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Hydropower Sustainability Assessment Protocol: Screening and Managing Project Risk

David L Harrison
Senior Water Resources Advisor
TNC Global Water

salto grande
Argentina-Uruguay

My Premise:

Projects that are Planned, Designed and Operated to be "Sustainable" will have less exposure to Risk

An Essential part of managing risk is assessing the sustainability of the project across all potential risk issues -- all Soci[illegible]nvironmental, Financial, Economic and Reliabili[illegible]

You can only manage for that which you can measure

- Identify a[illegible]sustainability.
- Understan[illegible]severity of that risk
- Find ways [illegible]avoid, minimize, mitigate or compensate for that risk factor.

The Nature Conservancy

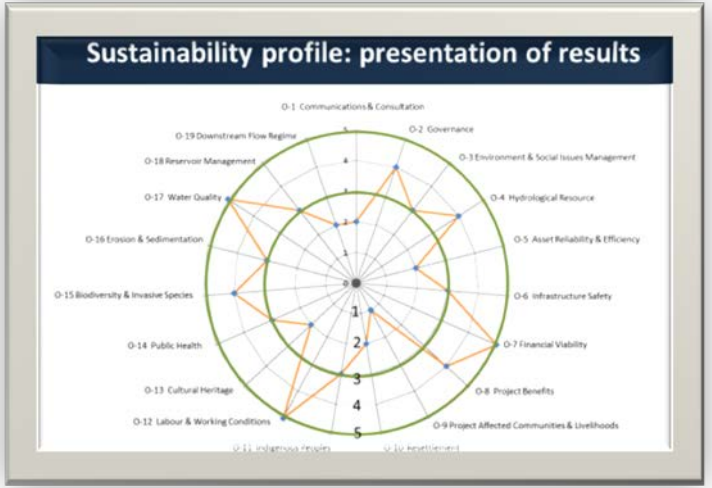
The Hydropower Sustainability Assessment Protocol

Hydropower Sustainability Assessment Protocol

www.hydrosustainability.org

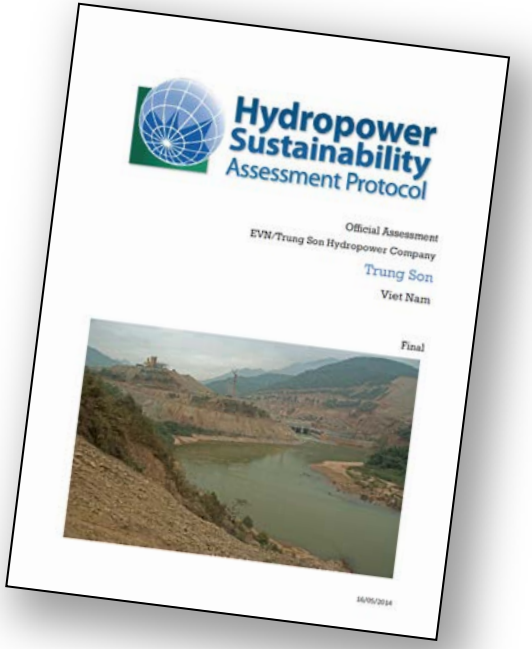
What is it?

- A **definition of sustainability in hydropower**, covering 25 sustainability topics
- An assessment **methodology for measuring performance** at all stages and types of project development
- **Governed by a multi-stakeholder council**, with formal terms and conditions
- Official assessments only by independent **Accredited Assessors** to ensure quality and consistency



Added value from use of the Protocol

- **Independent** review of sustainability issues
- **Comparison** with international practice
- **Management** of sustainability issues
- **Communication** with stakeholders
- Facilitating access to **finance** and **markets**



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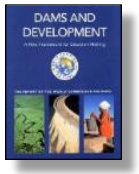
Development of the Hydropower Sustainability Assessment Protocol



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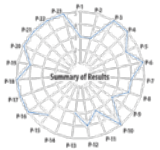

Protocol assessments

Protocol review & update

2000 2001 2002 2003 2004 2005 2006 2007 2008 2009 2010 2011 2012 2013 2014 2015 2016 2017

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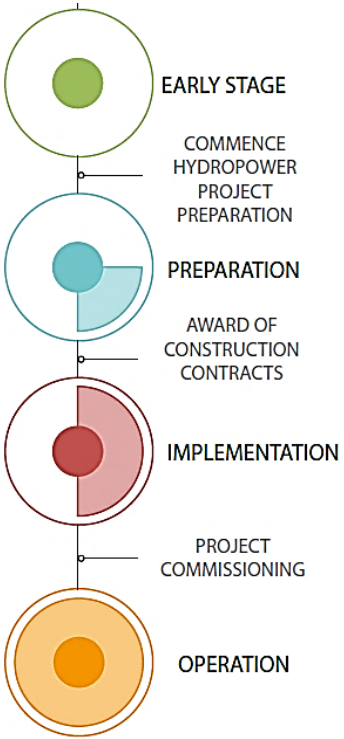
Four tools of the Protocol



The **early stage tool**, a screening tool for potential hydropower projects.

The **preparation tool**, which covers planning and design, management plans and commitments.

The **implementation tool**, used through the

construction phase.

The **operation tool**, used on working projects.

Protocol topics

Business

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

Technical

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

Social

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

Environmental

- Environmental and social assessment and management
- Biodiversity and invasive species
- Erosion and sedimentation
- Water quality
- Waste, noise and air quality
- Reservoir management
- Downstream flow regimes

Up to six criteria checked within each topic

Criteria for assessment: topic)

- Analysis (assessment)
- Management
- Stakeholder Engagement
- Stakeholder Support
- Conformance / Compliance
- Outcomes

Scoring statement (example: Indigenous peoples

3

Level = good practice

Assessment: Issues that may affect indigenous peoples in relation to the project have been identified through an assessment process utilising local knowledge; and monitoring of project impacts and effectiveness of management measures is being undertaken during project implementation appropriate to the identified issues.

Management: Measures are in place to address identified issues that may affect indigenous peoples in relation to the project, and to meet commitments made to address these issues; and formal agreements with indigenous peoples are publicly disclosed.

Stakeholder Engagement: Ongoing and mutually agreed processes are in place for indigenous peoples to raise issues and get feedback.

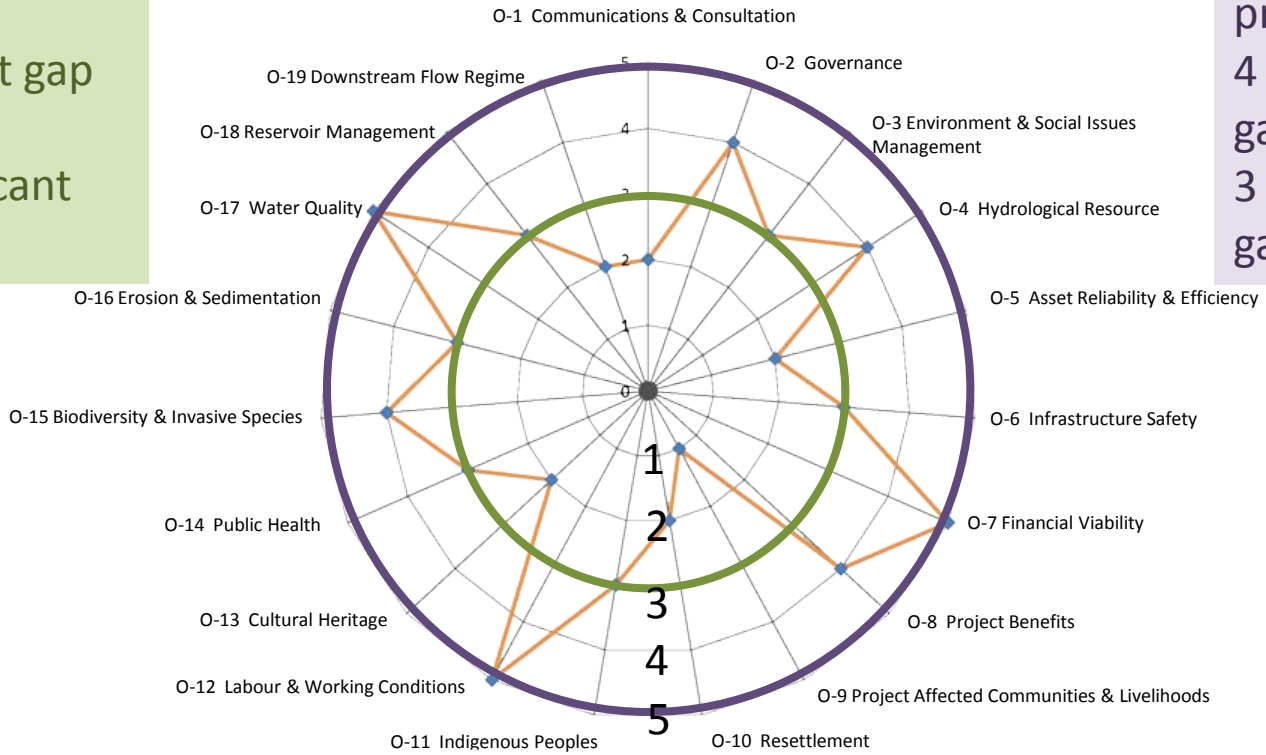
Stakeholder Support: Directly affected indigenous groups generally support or have no major on-going opposition to the plans for issues that specifically affect their group.

Conformance/Compliance: Processes and objectives relating to issues that may affect indigenous peoples have been and are on track to be met with no major non-compliances or non-conformances, and any indigenous peoples related commitments have been or are on track to be met.

Outcomes: Plans provide for major negative impacts of the project to indigenous peoples and their associated culture, knowledge, access to land and resources, and practices to be avoided, minimised, mitigated or compensated with no significant gaps, and some practicable opportunities for positive impacts to be achieved.

Scoring allows clear presentation of results

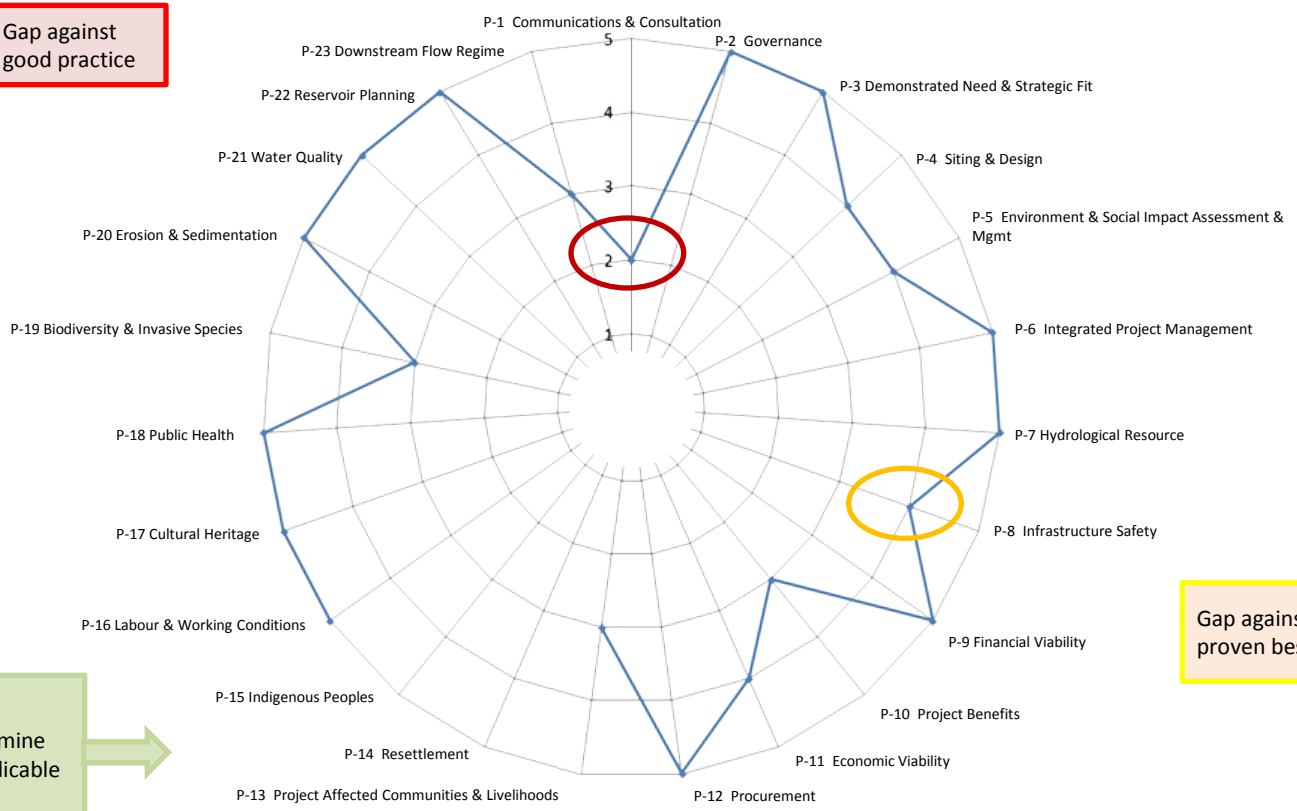
3 = Good practice (GP)
2 = significant gap from GP
1 = >1 significant gap from GP



5 = Proven best practice (PBP)
4 = significant gap from PBP
3 = >1 significant gap from PBP

Understanding Protocol results

Gap against good practice



Gap against proven best practice

Topics which meet conditions that determine that they are not applicable are not assessed.

Using the Protocol

	Level 3: Significant Gaps against Basic Good Practice	Level 5: Significant Gaps against Proven Best Practice
Assessment	**No significant gaps**	**P5:** EIA and ongoing assessment process does not take broad considerations, risks and opportunities into account. **P10:** Broad considerations not taken into account, No assessment to increase the development contribution. **P11:** Assessment process does not take broad considerations into account. **P19:** No assessment of invasive species and water-level impacts on Viðey Island.
Management	**P1:** The absence of communications and consultation plans and processes developed for all project stages that set out communications and consultation needs and approaches for all stakeholder groups.	**P10:** No process to anticipate and respond to emerging risks and opportunities regarding project benefits. **P13:** No assessment of broader considerations and risks. No processes in place to anticipate and respond to emerging risks and opportunities. **P19:** No reassessment of risks and opportunities since the EIA
Stakeholder Engagement	**No significant gaps**	**P4:** Engagement of local residents specifically in siting and design. **P10:** Inclusion of stakeholder groups in the assessment and planning of project benefits. **P23**: No broad considerations in the downstream flow determination.
Stakeholder Support	**No significant gaps**	**No significant gaps**
Conformance/ Compliance	**No significant gaps**	**No significant gaps**
Outcomes	**No significant gaps**	**P8:** There are no plans for addressing infrastructure safety beyond those of the project itself. **P23:** Slow or no feedback on opinions / communication to/from stakeholders regarding the process leading to stakeholder dissatisfaction.

Examples of assessments (>25,000 MW of hydro capacity assesse

Oct-10	Shardara	Shardara HPP JSC	Kazakhstan	100 MW	Operation
Oct-11	Trevallyn	Hydro Tasmania	Australia	97 MW	Operation
Sep-12	Murum	Sarawak Energy	Malaysia	944 MW	Implementation
Mar-12	Walchensee	EON	Germany	124 MW	Operation
May-12	Hvammur	Landsvirkjun	Iceland	84 MW	Preparation
Aug-12	Jostedal	Statkraft	Norway	290 MW	Operation
Sep-12	Jirau	ESBR (GDF Suez)	Brasil	3750 MW	Implementation
Dec-12	Keeyask	Manitoba Hydro	Canada	695 MW	Preparation
Jun-13	Gavet	EDF	France	92 MW	Implementation
Sep-13	Blanda	Landsvirkjun	Iceland	150 MW	Operation
Oct-13	Sogamoso	Isagen	Colombia	820 MW	Implementation
Jan-14	Trung Son	EVN/TSHPCo	Vietnam	260 MW	Implementation
Apr-14	Santo Antonio	SAE	Brazil	3150 MW	Implementation
Jun-14	Miel	Isagen	Colombia	260 MW	Operation
Mar-14	Canafisto	Isagen	Columbia	936 MW	Preparation
Jun-14	Sava River Program	Program Sava Ltd	Croatia	160 MW	Early Stage
Sep-14	Kabeli A	Kabeli Hydro	Nepal	38 MW	Preparation
Nov-14	Semla	EON	Sweden	3 MW	Preparation
Mar-15	Multiple Projects	Government Ghana	Ghana		Early Stage
Apr-15	Nam Lik	CTG	Laos	100MW	Operation
Jun-15	Chaglla	Odebrecht	Peru	456 MW	Implementation
Aug-15	Itaipu	Itaipu Binacional	Brazil / Paraguay	14,000 MW	Operation
Feb-16	Mangdechhu	Mangdechhu HP Authority	Bhutan	720 MW	Preparation
Sep-16	Kaunertal Expansion	TIWAG	Austria	1015 MW	Preparation
Nov-16	Devoll	Statkraft Albania	Albania	235 MW	Implementation

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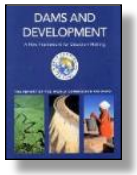

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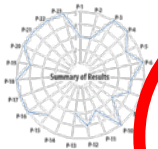

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Ongoing development of Protocol and related tools

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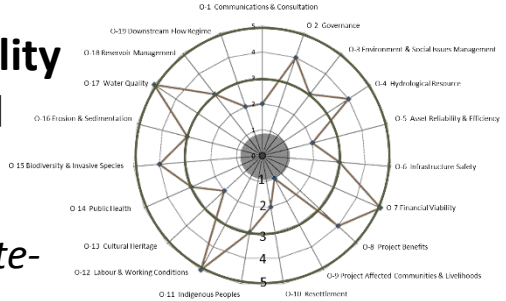
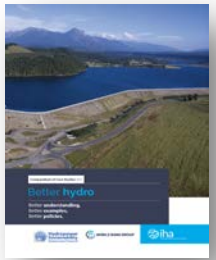


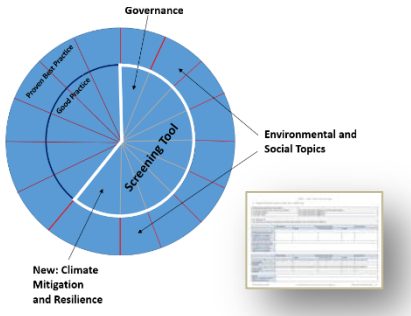
Currently adding a new topic on climate-change

Improved process for Assessor Accreditation

Hydropower Sustainability Good International Industry Practice *Guidelines*



Environmental, Social and Governance *Gap Analysis Tool*



Simplified analysis based on Basic Good Practice

Includes a gap management action plan

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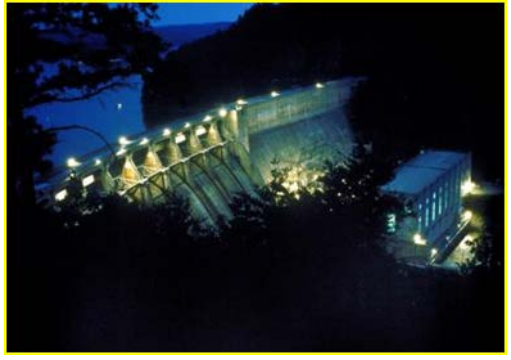
Objectively Measured Sustainability – A tool for improved projects

Reduced Risk for Hydropower Investments



Improved Outcomes for People and Nature

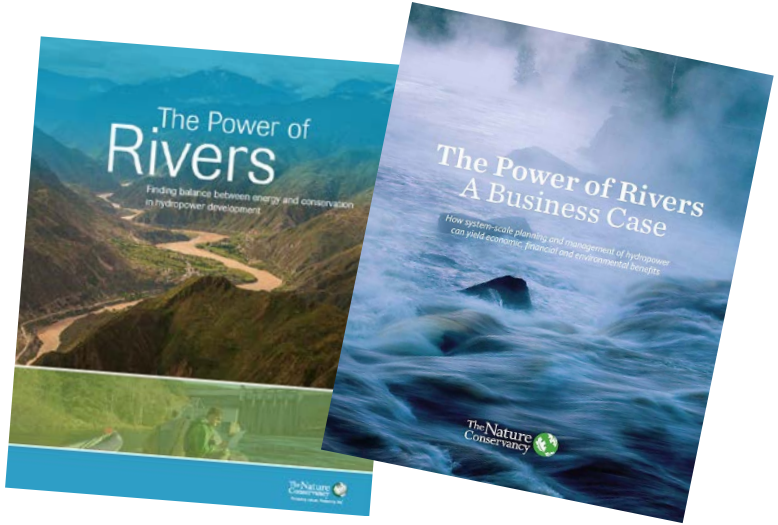
The Nature Conservancy

Sustainability of Hydropower at the Basin Scale or Energy System Scale

The ***Protocol*** is particularly helpful for ***individual projects*** or cascades. But the best opportunity ***to achieve sustainability*** -- and manage risk -- is at the earliest possible stage, when development of hydropower and other energy can be planned across a ***whole basin or a whole system.***

Where are the best places to build?
Where are the best places to conserve?

- *"The Power of Rivers, Finding balance between energy and conservation" 2015*
- *"The Power of Rivers, A Business Case, How system-scale planning and management can yield economic, financial and environmental benefits" 2017*



www.nature.org

The Nature Conservancy

¡Muchas gracias!

David L. Harrison
dharrison@mwhw.com

The Nature Conservancy
Protecting nature. Preserving life.

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salto grande
Argentina-Uruguay