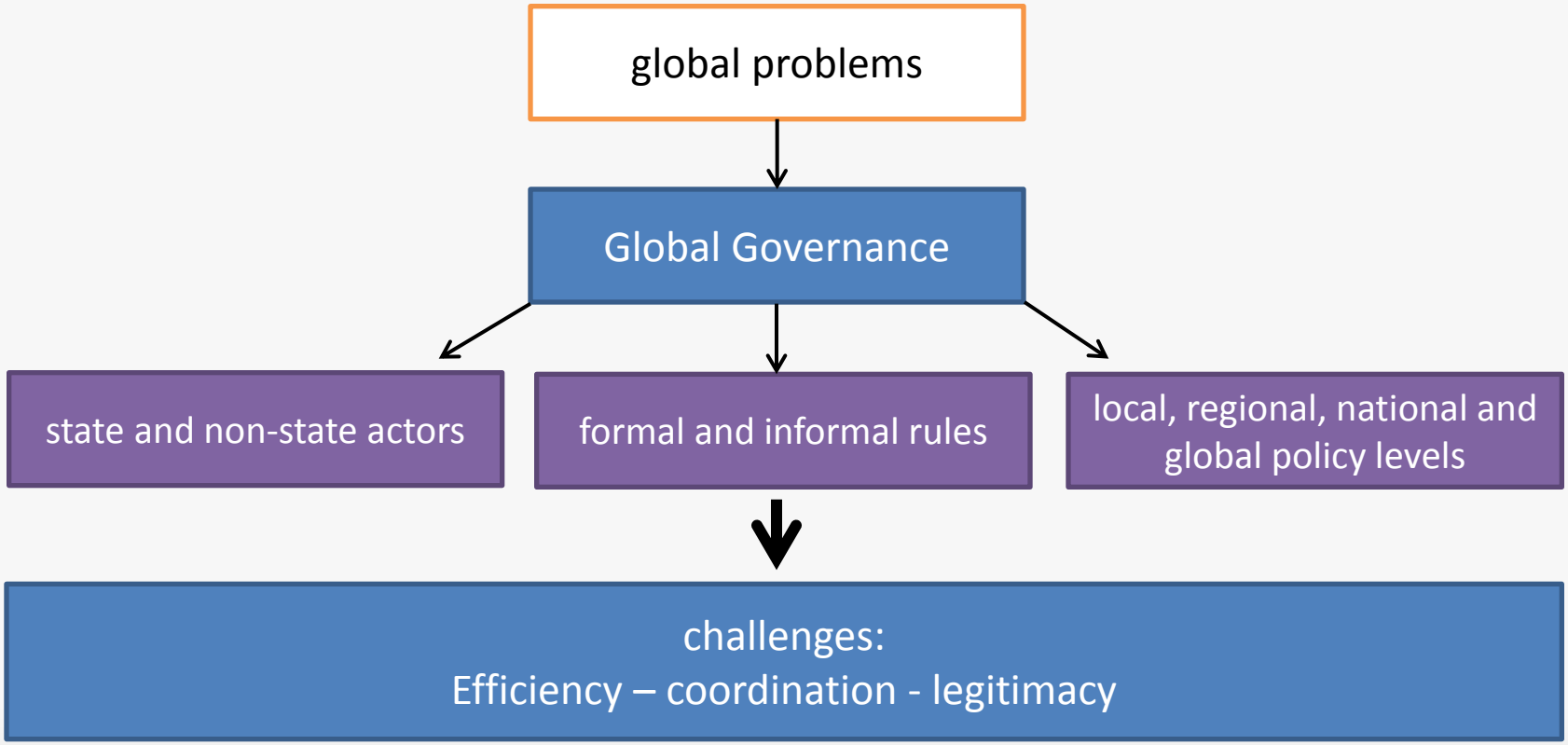
GLOBAL GOVERNANCE

"the management of global processes in the absence of global government“ – Adil Najam



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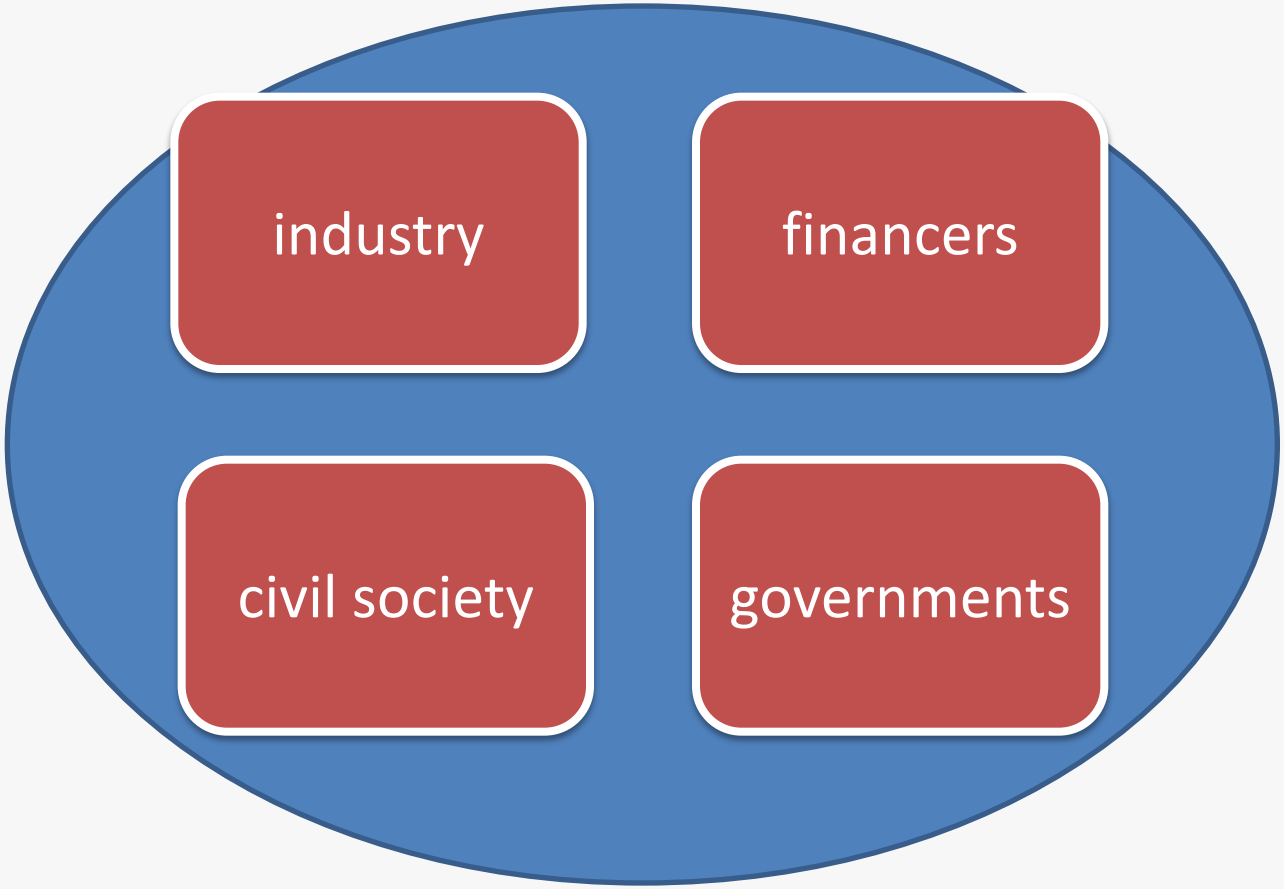
Actors of Global Hydropower Governance



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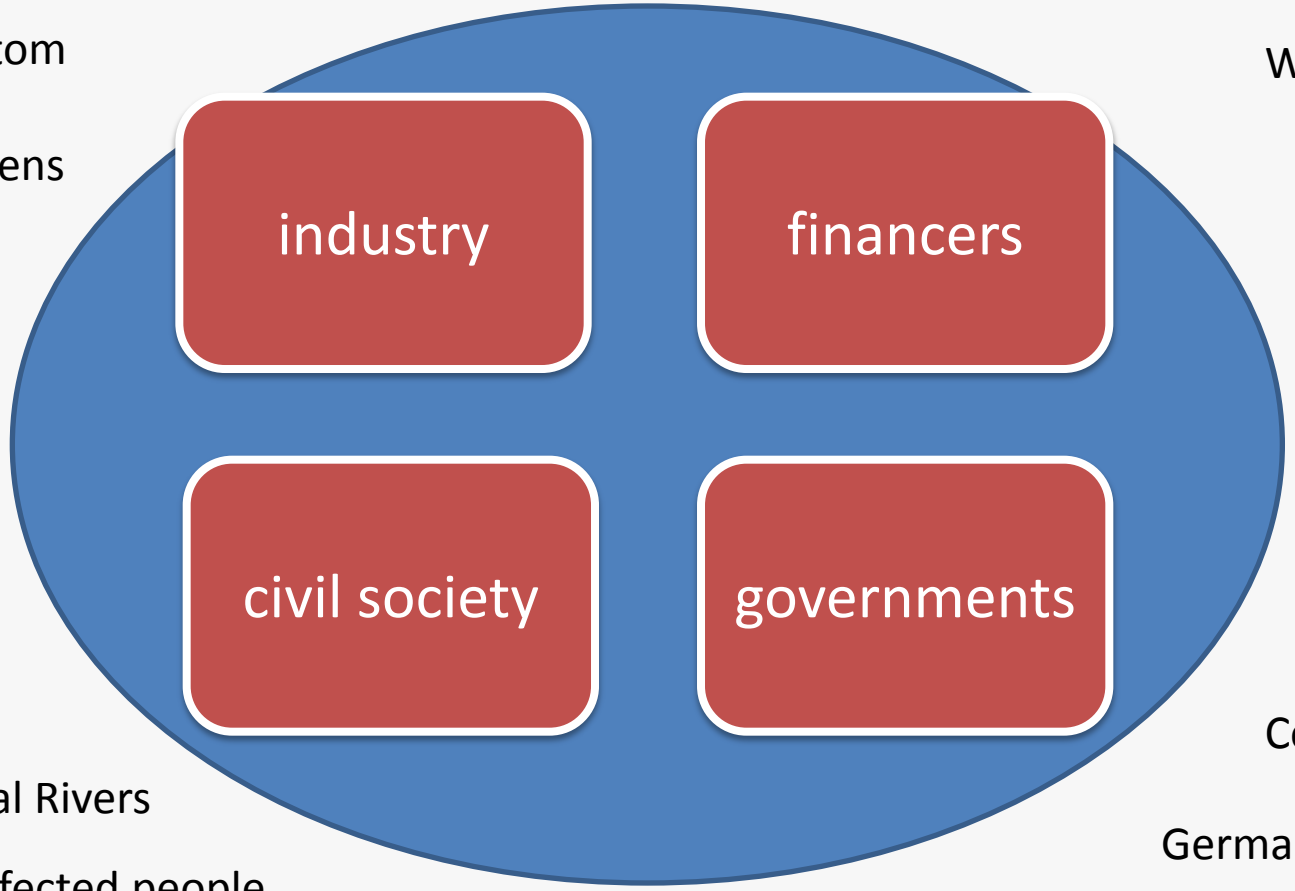
Actors of Global Hydropower Governance



Alstom

Voith Siemens

Gezhouba

World Bank / ADB

Citi Group

China EXIM

WWF

International Rivers

Affected people

China

Congo

Germany

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How Sustainable is Hydropower?

HYDROPOWER FOR SUSTAINABLE DEVELOPMENT 2011
31 March - 1 April 2011. Addis Ababa, Ethiopia

Source: AFP/Berliner Zeitung

iha world congress
advancing sustainable hydropower
21-24 May 2013
Sarawak, Malaysia

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The Starting Point: The Sardar Sarovar Dam

- In the 1980s and 90s large hydropower projects were faced with increasing criticism
- Most prominent case: Sardar Sarovar:
  - Situated at the Narmada River in Gujarat, India
  - Protests since late 80s due to high number of resettled people (ca. 200,000)
  - Global media campaign of dam opponents
  - World Bank withdrew from financing in 1994 due to high public pressure
  - Construction has been halted for several years, completion feasible not before 2020-2025

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The World Commission on Dams

- Results: World Bank completely withdrew from financing dam projects
- Internal evaluation of WB projects of the past 35 years
  - Results: most projects do not comply with current WB standards
- April 1997: Gland-Workshop with IUCN and the participation of several important stakeholders -> Starting Point for Transnational Hydro Governance
- Creation of the World Commission on Dams 1998-2000 for the Evaluation of existing dam projects and identification of Best Practices

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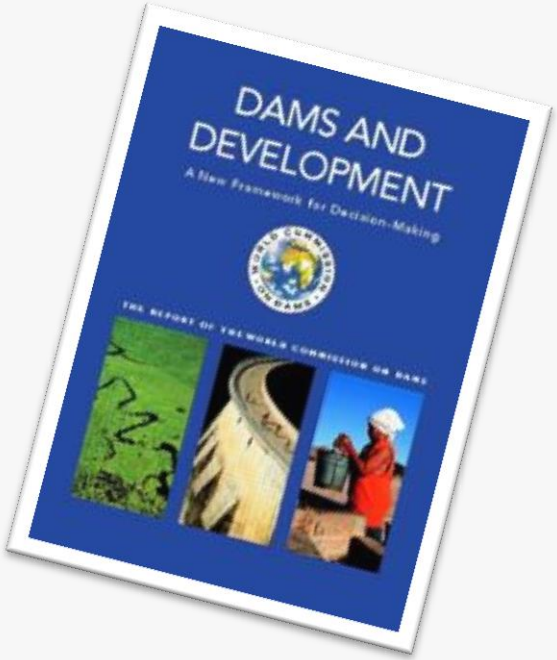
The World Commission on Dams



WCD report: comprehensive analysis of the impact of existing dams: 8 case studies, 3 country studies, 17 thematical anlyses, 947 contributions from stakeholders

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CONCLUSION OF THE WCD REPORT

Although "Dams have made an important and significant contribution to human development, and the benefits derived from them have been considerable (…) **[i]n too many cases an unacceptable and often unnecessary price has been paid to secure those benefits**, especially in social and environmental terms, by people displaced, by communities downstream, by taxpayers and by the natural environment" (WCD 2000: xxviii).

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Die World Commission on Dams

- Therefore:
  - Five core values
  - 7 strategic priorities
  - 26 guidelines/recommendations

equity
efficiency
participatory decision-making
sustainability
accountability

- Mixed reactions from stakeholders:
  - Strong approval from civil society organisations
  - Mixed reactions from industries
  - Cautious approval from World Bank
  - Approval from western country governments (e.g. Germany)
  - Refusal from big hydropower countries in the developing world

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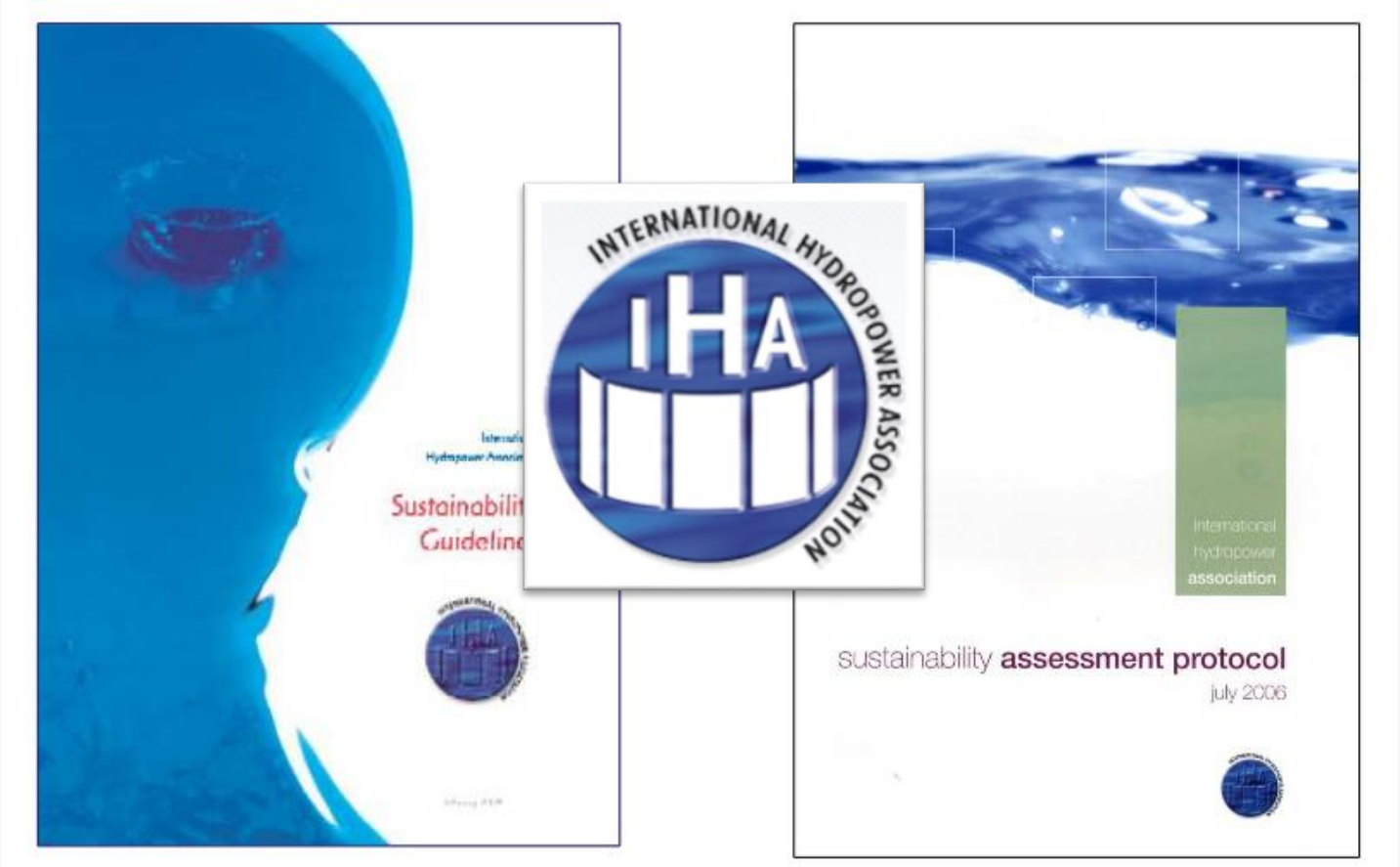
FROM WCD TO HSAP



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THE HYDROPOWER SUST. ASSESSMENT PROTOCOL

Developing countries

Developed countries

Environmental NGOs

Hydropower Sustainability Assessment Protocol

Hydropower industry

Financial sector

Social NGOs

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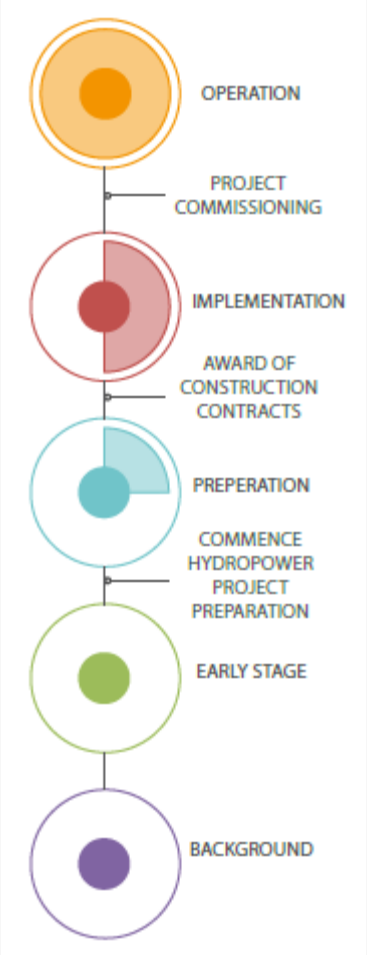
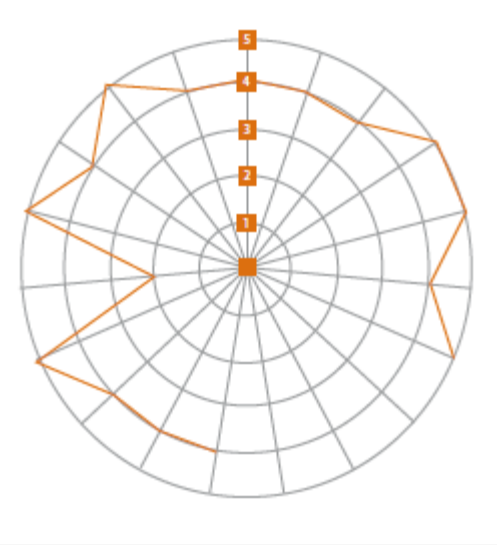
SUSTAINABILITY ASSESSMENT

Cross-cutting			
Climate Change	Human Rights	Gender	Livelihoods
Environmental			
Downstream Flow Regimes	Erosion and Sedimentation	Water Quality	Biodiversity and Invasive Species
Social			
Resettlement	Indigenous Peoples	Public Health	Cultural Heritage
Technical			
Siting and Design	Hydrological Resource	Infrastructure Safety	Asset Reliability and Efficiency
Economic / Financial			
Financial Viability	Economic Viability	Project Benefits	Procurement





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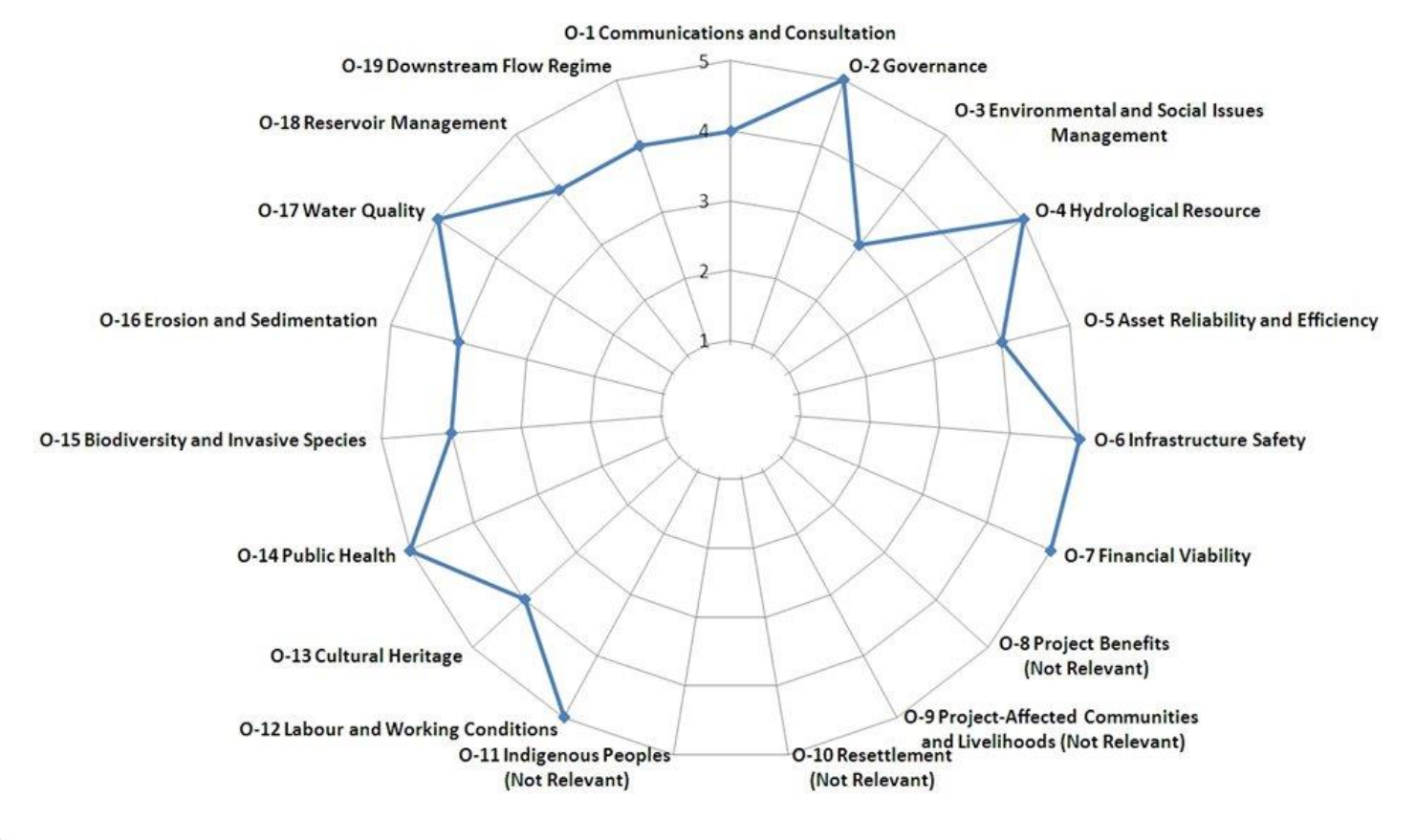
SUSTAINABILITY ASSESSMENT



Sustainability Partners – Do they Matter?

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THE HYDROPOWER SUST. ASSESSMENT PROTOCOL

PROJECT NAME	PROJECT HEADLINE	REPORT DATE	REGION	PROTOCOL STAGE	PROJECT SIZE (MW)	SPIDER DIAGRAM	PDF REPORT	COMMENTS
Blanda	Official Assessment	11 Dec 2013	Europe	Operation	150	View diagram	Download Report	Download Comments
Romanche-Gavet	Official Assessment	18 Sep 2013	Europe	Implementation	94	View diagram	Download Report	Download Comments
Keeyask	Official Assessment	18 Jul 2013	The Americas	Preparation	695	View diagram	Download Report	Download Comments
Jirau	Official Assessment	17 May 2013	The Americas	Implementation	3750	View diagram	Download Report	Download Comments
Hvammur	Official Assessment	10 May 2013	Europe	Preparation	82	View diagram	Download Report	Download Comments
Jostedal	Official Assessment	10 May 2013	Europe	Operation	288	View diagram	Download Report	Download Comments
Walchenseekraftverk	Official Assessment	10 May 2013	Europe	Operation	124	View diagram	Download Report	Download Comments
Trevallyn	Pilot Assessment	04 Apr 2012	Oceania	Operation	96	View diagram	Download Report	Download Comments

Source: hydrosustainability.org

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CONCLUSION

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Vielen Dank für Ihre Aufmerksamkeit!

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