Hydropower Sustainability

Assessment Protocol

Acknowledgements

The Hydropower Sustainability Assessment Protocol is the product of the considerable effort of many parties. The members of the Hydropower Sustainability Assessment Forum spent two and a half years deeply involved in research, analyses, meetings, outreach, trialling, review, exchanging views, negotiating content and finding solutions to divergent views. Many had reference groups that were very active in following the Forum process and informing the views of Forum members. The Forum was funded by substantial donations from the governments of Norway, Iceland and Germany, supplemented by funding from the International Hydropower Association, The Nature Conservancy, The World Bank Group, and The World Wide Fund for Nature (WWF). In addition, the in-kind contributions of the Forum members and many supporting organisations were considerable.

The Protocol reflects the intellectual contributions of these many players, and the end product has been enabled because of a shared vision that it can make a significant contribution to advancing sustainable hydropower. The members of the Forum and those reference groups and organisations that have worked with these individuals are gratefully acknowledged:

Developing Countries

Dr Yu Xuezhong, Research Professor, **China Institute of Water Resources and Hydropower Research**, PR China

Mr Zhou Shichun, Senior Engineer, **China Hydropower Engineering Consulting Group Co.,** PR China

Mr Israel Phiri, Manager PPI, **Ministry of Energy and Water Development**, Zambia

Developed Countries

Mr Geir Hermansen, Senior Advisor, Department of Energy, **Norad**, Norway

Prof Gudni A Johannesson, Director General, **National Energy Authority**, Iceland

Ms Kirsten Nyman, Policy Advisor for Sustainable Hydropower, **GTZ**, Germany (observer)

Finance Sector - Economic Aspects

Ms Courtney Lowrance, Director, Environmental and Social Risk Management, Citigroup Global Markets Inc, member of the **Equator Principles Financial Institutions**

Ms Daryl Fields, Senior Water Resources Specialist, **The World Bank** (observer)

Hydropower Sector

Dr Refaat Abdel-Malek, President, **International Hydropower Association**

Mr Andrew Scanlon, Manager Business Sustainability, **Hydro Tasmania**

NGOs - Environmental Aspects

Mr David Harrison, Senior Advisor, Global Freshwater Team, **The Nature Conservancy**

Dr Joerg Hartmann, WWF Dams Initiative Leader, **World Wide Fund for Nature (WWF)**

NGOs - Social Aspects

Mr Michael Simon, Lead, People, Infrastructure and Environment Program, **Oxfam**

Dr Donal O'Leary, Senior Advisor, **Transparency International**

Forum Chair

Mr André Abadie, Director, **Sustainable Finance Ltd**

Forum Coordinator

Dr Helen Locher, Sustainability Forum Coordinator, **International Hydropower Association**

Published by:

International Hydropower Association
Chancery House
St Nicholas Way
Sutton, London
SM1 1JB, United Kingdom

Email: iha@hydropower.org

First published November 2010. This edition published May 2020.

ISBN 978-0-9566228-1-5

Hydropower Sustainability Assessment Protocol

Background Document

May 2020

Published by:

iha
international hydropower association

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Contents

Development of the Protocol

This document is the Background that accompanies a set of four stand-alone assessment tools, with all five documents being collectively referred to as the Hydropower Sustainability Assessment Protocol (the "Protocol").

The Protocol is a revision, update and expansion to the IHA's Sustainability Assessment Protocol 2006. It was developed at a time of a resurgence of interest in hydropower as a result of increasing requirements for a low carbon economy, energy security and improved water management. This growing interest has been alongside disparate approaches to assess new and existing hydropower projects at local, national and regional levels.

The Hydropower Sustainability Assessment Forum

The IHA in close collaboration with a range of partners launched the Hydropower Sustainability Assessment Forum (the "Forum") in March 2008. The Forum's aim was to develop an enhanced sustainability assessment tool to measure and guide performance in the hydropower sector, to provide more consistency in the approach to assessment of hydropower project sustainability, based on the IHA Sustainability Assessment Protocol 2006. The Forum comprised representatives of organisations from a diversity of sectors, with differing views and policies on sustainability issues related to hydropower development and operation. The 14 Forum members included representatives of governments of developed and developing countries, commercial and development banks, social and environmental NGOs, and the hydropower sector.

The Forum operated for a two and a half year period. Following the Forum launch in March 2008 in Washington DC, Forum meetings were held in July 2008 (USA), September 2008 (Zambia), October 2008 (China), December 2008 (Brazil), March 2009 (Turkey), June 2009 (Iceland), February 2010 (France), and May 2010 (Laos). Six webinar meetings were also held, to enable additional dialogue on key issues in between formal meetings. Forum members systematically discussed the sustainability issues important to hydropower, received expert input on these issues, evaluated important reference standards, evaluated experiences of application of the IHA Sustainability Assessment Protocol 2006, developed progressive drafts, undertook two global consultation processes, undertook a global trialling program of a Draft Protocol August 2009, and benefited from the inputs and advice of references groups to the Forum members in review of the progressive drafts. The HSAF Knowledge Base houses many of the inputs into the Forum process; it can be sourced at: www.hydrosustainability.org.

The Protocol has been recommended for adoption by the Board of the International Hydropower Association (IHA), additional supporting organisations are listed on: www.hydrosustainability.org. In adopting and supporting this Protocol, these organisations agree that the Protocol has the potential to make a substantial contribution to advancing sustainability in the hydropower sector, and these organisations will actively promote it. The Protocol will be subject to ongoing evaluation and refinement over time, as experience in Protocol application will assist future reviews and refinements of Protocol structure, content and instructions for use.

Areas of Non-Consensus

The Forum operated with transparency, goodwill and by consensus. In the Forum process, all Forum members heard and respected the diversity of views on many topics, and all did their best to compromise on preferred positions in the interests of achieving consensus outcomes. The Hydropower Sustainability Assessment Protocol 2010 captures a considerably high level of convergence amongst the diverse views of Forum member organisations on how to best incorporate into this assessment tool the issues relevant to hydropower sustainability.

There are numerous areas of wording in the Protocol that Forum members have indicated are of interest to pay close attention to in the forward process. These will be documented as "areas for further analysis and dialogue" to inform the forward governance, management and consultative committees and future Protocol reviews.

In cases, specific language in topics reflects the majority view in the negotiation rather than unanimous support for the final text. "Areas of non-consensus" are specific wording in the Protocol for which individual Forum members hold a preference contrary to the majority view and feels a strong need to list it as an "area of non-consensus" in addition to it being an "area for further analysis and dialogue", for the reason of maintaining credibility with their constituencies. The Forum recommends that these areas receive priority consideration in future processes of Protocol improvement, and that inputs of key stakeholders and experiences based on practical application regarding these topics are sought.

These areas of non-consensus are in the two assessment tool documents entitled Preparation and Implementation, under the topics Project Affected Communities and Livelihoods; Resettlement; and Indigenous Peoples. The specific details of the non-consensus views are found on the relevant topic page in each of these Protocol assessment tool documents.

Full background on the Hydropower Sustainability Assessment Forum and the process leading to development of the Protocol, and more detail on these organisational views on the final Protocol, can be found at www.hydrosustainability.org.

Protocol Purpose and Target Users

The Hydropower Sustainability Assessment Protocol is a sustainability assessment framework for hydropower development and operation. It enables the production of a sustainability profile for a project through the assessment of performance within important sustainability topics.

To reflect the different stages of hydropower development, the Protocol includes four sections, which have been designed to be used as standalone documents. Through an evaluation of basic and advanced expectations, the Early Stage tool may be used for risk assessment and for dialogue prior to advancing into detailed planning. The remaining three documents, Preparation, Implementation and Operation, set out a graded spectrum of practice calibrated against statements of basic good practice and proven best practice. The graded performance within each sustainability topic also provides the opportunity to promote structured, continuous improvement.

Assessments rely on objective evidence to support a score for each topic, which is factual, reproducible, objective and verifiable. The Protocol will be most effective when it is embedded into business systems and processes. Assessment results may be used to inform decisions, to prioritize future work and/or to assist in external dialogue.

A wide application of the Protocol is desired; it should be applied in a collaborative way, to ensure the best availability of information and points of view. The development and evaluation of a hydropower project will involve many actors with different roles and responsibilities. It is recognized that both development and operation may involve public entities, private companies or combined partnerships, and responsibilities may change as the project progresses through its life cycle.

It is intended that the organisation with the primary responsibility for a project at its particular life-cycle stage will have a central role in any Protocol assessment. This organisation may not have the major responsibility for all sustainability topics. Roles and responsibilities for different topics will be discussed in a Protocol assessment and indicated in the assessment report.

IHA and the supporting organisations seek feedback and suggestions for the improvement of future versions of the Protocol. To provide feedback, please contact the IHA Central Office.

Governance of the Protocol

The use of the Protocol is governed to protect its integrity, ensure appropriate qualification of trainers and assessors, provide quality control, consistency and comparability of training material, assessments and results, and revenue generation to sustain further development of the Protocol and associated activities.

The Protocol is governed by the Hydropower Sustainability Assessment Council. A Charter, which sets out rules concerning the formation and decision-making of the Council, and Terms and Conditions for Use of the Protocol were adopted in June 2011. These key documents are publicly available on www.hydrosustainability.org.

The Council consists of a Governance Committee, a Management Entity, and a series of Chambers. Each chamber represents a different segment of stakeholders, such as 'hydropower operators', or 'environmental organisations', and each elect chairs and alternate chairs that come together to form the Governance Committee. The mission of the Council is to ensure multi-stakeholder input and confidence in the Protocol content and its application, and the Council welcomes and encourages input from, and engagement with, all stakeholders involved in the development of hydropower.

The terms and conditions define an official assessment as one which:

- Is carried out by an independent accredited assessor;
- Involves the principal organisation responsible for the project, demonstrated by their written support; and
- Meets any other guidelines for official assessment published by the Hydropower Sustainability Assessment Council.

No Protocol Assessment reports may make statements regarding the certification of the project in question as 'certified sustainable' or similar claims regarding a 'pass' or 'fail' of a sustainability standard. The publication of a Protocol assessment which does not meet the requirements of an official assessment, yet in intent and design implies that it is an official assessment, constitutes unauthorised use of the Protocol and will be considered in breach of the Terms and Conditions.

Subject to the Terms and Conditions for Use, the Protocol is available to all parties, without charge, on www.hydrosustainability.org, and is free to be used without license for informal purposes, such as informing dialogue, and guiding business systems and processes. The Protocol, with its previous drafts, is protected by IHA through international intellectual property law, including copyright.

Principles Underpinning the Protocol

- Sustainable development is development that meets the needs of the present without compromising the ability of future generations to meet their own needs.
- Sustainable development embodies reducing poverty, respecting human rights, changing unsustainable patterns of production and consumption, long-term economic viability, protecting and managing the natural resource base, and responsible environmental management.
- Sustainable development calls for considering synergies and trade-offs amongst economic, social and environmental values. This balance should be achieved and ensured in a transparent and accountable manner, taking advantage of expanding knowledge, multiple perspectives, and innovation.
- Social responsibility, transparency, and accountability are core sustainability principles.
- Hydropower, developed and managed sustainably, can provide national, regional, and local benefits, and has the potential to play an important role in enabling communities to meet sustainable development objectives.

What is a Sustainable Hydropower Project?

The principles underlying this Hydropower Sustainability Assessment Protocol, combined with results of a Protocol assessment, provide an important framework for considering questions about the sustainability of any particular hydropower project.

There is a common view across a diversity of sectors (e.g. governments, NGOs, civil society, industry, banks) on the important sustainability considerations that need to be taken into account to form a view on hydropower project sustainability. The Protocol captures these considerations in a structured framework, and provides a platform from which to produce a sustainability profile for a project.

The Protocol is designed for the Level 3 scores, describing basic good practice, to be broadly consistent with the IHA Sustainability Guidelines 2004, and where there are gaps or inconsistencies that any future review of these IHA guidelines would consider these.

Organisations may hold different views on what levels of performance are linked to a sustainable project, and the Protocol makes no specification on requirements for acceptable performance. All countries and organisations adopting and supporting this Protocol respect the need for institutions to have their own policies and positions on acceptable performance for a hydropower project. All organisations expressing support for the Protocol recognise that a Protocol assessment can make a substantial contribution towards understanding and achieving sustainable projects. In producing a sustainability profile, the Protocol can help inform decisions on what is a sustainable project; decision-making on projects is left to individual countries, institutions and organisations.

Protocol Structure

The Protocol comprises five documents –this Background document and four assessment tools for the different stages of the project life cycle, as shown in Figure 1.

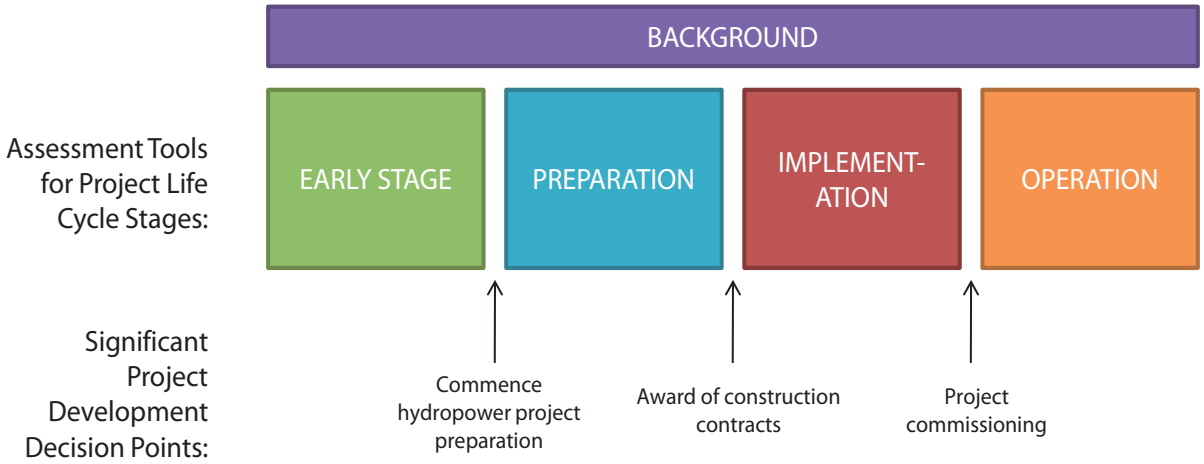

Figure 1 - Protocol Assessment Tools and Major Decision Points

Protocol Assessment Tools

The four Protocol assessment tools – Early Stage, Preparation, Implementation, and Operation – are designed to be stand-alone assessments applied at particular stages of the project life cycle. An assessment with one tool does not depend on earlier stage assessments to have been undertaken. The assessment tools are designed to be applicable up to major decision points in the project life cycle (shown in Figure 1), and are most effective where there are repeat applications to help guide continuous improvement measures. Results of assessments undertaken during a project stage have the potential to assist in defining further measures to be undertaken during that project stage, or to inform the key decisions that would be made at the end of that project stage.

The **Early Stage** assessment tool is a preliminary screening tool to assess the strategic environment from which proposals for hydropower projects emerge. It identifies project risks and opportunities at an early stage, in order to identify the challenges and management responses to proceed with a more detailed project investigation. The Early Stage assessment tool may also be usable for other broader purposes, such as the identification of opportunities to improve the sustainability context of hydropower investments. The Early Stage assessment tool differs from the other three assessment tools in that it is an assessment guide but not a scoring protocol. This is because there is not a clearly formulated project at this stage, nor a strong basis of information from which to derive sustainability scores. A further difference is that early investigations about potential project possibilities are often of a confidential nature, especially in the case in which developers have not yet decided whether to invest in more detailed studies, or where there is a highly competitive context of a liberalised energy market. As long as no public announcement about project intentions has been made, this Early Stage assessment tool offers a means to encourage better early stage analysis and identification of knowledge gaps. As soon as detailed technical, environmental, social and financial feasibility studies are undertaken, often under a strict governmental process, the use of the Preparation assessment tool will be appropriate.

The **Preparation** assessment tool assesses the preparation stage of a hydropower project, during which investigations, planning and design are undertaken for all aspects of the project. This project stage is normally subject to national regulatory processes regarding project-specific Environmental and Social Impact Assessment (ESIA) requirements as well as project management processes. Following project preparation, there is a critical decision point in the decision to award the construction contracts. An assessment conducted at this point in time would assess whether all preparatory requirements have been met, management plans are in place, and commitments are appropriate and binding. This Protocol assessment tool can be used prior to, and to inform, the decision to move forward with project implementation. This decision is governed by national regulatory processes to obtaining a construction permit and an operating license based on the ESIA and project specific governmental requirements. Following this point, construction commences along with relevant elements of environmental and social management plans.

The **Implementation** assessment tool assesses the implementation stage of a hydropower project, during which construction, resettlement, environmental and other management plans and commitments are implemented. Commissioning of the power station enables the project to start to earn money, and in fact often some units (i.e. turbines) of a multiple unit power station are commissioned while others are still being installed to assist in meeting the financial commitments of the project. An assessment made prior to the decision to commission any units would assess whether all commitments have been met, and can inform the timing and conditions of project commissioning.

The **Operation** assessment tool assesses the operation of a hydropower facility. This Protocol assessment

tool can be used to inform the view that the facility is operating on a sustainable basis with active measures in place towards monitoring, compliance and continuous improvement. This project phase is framed by the operating conditions put forth in a national governmental authorisation often called operating license.

A project may be at an early or late point in the project stage when an assessment is undertaken. Assessments may be forward looking (i.e. what activities should be undertaken) or backward looking (reflecting on how well activities were undertaken). The Protocol is designed for repeat application, and an assessment undertaken early in a life cycle stage may guide activities that would result in stronger performance in a later stage assessment. There may be overlap between stages of the project life cycle (e.g. implementation activities during project preparation, or turbines commissioned while implementation activities are still progressing). If a project is in transition between stages, the choice of which assessment tool to use depends on the purpose of the assessment.

Hydropower projects tend to have an extensive lifetime, with many operating facilities having been in service for more than a century. The Early Stage assessment tool can provide guidance on some of the important considerations to take into account for decisions relating to facility or transmission network re-optimisation, facility life extension or decommissioning. Project decisions relating to major refurbishment would utilise the Preparation assessment tool. In the case of re-licensing or minor refurbishment, the Operations assessment tool would be appropriate for the assessment.

Protocol Topics

Within each Protocol assessment tool is a set of topics important to forming a view on the overall sustainability of that project at that point in its life cycle. Topics, when taken together, provide the list of issues that must be considered to confidently form a view on the overall sustainability of a hydropower project at a particular point in its life cycle.

Figure 2 shows the perspectives which are captured by the Protocol topics. It is recognised that an individual topic is not always neatly labelled as a particular perspective. For example, water quality may be typically seen as an environmental perspective, but poor water quality may have strongly negative social consequences. Some of the topics provide an integrative function across the other perspectives, for example Integrated Project Management.

Integrative Perspective			
Environmental Perspective	Social Perspective	Technical Perspective	Economic/Financial Perspective

Figure 2 – Perspectives Represented by Protocol Topics

Table 1 provides a list of topics for each assessment tool. As can be seen, there are topics which address each perspective shown in Figure 2, including topics which are integrative in nature such as Governance, or Siting and Design. Not every topic will be relevant to every project, and so at the front of the Preparation, Implementation and Operation documents is a Topic Relevance Guide to assist in determining relevant topics. For example, if there is no Resettlement the Resettlement topic does not need to be assessed.

Structure of Each Topic Page

Each topic has the following information provided on the topic page:

- **Statements of description** and intent for that topic. The statement of description defines the scope of the topic. The intent statement provides information to help orient the reader and users on why that topic is important to the overall sustainability of the project and what should generally be achieved; it is not tied to any particular scoring level.
- **Scoring statements** at levels 1, 2, 3, 4 and 5 to guide how to allocate scores. These statements are structured around criteria that are considered to be the most pertinent to that topic at that particular stage of the project life cycle. Scoring statements are not found in the Early Stage assessment tool, which is guidance only.
- **Assessment guidance** – this provides definitions, explanations or examples of words, themes or concepts referred to in the topic description, intent or scoring statements. These are provided to assist the assessor in the assignment of scores. Also provided are examples of potential interviewees and examples of evidence which can guide the design, preparation for and undertaking of the assessment process. Where examples are cited, these are examples only and are provided to assist in understanding; these should not be interpreted as absolute requirements or assumed that all components must be met.

Table 1 - Hydropower Sustainability Assessment Protocol Topics by Section

ES - Early Stage	P - Preparation	I - Implementation	O - Operation
ES-1 Demonstrated Need	P-1 Communications and Consultation	I-1 Communications and Consultation	O-1 Communications and Consultation
ES-2 Options Assessment	P-2 Governance	I-2 Governance	O-2 Governance
ES-3 Policies and Plans	P-3 Demonstrated Need and Strategic Fit		
ES-4 Political Risks	P-4 Siting and Design		
ES-5 Institutional Capacity	P-5 Environmental and Social Impact Assessment and Mgmt	I-3 Environmental and Social Issues Mgmt	O-3 Environmental and Social Issues Mgmt
ES-6 Technical Issues and Risks	P-6 Integrated Project Management	I-4 Integrated Project Management	
ES-7 Social Issues and Risks	P-7 Hydrological Resource		O-4 Hydrological Resource
ES-8 Environmental Issues and Risks			O-5 Asset Reliability and Efficiency
ES-9 Economic and Financial Issues and Risks	P-8 Infrastructure Safety	I-5 Infrastructure Safety	O-6 Infrastructure Safety
	P-9 Financial Viability	I-6 Financial Viability	O-7 Financial Viability
	P-10 Project Benefits	I-7 Project Benefits	O-8 Project Benefits
	P-11 Economic Viability		
	P-12 Procurement	I-8 Procurement	
	P-13 Project Affected Communities and Livelihoods	I-9 Project Affected Communities and Livelihoods	O-9 Project Affected Communities and Livelihoods
	P-14 Resettlement	I-10 Resettlement	O-10 Resettlement
	P-15 Indigenous Peoples	I-11 Indigenous Peoples	O-11 Indigenous Peoples
	P-16 Labour and Working Conditions	I-12 Labour and Working Conditions	O-12 Labour and Working Conditions
	P-17 Cultural Heritage	I-13 Cultural Heritage	O-13 Cultural Heritage
	P-18 Public Health	I-14 Public Health	O-14 Public Health
	P-19 Biodiversity and Invasive Species	I-15 Biodiversity and Invasive Species	O-15 Biodiversity and Invasive Species
	P-20 Erosion and Sedimentation	I-16 Erosion and Sedimentation	O-16 Erosion and Sedimentation
	P-21 Water Quality	I-17 Water Quality	O-17 Water Quality
		I-18 Waste, Noise and Air Quality	
	P-22 Reservoir Planning	I-19 Reservoir Preparation and Filling	O-18 Reservoir Management
	P-23 Downstream Flow Regimes	I-20 Downstream Flow Regimes	O-19 Downstream Flow Regime
	P-24 Climate Change Mitigation and Resilience	I-21 Climate Change Mitigation and Resilience	O-20 Climate Change Mitigation and Resilience

Assessment Criteria

There are six criteria that may be utilised for the scoring statements on each topic – Assessment, Management, Stakeholder Engagement, Stakeholder Support, Conformance/Compliance, and Outcomes. These provide an ability to assess both the processes in place to ensure sustainability of the project or operation, and the performance of that project or operation on that particular sustainability topic.

Understanding the Protocol's Gradational Assessment Approach

The gradational approach undertaken in the Preparation, Implementation and Operation assessments tools can be understood by examination of Table 2. This table provides general guidance on characteristics that are likely to be exhibited for these different criteria at the five different scoring levels. The scoring statements found in the Preparation, Implementation and Operation assessment tools have been guided by the approach shown in Table 2. This table is not intended to be the basis for assigning of scores, as sufficient information generally should be provided on the topic pages. However, this table can be referred to during an assessment if there is insufficient information in the topic scoring statements and in the topic-specific assessment guidance to help the assessor to determine a score. If there are questions in the assessment process about whether the assessment, management and stakeholder engagement approaches are sufficient for basic good practice, Table 2 may be of assistance.

Glossary of Terms

Definitions for terms that are commonly seen throughout the Protocol are found in the Glossary of Terms, found at the back of each of the four assessment tools, and at the back of this Background document. This glossary generally provides definitions that are not provided on the topic pages, although there may be some overlap if the definition is thought to be of general interest. For example, if there is a term whose definition is critical to a particular topic then the definition will be found on the topic page (e.g. the definition of "Indigenous Peoples" will be found under Assessment Guidance on the Indigenous Peoples topic page), but this is also provided in the Glossary of Terms.

HSAF Knowledge Base

The Hydropower Sustainability Assessment Forum (HSAF) developed an online HSAF Knowledge Base to capture information considered by the Forum during development of the Protocol. This website can be accessed at http://www.hydropower.org/sustainable_hydropower/HSAF.html. The HSAF Knowledge Base is a resource with a depth of information on Protocol topics and cross-cutting issues that can be accessed by those who are interested. The HSAF Knowledge Base identifies a number of the standards that were important reference points for the different topics and themes addressed in the Protocol. Important reference points have included the World Commission on Dams 2000 report, the UNEP Dams and Development Project, the IFC Performance Standards, the World Bank and other multi-lateral safeguards policies, ISO standards, and numerous UN declarations and conventions. It will provide a valuable record for future development of support material to accompany the Protocol.

Assigning Scores and Presenting Results

The Preparation, Implementation and Operation assessment tools enable development of a sustainability profile for the project under assessment. For each topic, scoring statements describe what should be exhibited by the project to address that important sustainability issue. It is recognised that different organisations may have the primary responsibility for different sustainability topics. Because it is likely that these responsibilities vary amongst countries and at project life cycle stages, no specification on organisational responsibilities is made in the Protocol scoring statements. It would be expected in the assessment reports to indicate where organisational responsibilities lie.

Scoring Levels

In the Preparation, Implementation and Operation assessment tools, each topic is scored from Level 1 to 5. The Level 3 and Level 5 statements provide meaningful and recognisable levels of performance against which the other scores are calibrated.

Level 3 describes **basic good practice** on a particular sustainability topic. Level 3 statements have been designed with the idea that projects in all contexts should be working toward such practice, even in regions with minimal resources or capacities or with projects of smaller scales and complexities. Note that the Protocol does not state that Level 3 is a standard that must be achieved; expectations on performance levels are defined by organisations that make decisions or form views based on Protocol assessments.

Level 5 describes **proven best practice** on a particular sustainability issue that is demonstrable in multiple country contexts. Level 5 statements have been designed with the idea that they are goals that are not easy to reach. However, they have been proven that they can be attained in multiple country contexts, and not only by the largest projects with the most resources at their disposal. 5s on all topics would be very difficult to reach, because practical decisions need to be made on priorities for corporate/project objectives and availability/allocation of resources (time, money, personnel) and effort.

On the topic pages, the Level 3 statements are provided in full, and the Level 5 statements provide what is exhibited in addition to that described in the Level 3 statement. Consequently, the Level 5 statements are meant to be read in conjunction with the Level 3 statements.

The other scoring levels are represented by standard statements which use basic good and proven best practice as reference points:

Level 1 - There are significant gaps relative to basic good practice.

Level 2 - Most relevant elements of basic good practice have been undertaken, but there is **one significant gap**.

Level 4 - All elements of basic good practice have been undertaken and in one or more cases exceeded, but there is **one significant gap** in the requirements for proven best practice.-

Table 2: Understanding the Protocol's Gradational Approach

This table captures characteristics that are likely to be exhibited at different scoring levels for each of the criteria used in the Hydropower Sustainability Assessment Protocol.

Level	Assessment	Management
5	Suitable, adequate and effective assessment with no significant opportunities for improvement. In addition to basic good practice (Level 3), the assessment is likely to take a relatively broad, external or regional view or perspective; emphasise opportunities; and show a high level examination of interrelationships amongst relevant sustainability issues.	Suitable, adequate and effective management processes with no significant opportunities for improvement. In addition to basic good practice (Level 3), management plans and processes are likely to show excellent anticipation of, and response to, emerging issues or opportunities; senior management and/or executive decisions are likely to be timely, efficient and effective in response to monitoring data, investigations and issues arising; and, in cases, commitments in plans are public, formal and legally enforceable.
4	Suitable, adequate and effective assessment with only a few minor gaps. In addition to basic good practice (Level 3), the assessment is likely to exhibit some recognition of broader, external or regional issues; opportunities; and interrelationships amongst relevant sustainability issues.	Suitable, adequate and effective management processes with only a few minor gaps. In addition to basic good practice (Level 3), management plans and processes are likely to exhibit good anticipation of, and response to, emerging issues or opportunities; and, in cases, commitments in plans are public and formal.
3	Suitable adequate and effective assessment with no significant gaps. This would typically encompass (as appropriate to the topic and life cycle stage) identification of the baseline condition including relevant issues, appropriate geographic coverage, and appropriate data collection and analytical methodologies; identification of relevant organisational roles and responsibilities, and legal, policy and other requirements; appropriate utilisation of expertise and local knowledge; and appropriate budget and time span. At level 3 the assessment encompasses the considerations most relevant to that topic, but tends to have a predominantly project-focussed view or perspective and to give stronger emphasis to impacts and risks than it does to opportunities.	Suitable, adequate and effective management processes with no significant gaps. These would typically encompass (as appropriate to the topic and life cycle stage) development and implementation of plans that: integrate relevant assessment or monitoring findings; are underpinned by policies; describe measures that will be taken to address the considerations most relevant to that topic; establish objectives and targets; assign roles, responsibilities and accountabilities; utilise expertise appropriate to that topic; allocate finances to cover implementation requirements with some contingency; outline processes for monitoring, review and reporting; and are periodically reviewed and improved as required.
2	A significant gap in assessment processes relative to basic good practice (Level 3).	A significant gap in management processes relative to basic good practice (Level 3).
1	Significant gaps in assessment processes relative to basic good practice (Level 3)	There are significant gaps in management processes relative to basic good practice (Level 3)

Stakeholder Engagement	Stakeholder Support	Outcomes	Conformance/ Compliance
Suitable, adequate and effective stakeholder engagement processes with no significant opportunities for improvement. In addition to basic good practice (Level 3), the engagement is likely to be inclusive and participatory with the directly affected stakeholders; thorough feedback is likely to be available on how directly affected stakeholder issues are taken in to consideration; in cases, there is likely to be directly affected stakeholder involvement in decision-making; and information identified through engagement processes to be of high interest to stakeholders is released publicly in a timely and easily accessible manner.	There is support of nearly all directly affected stakeholder groups for the assessment, planning or implementation measures for that topic, or no opposition by these stakeholders. In cases formal agreements or consent with the directly affected stakeholder groups have been reached for management measures for that topic.	In addition to basic good practice (Level 3), there may be exhibited enhancements to pre-project conditions; contributions to addressing issues beyond those impacts caused by the project; leveraging of opportunities; or significant contribution to capacity building.	No non-compliances or non-conformances.
Suitable, adequate and effective stakeholder engagement processes with only a few minor gaps. In addition to basic good practice (Level 3), there is likely to be good feedback on how directly affected stakeholder issues have taken into consideration; and information on sustainability topics understood to be of high interest to stakeholders is voluntarily released publicly.	There is support of a large majority of directly affected stakeholder groups for the assessment, planning or implementation measures for that topic, or only very low level opposition by these stakeholders.	In addition to basic good practice (Level 3), there may be exhibited full compensation of negative impacts; some positive enhancements; or evidence of capacity building associated with the project.	Very few minor non-compliances and non-conformances that can be readily remedied.
Suitable, adequate and effective stakeholder engagement processes with no significant gaps. These would typically encompass (as appropriate to the topic and life cycle stage): Identification of directly affected stakeholders; Appropriate forms, timing, frequency and locations of stakeholder engagement, often two-way; Freedom for affected stakeholders to participate; Attention to special stakeholder engagement considerations relating to gender, minorities, cultural sensitivities, level of literacy, and those who might require particular assistance; Mechanisms by which stakeholders can see that their issues are recognised and acknowledged, and how they have been or are being responded to; and disclosure of information on significant sustainability topics (in cases, this may be on request).	There is general support amongst directly affected stakeholder groups for the assessment, planning or implementation measures for that topic, or no significant ongoing opposition by these stakeholders.	As appropriate to the topic and the life cycle stage, there may be exhibited avoidance of harm, minimisation and mitigation of negative impacts; fair and just compensation; fulfilment of obligations; or effectiveness of implementation plans.	No major non-compliances and non-conformances.
A significant gap in stakeholder engagement processes relative to basic good practice (Level 3).	There is support amongst some directly affected stakeholder groups for the assessment, planning or implementation measures for that topic, with some opposition.	A significant gap relative to basic good practice (Level 3), for example, some deterioration in baseline condition.	A major non-compliance or non-conformance.
There are significant gaps in stakeholder engagement processes relative to basic good practice (Level 3).	There is low support amongst directly affected stakeholder groups for the assessment, planning or implementation measures for that topic, or a majority oppose.	Significant gaps relative to basic good practice (Level 3), for example deterioration in baseline conditions with delay or difficulties in addressing negative impacts.	major non-compliances and non-conformances.

Methodology for Assigning Scores

The Protocol has been designed so a score can be readily assigned for each sustainability topic in the Preparation, Implementation and Operation assessment tools. The following steps are involved in the assignment of a score for each Protocol topic:

1. The assessor evaluates if the scoring statements for each of the criteria specified at Level 3 are met by the project.
2. If there is one significant gap relative to the Level 3 statements (all or part of a criterion is not fulfilled), then a score of 2 is assigned to the topic.
3. If there is more than one significant gap relative to the Level 3 statements, then a score of 1 is assigned to the topic.
4. If all of the Level 3 statements are met, then the assessor evaluates if the scoring statements for each of the criteria specified at Level 5 are met by the project.
5. If there is one significant gap relative to the Level 5 statements, then a score of 4 is assigned to the topic.
6. If there is more than one significant gap relative to the Level 5 statements, then a score of 3 is assigned to the topic.
7. If all of the Level 5 statements are met, then a score of 5 is assigned to the topic.

"Significant" means important in effect or consequence, or relatively large. If there are minor gaps, these will not affect the score. That is to say, if there are minor gaps in meeting the requirements specified in the Level 3 statements, a score of 3 is still assigned. The significance of any gap is tested by the assessor through inquiry about the importance or magnitude of the effect or consequence of that gap.

The assessment guidance for each topic is provided to assist the assessor in understanding what is meant by different terms or phrases in the scoring statements. These are not absolute lists of requirements that must be met, but rather are often expressed as examples. The Glossary of Terms is also found in each assessment tool document, and contains many of the commonly used terms throughout the Protocol. The table entitled "Understanding the Protocol's Gradational Assessment Approach" is also included in each assessment tool document; if the assessor is having difficulties assigning scores based only on the topic page information, this table could be referred to as a form of assistance in determining scores.

There is the potential to assign scores for each of the topic criteria appearing on a topic page, in the interests of eliciting greater insights from the assessment.

Objective Evidence

The score for each sustainability topic is assigned by the assessor during the Protocol assessment based on review of objective evidence. The Protocol 'assessment' is understood to be the defined and agreed time period during which the assessor is conducting interviews and reviewing evidence towards assigning scores.

The term objective evidence refers to evidence brought to the attention of the assessor by relevant documentation and interviewees. This evidence is used by the assessor to verify whether and to what degree the scoring requirements for a particular Protocol topic have been met.

Objective evidence can be qualitative or quantitative information, records or statements of fact, either verbal or documented. It is retrievable or reproducible, is not influenced by emotion or prejudice, and is based on facts obtained through observation, measurements, documentation, tests or other means. Personal observation by the assessor counts as objective evidence, which makes the site tour an important part of the assessment process.

Interviewees are those individuals with whom the assessor formally meets during the Protocol assessment, and who bring forward information that has bearing on the score assigned for a Protocol topic. A number of interviewees will be representatives of the organisation or partnership with the primary responsibility for the project at that particular life cycle stage; these will hereafter be referred to as "project representatives". Other interviewees may be from key government agencies or stakeholder groups with particular responsibilities, knowledge or insight on a particular sustainability topic or group of topics.

An assessment process is always a sampling process given time and logistical limitations, and the assessor will need to assign scores based on the evidence presented. A nominated lead project representative will be ultimately responsible for ensuring that evidence is provided to justify scores; this includes arrangement of interviews with key stakeholders who are not project representatives. The assessor will be highly conscious of the need for the assessment to be credible. The assessor should work with the lead project representative ahead of time to agree on the purpose of the assessment, how it will be used, what relevant documentation can be provided in advance and how it can be best structured to ensure as high a degree of credibility as possible given the time and logistical constraints.

Documentary evidence as a form of objective evidence is clearly retrievable and reproducible, and so can be a very efficient form of evidence provision in an assessment process. In cases documents may be provided to the assessor on a confidential basis, for example financial data, and this would need to be noted in the assessment report. In the absence of documentary evidence on a particular topic, personal observation and/or interviews can be sources of evidence. Interviews are selective, and should always be targeted at those who are accepted as having clear responsibilities, knowledge or insight on a particular sustainability topic or group of topics (and conversely should not exclude those who are accepted as having clear responsibilities, knowledge or insight on a particular sustainability topic or group of topics). Interviews should never be construed as an opinion poll on the project's sustainability performance, but rather they should be designed to "triangulate" verbal evidence, meaning to get verification from other sources.

The assessor may choose to conduct independent research to identify issues that may have been raised in relation to the project (e.g. media or internet search). This would need to be disclosed to the lead project representative ahead of time, and the project representatives given the opportunity in the Protocol assessment to address and respond to any issues identified by the assessor through such means.

Assigning "Not Relevant"

The Protocol is a global assessment tool and there is a lot of variety that must be accommodated, for example project scale and complexity, public or private sector projects, mainstream or tributary stream siting, multi-unit versus single-unit design, single versus multi-use purpose, or reservoir versus run-of-river design. In addition, in the particular context of the hydropower project certain issues may not be relevant; for example, there may be no resettlement or cultural heritage issues that need to be managed.

To accommodate the amount of variety that will be encountered, assessors can identify a topic as Not Relevant if evidence presented supports such a conclusion. At the front of each assessment tool is a topic relevance guide to support such considerations. Also, early in each of the Preparation, Implementation and Operation assessment tools is found the topic relating to assessment and management of environmental and social issues – review of the Environment and Social Impact Assessment documents or related Management Plans should provide credible evidence that helps determine if later topics in the Protocol are not going to be relevant. Assessment guidance notes have also been provided for some topics to assist the assessor in determining if it is Not Relevant.

It may be that in some cases a component of a topic is not relevant. Depending on the project stage of the assessment and specific national contexts a criterion might not be relevant. In this case the assessor is able to assign a score based on the relevant content of the topic, but should make it clear in the assessment report what was considered not relevant and the evidence on which this determination was based.

Assigning "Not Scored"

The assessor assigns the score at the lowest level for which evidence is available to support the score. Verbal reassurances that evidence exists are not sufficient. In the absence of any interviews or objective evidence the assessor indicates that that topic is "Not Scored". Assigning Not Scored would be appropriate in the case that an important scheduled interviewee is not able to be present at the last minute, in which case a topic may not be able to be assessed. If the assessor commences assessment of a topic, but is not able to verify the objective evidence to support a score, Not Scored should be assigned.

Assigning Not Scored to particular topics will also be relevant in the case that there is an agreement ahead of time that the assessment is a partial assessment, and not all topics will be assessed. The objective of a Protocol assessment is to produce a sustainability profile for the project, so an outcome with Not Scored assigned to any of the topics is considered an incomplete assessment. A project sustainability profile with Not Scored indicated on any of the topics should not be accepted as a representation of that project's sustainability performance.

Relationship of Scores to Compliance with Regulatory Obligations

The preparation, implementation and operating phase of a hydropower project are framed by national regulations. First and foremost, a project is expected to comply with the laws and concessions/permits of the government. The Protocol offers a complementary tool, on a voluntary basis and in the spirit of continuous improvement, that identifies opportunities for improvement with respect to sustainability criteria relevant to an international context.

Compliance with relevant regulatory requirements is expected for all projects, and is an essential component of good practice. National or state requirements may be more or less stringent than the Level 3 statements in the Protocol. The Protocol is a globally applicable assessment tool, and makes no judgements on national

requirements which are set for reasons of relevance to that country. There may in fact be cases where local law sets out, for example, compensation measures that a proponent should not legally go above or below.

Compliance with regulatory requirements does not equate to a particular scoring level in the Protocol, but should be recorded by the assessor if it is a substantive issue for the assessment.

If a conflict between regulatory requirements and the level of statements in the Protocol arises as a point of issue in the assessment, the assessor should note if the project has met the regulatory requirements for a particular criterion and what these regulatory requirements are with respect to the Protocol specifications, in addition to assigning a scoring level based on the Protocol specifications. Decision-makers will then be able to determine their own views on this information.

Presenting the Results

Based on the Protocol assessment, a report is developed, a typical structure and content of which might be consistent with that shown in Figure 3. A formal template for reporting and presentation of results will be developed in the future, based on review of application experience as well as better understanding of the needs and interests of utilising organisations.

Analysis of areas of strength, weakness and opportunity, and recommendations for the project, could be included if this has been specifically requested for the assessment report.

The emphasis is not on an overall single score or a pass/fail for a project, but rather on provision of a sustainability profile for the project accompanied by information that assists in systematically analysing and understanding the strengths, weaknesses and pathways towards improvement.

In provision of a summary table and diagram, the scores are presented to show topic by topic performance and are not aggregated. If a topic is Not Relevant or is Not Scored, it is shown as such in the report, summary table and summary figure. A simple bar chart, histogram or webgram could work well for a summary figure. Averaging, totalling, or calculating percentages with scores is not intended, as it will mask areas of low performance and hence diminish credibility in the Protocol assessment as an aid to advancing project sustainability.

Preparing for and Conducting a Protocol Assessment

The following is provided as guidance on what might typically be involved in preparing for and conducting a Protocol assessment, based on the experience of utilisation of the previous IHA Sustainability Assessment Protocol 2006 and trialling of the Draft Hydropower Sustainability Assessment Protocol 2009. More formal guidance on steps in preparing for and conducting a Protocol assessment will be developed in the future, based on review of application experience as well as better understanding of the needs and interests of utilising organisations.

Assessments are conducted at the hydropower project site and often also at the project head office. The participants in and time allocated for a Protocol assessment will vary depending on project complexity, key issues, and how the results are intended to be used. One to two assessors would be considered appropriate for an assessment; the advantage of two would be if they provide different experiences, expertise and insights into the evaluation process. For particularly complex assessments, a team may be required so that interviews can be done in parallel. Assessors could be internal or external to the project, depending on the level of need for independence. Of necessity would be that the assessors have credible sustainability assessment and/or auditing experience. If there are reasons to have a high level of transparency or partnership in such an undertaking, an assessment could be observed by or undertaken in partnership with an external party (e.g. a representative from an NGO, civil society, development bank, commercial bank, bilateral donor or government as long as these are distinct from interviewees for the project).

Considerable preparation, in the order of one month for multiple representatives of the project, would be expected prior to an assessment, although this should diminish as users become more familiar with the Protocol. The organisation or partnership with primary responsibility for the project at that life cycle stage identifies a lead project representative to be the main point for coordination in arranging the assessment. This lead project representative would be available to the assessment team at all times so that he/she is aware of the information gaps and needs of the assessors and how best to address them.

Prior to the arrival of the assessors on site, the lead project representative would ensure:

- clarification on the purpose of the assessment and the expectations for its process (time, depth, breadth, range of interviewees, etc) and outcomes (how results will be presented, degree of interpretation, provision of recommendations, etc);
- identification of internal staff or external individuals who can provide information to support assessments on particular topics, and prior briefing of those individuals;
- review of the relevant assessment tool(s) of the Protocol by participants;
- identification of objective evidence that can be brought to the interviews to support scoring for each topic;
- provision of any background reading material for the assessors;
- preparation of an agenda and interview schedule for the visit, to be agreed with the assessors; and
- preparation of project overview presentation.

EXECUTIVE SUMMARY: Brief statements about the project, purpose of assessment, and outcomes including summary table and diagram of assessment results and any important explanatory or interpretive comments, in a form suitable for presentation to company Executive and Board.

PART 1: ABOUT THE PROJECT AND THE ASSESSMENT

- Project name, location, owner or main responsible organisation
- Assessment dates
- Assessor name(s), title(s), organisational name(s), credentials
- Any observers or partners in the assessment – names, titles, organisations, credentials
- Project lead representative(s) name(s)
- Background information about the project including purpose of the project, capacity, and major lay-out and design features, and stage in the development cycle
- Purpose of the Protocol assessment and agreements on its scope, process and intended outcomes including level of confidentiality
- Disclaimers and confidentiality agreements if any (these may relate to evidence cited, for example financial data)
- Schedule of the assessment

PART 2: PROTOCOL ASSESSMENT FINDINGS

- Summary of outcomes including table and diagram of assessment results and any important explanatory or interpretive comments
- For each topic:

  Several paragraphs on project context with respect to the topic, including primary organisational responsibilities.

  Interviewees.

  Objective evidence by type (visual, documentary, verbal) with comments as appropriate.

  Scores assigned and reasons for.

  Explanations for topics that are assigned Not Relevant or Not Scored.

  Any notes of importance (e.g. regulatory requirements, information gaps, etc).

PART 3: ATTACHMENTS

- Register of documentary evidence viewed (preferably numbered or coded)
- Register of individuals interviewed

Figure 3 – Example Protocol Assessment Report

During the assessment, the lead project representative would ensure:

- availability of the lead project representative at all times;
- provision of an interpreter if required;
- relevant staff and external stakeholders attending meetings and interviews;
- provision of site tour to include all locations pertinent to the scoring requirements, meeting of project affected stakeholders, and viewing of objective evidence;
- provision of relevant documentary evidence for viewing; and
- provision of rooms where initial and close out meetings can be held, interviews conducted, and documentation viewed.

On each topic page are examples of potential interviewees and also examples of evidence. These will vary depending on the context. In the assessment, interviewees will vary with topic, and could include relevant project representatives, government representatives, community representatives and experts with particular responsibilities, insight and knowledge about the topic under focus. If major decisions are tied to the Protocol assessment outcomes, and transparency and credibility are important to establish, an interview schedule involving diverse stakeholder perspectives can help increase confidence in the findings.

In the assessment, a careful record is documented that captures all sites viewed, all individuals interviewed (titles, names, positions, organisations, relevant topic), and all evidence viewed (document titles, date, where held, relevant topic).

As a preliminary guide, at least five working days from arrival to departure of the assessors should be planned on for a Protocol assessment, although this will be more or less for an individual project depending on project scale and purpose of the assessment. A full-blown in-depth sustainability assessment might be done where the purpose is to support external decision-making, whereas a more cursory assessment might be done for internal self-assessments to guide project management directions by identifying project risks and opportunities for improvement. As mentioned above, more formal guidance on steps in preparing for and conducting a Protocol assessment will be developed in the future.

A typical assessment itinerary might be as follows:

- First Day - Initial meeting, often with introductory presentations by assessor(s) about the assessment process, and by the project representatives and others (such as government agencies) about the project. This is typically followed by a tour of the project, including downstream impacted areas and resettlement areas as far as practicable given travel times, logistical constraints, and key areas of focus for the project.
- Intermediate Days - Interviews by the assessor in relation to all Protocol topics. These interviews would be with project representatives and with other stakeholders (e.g. government, experts, NGOs, civil society, project affected communities) relevant to the different Protocol assessment requirements. The assessor will also spend time reviewing evidence typically in the form of reports and documents. The number of days depends on size and complexity of the project, level of formality of the assessment, breadth and depth of the interviews involved, and also travel times.
- **Final Day -** Close out meeting between the assessor and the project representatives, which could involve a presentation and/or discussion on key assessment findings, information gaps, and areas of strength, weakness and opportunity for the project.

Some topics may benefit from visiting twice in the assessment process. For example, the Governance Topic is second in the order of topics in the Preparation, Implementation and Operation assessment tools, and is critical for assessing the policies and practices that a developer or owner/operator has in place in the planning, construction and operation phases. An assessment of the Governance topic early in the Protocol assessment process enables an overview of the systems in place; a later revisit of this topic might allow for a finer assessment of the effectiveness of the systems in place. Typically some final meetings in the company's head office enables some of the questions about higher level policies that govern practices observed on site to be asked and evidence viewed.

Further Information

High Profile and Cross-Cutting Issues

There are a number of high profile and cross-cutting issues that are addressed in the Protocol but may not be apparent in the names of the topics and criteria. In the following, the letter codes refer to the different Protocol assessment tools (ES – Early Stage, P – Preparation, I – Implementation, O – Operation), followed by the topic number within that assessment tool.

Human rights is another issue that permeates through many facets of the Protocol assessment tools. There is an ever-growing body of support material on how companies can establish human rights policies and processes governing their business, and conduct human rights impact assessments in relation to their projects and operations. In fact because of the many facets of human rights that are addressed through a Protocol assessment, it could be used to help demonstrate how a project addresses human rights. Various human rights are addressed through almost all topics shown in Table 1, as well as through references in scoring statements to stakeholder engagement and public disclosure. The definition of a directly affected stakeholder is one with substantial rights, risks and responsibilities in relation to the project, and these are commonly referred to throughout the Protocol. Respecting human rights is directly built into the intent statements for the Resettlement (P-14, I-10, O-10) and Indigenous Peoples (P-15, I-11, R-11) topics. The Environmental and Social Impact Assessment and Management (P-5) scoring statement for Level 5 refers to social impact assessments that incorporate assessment of human rights. The Labour and Working Conditions topic (P-16, I-12, O-12) scoring statement for Level 5 refers to consistency of labour management policies and practices with internationally recognised labour rights.

Further high profile and cross-cutting issues that may not be apparent from Protocol topic titles, and which may be of interest to stakeholders to know how they are addressed in the Protocol assessment tools include: Corruption, Gender, Grievance Mechanisms, IWRM (Integrated Water Resources Management), Legacy Issues, Livelihoods, Multi-Purpose Projects, Transboundary Issues and Transparency. Some of these are actually specific human rights in themselves. Table 3 provides a summary of where these issues are addressed in the Protocol.

Table 3 – High Profile and Cross-Cutting Issues in the Hydropower Sustainability Assessment Protocol

Corruption	Corruption is addressed in Political Risks (ES-4), Institutional Capacity (ES-5), Governance (P-2, I-2, O-2), and Procurement (P-12, I-8).
Gender	Gender is addressed to varying degrees in the topics Social Issues and Risks (ES-7), Communications and Consultation (P-1, I-1, O-1), Environmental and Social Impact Assessment and Management (P-5), Environmental and Social Issues Management (I-3, O-3), Project Affected Communities and Livelihoods (P-13, I-9, O-9), Resettlement (P-14, I-10, O-10), Labour and Working Conditions (P-16, I-12, O-12), and Public Health (P-18, I-14, O-14).
Grievance Mechanisms	Complaints or grievance mechanisms are directly addressed in Communications and Consultation (P-1, I-1, O-1), Governance (P-2, I-2, O-2) and Resettlement (P-14, I-10, O-10). Many other topics refer to processes for stakeholders to raise issues and get feedback through the wording of the stakeholder engagement criterion.
IWRM	Integrated Water Resources Management (IWRM) is addressed most directly in the topics called Policies and Plans (ES-3), Demonstrated Need and Strategic Fit (P-3), Siting and Design (P-4) and Hydrological Resource (P-7). It is indirectly relevant to many topics, and is specifically mentioned in the assessment guidance for Environmental and Social Impact Assessment and Management (P-5), Environmental and Social Issues Management O-3), Project Benefits (P-10, I-7, O-8), and Downstream Flow Regimes (P-23).
Legacy Issues	Legacy issues are addressed in Social Issues and Risks (ES-7), Environmental Issues and Risks (ES-8), Environmental and Social Impact Assessment and Management (P-5), and Environmental and Social Issues Management (I-3, O-3). Topics Project Affected Communities and Livelihoods (P-13, I-9, O-9), Resettlement (P-14, I-10, O-10), and Indigenous Peoples (P-15, I-11, O-11) also refer to legacy issues in the assessment guidance. The Operation assessment tool indirectly refers to legacy issues as part of almost all topics, in the scoring statement references to identification of ongoing issues.
Livelihoods	Livelihoods are addressed most directly in Project Affected Communities and Livelihoods (P-13, I-9, O-9), and are also addressed in Social Issues and Risks (I-7), Demonstrated Need and Strategic Fit (P-3), Environmental and Social Impact Assessment and Management (P-5), Environmental and Social Issues Management (I-3, O-3), Economic Viability (P-11), Resettlement (P-14, I-10, O-10), Indigenous Peoples (P-15, I-11, O-11), and Downstream Flow Regimes (P-23, I-18, O-17).
Multi-Purpose Projects	Multi-purpose projects are most directly addressed in Reservoir Planning (P-22), Reservoir Preparation and Filling (I-19), and Reservoir Management (O-18). They are also addressed in Demonstrated Need (ES-1), Policies and Plans (ES-3), Social Issues and Risks (ES-7), Demonstrated Need and Strategic Fit (P-3), Siting and Design (P-4), Hydrological Resource (P-7, O-4), Environmental and Social Impact Assessment and Management (P-5), Environmental and Social Issues Management (I-3, O-3), Economic Viability (P-11), Project Affected Communities and Livelihoods (P-13, I-9, O-9), and Downstream Flow Regimes (P-23, I-18, O-17).
Transboundary Issues	Transboundary Issues are most directly addressed under Political Risk (ES-4) as well as indirectly in Governance (P-2, I-2, O-2), Environmental and Social Impact Assessment and Management (P-5), Environmental and Social Issues Management (I-3, O-3), Hydrological Resources (P-7) and Downstream Flow Regimes (P-23, I-20, O-19)
Transparency	Transparency is addressed most directly in Governance (P-2, I-2, O-2), and also addressed through references to public disclosure in Demonstrated Need and Strategic Fit (P-3), Environmental and Social Impact Assessment and Management (P-5), Project Benefits (P-10, I-7, O-8), Economic Viability (P-11), Resettlement (P-14, I-10, O-10), Indigenous Peoples (P-15, I-11, O-11), and Downstream Flow Regimes (P-23, I-18, O-17).

Glossary of Terms

Additional Benefits: Benefits for the region that can be leveraged from the project.

Accountability: Obligation of an individual, firm, or institution to account for its activities, accept responsibility for them, and to disclose the results in a transparent manner.

Accountable: Responsible to or liable to account for someone or for some activity.

Adequate: Sufficient or enough to satisfy a requirement or meet a need.

Agreement: A recorded understanding between individuals, groups or entities to follow a specific course of conduct or action. It may be incorporated into, for example, a memorandum of understanding, minutes of a meeting, a letter of intent, a joint statement of principles, a contract, an operating licence, etc.

Appropriate: Suitable for a particular person, condition, occasion, or place; fitting; meeting identified needs or requirements.

Baseline: A set of measurements, statistics, or conditions used as a basis for later comparison. The baseline refers to the pre-project conditions, prior to the initiation of the project, against which post-project changes can be compared. For operating hydropower facilities, if a pre-project baseline does not exist then the present condition is taken as the baseline.

Commitment: A binding pledge or promise to do, give, or refrain from doing something.

Community Groups: Groups of people with common characteristics or interests living together within the larger society. There are many different ways to view these groups, and these will need to be defined in meaningful ways for the project. These may include, by way of example, urban dwellers, rural dwellers, Indigenous Peoples, ethnic minorities, people of a common profession or religion, disabled, elderly, illiterate, women, men, children, etc.

Compliance: Adherence to legal requirements, policies and public commitments.

Comprehensive: All relevant components have been considered and addressed.

Conformance: Addresses the level of conformance of implementation measures with most up-to-date project-related plans.

Consent: Signed agreements with community leaders or representative bodies who have been authorised by the affected communities which they represent, through an independent and self-determined decision-making process undertaken with sufficient time and in accordance with cultural traditions, customs and practices.

Corruption: Lack of integrity or honesty (especially susceptibility to bribery); use of a position of trust for dishonest gain.

Credible: Capable of being believed; plausible; worthy of confidence; reliable.

Cultural Heritage: The legacy of physical artefacts and intangible attributes of a group or society that are inherited from past generations, maintained in the present and bestowed for the benefit of future generations.

Cumulative Impacts: Cumulative impacts are those that result from the incremental impact of the project when added to other past, present, and reasonably foreseeable future actions. Effects should be assessed in terms of the capacity of the water resource, ecosystem, and/or affected communities to accommodate such impacts. Analyses need to be defined within realistic boundaries.

Deception: The fact or state of being deceived; to be given cause to believe what is not true; to be mislead.

Developer: The lead entity or consortium of entities investing in the development of a hydropower project.

Directly Affected Stakeholder: Those stakeholders with substantial rights, risks and responsibilities in relation to the issue. These may be inside the project affected area (e.g. project affected communities) or outside the project-affected area (e.g. government regulators, finance institution representatives, or investment partners).

Disclosure: Made publicly available (see also "Publicly disclosed").

Economic Displacement: Loss of assets, access to assets, or income sources or means of livelihoods as a result of (i) acquisition of land, (ii) changes in land use or access to land, (iii) restriction on land use or access to natural resources including water resources, legally designated parks, protected areas or restricted access areas such as reservoir catchments and (iv) changes in environment leading to health concerns or impacts on livelihoods. Economic displacement applies whether such losses and restrictions are full or partial, and permanent or temporary.

Effective: Producing or capable of producing an intended, expected and/or desired effect.

Engaged: Interacted with, often through consultation processes.

Equitable: Fair, just or impartial

Evidence: Evidence provided by an auditee and used by an assessor to verify whether and to what degree a criterion has been met. Evidence can be qualitative or quantitative information, records or statements of fact, either verbal or documented. It is retrievable or reproducible; not influenced by emotion or prejudice; based on facts obtained through observation, measurements, documentation, tests or other means; factual; reproducible; objective and verifiable.

Expert: A person with a high degree of skill in or knowledge of a certain subject, as a result of a high degree of experience or training in that subject.

Gender Analysis: The process of assessing the impact that an activity may have on females and males, and on gender relations. It can be used to ensure that men and women are not disadvantaged by development activities, to enhance the sustainability and effectiveness of activities, or to assess and build capacity and commitment to gender sensitive planning.

Governance: The combination of processes and structures that inform, direct, manage and monitor the activities of the project toward the achievement of its objectives.

Grievance Mechanisms: The processes by which stakeholders are able to raise concerns, grievances and legitimate complaints, as well as the project procedures to track and respond to any grievances.

Human Rights: The basic rights and freedoms to which all humans are entitled, encompassing civil, political, economic, social, and cultural rights, and enshrined in international declarations such as the Universal Declaration on Human Rights 1948.

Hydrological Resource: Water inflows to the project.

Impact: Effect or consequence of an action or event; the degree to which an impact is interpreted as negative or positive depends on context and perspective.

Independent Review: Expert review by someone not employed by the project and with no financial interest in profits made by the project.

Indigenous Peoples: A distinct social and cultural group possessing the following characteristics in varying degrees: self-identification as members of a distinct indigenous cultural group and recognition of this identity by others; collective attachment to geographically distinct habitats or ancestral territories in the project area and to the natural resources in these habitats and territories; customary cultural, economic, social or political institutions that are separate from those of the dominant society or culture; an indigenous language, often different from the official language of the country or region.

Integrated: Merged, interspersed, embedded into something.

Integrated Water Resources Management (IWRM): A process which promotes the coordinated development and management of water, land and related resources, in order to maximize the resultant economic and social welfare in an equitable manner without compromising the sustainability of vital ecosystems.

Intermediaries: Workers engaged through third parties who are either performing work directly related to the functions essential for the project for a substantial duration, or who are geographically working at the project location.

Invasive Species: A species that does not naturally occur in a specific area and whose introduction does or is likely to cause economic or environmental harm or harm to human health.

Land Rehabilitation: The process of returning the land to some degree of its former state after disturbance or damage associated with project implementation.

Legacy Issues: Impacts of previous projects that are unmitigated or not compensated with a similar good or service, or long-standing issues with a present (existing) project, or pre-existing issues in the present location of a new project.

Livelihood: The capabilities, assets (stores, resources, claims and access) and activities required for a means of living.

Living Standards: The level of material comfort as measured by the goods, services, and luxuries available to an individual, group, or nation; indicators of household well-being; examples include: consumption, income, savings, employment, health, education, nutrition, housing, and access to electricity, clean water, sanitation, health services, educational services, transport, etc.

Local: Administrative subdivisions of a national territory (e.g. with reference to local land use plans)

Long-Term: The planned life of the hydropower project.

Maintenance: The work of keeping something in proper condition; upkeep.

Management Plan: A management plan is a tool used as a reference for managing a particular project issue, and establishes the why, what, how, who, how much, and when for that issue.

Management System: The framework of processes and procedures used to ensure that an organisation can fulfil all tasks required to achieve its objectives.

Maximised: Achieved to as great an extent practicable, taking into account all constraints.

Minimised: Achieved to as little an extent practicable, taking into account all constraints.

Mitigation: Moderation, alleviation, and/or relief of a negative impact

Non-Compliance: Not meeting legal, licence, contractual or permit obligations

Non-Conformance: Not meeting targets and objectives in the management plans; these may or may not be publicly stated commitments, but they are not legally binding and violation can not incur legal action.

Non-Critical: Not essential for something to be suitable, adequate and/or effective

Occupational Health and Safety: Protecting the safety, health and welfare of people engaged in work or employment, for example through preventing disease or injury that might arise as a direct result of the workplace activities.

Offset: Measurable conservation outcomes resulting from actions designed to compensate for significant adverse biodiversity impacts arising from project development and persisting after appropriate avoidance, minimization, and restoration measures have been taken. Generally, these are not within the project site.

Optimal: Best fit, once all considerations have been factored in, based on the outcomes of a consultative process

Optimisation Process: The process by which alternatives have been considered towards determining the best fit

Outstanding: Not settled or resolved.

Plans: Management measures to address an identified issue, that may or may not be formalised into business management plans. Plans can include documented planned arrangements, for example based on agreements for forward actions made at meetings. Plans may also be those of the developer, owner or operator, or plans of the relevant government agency or other institution which has the primary responsibility for that sustainability topic. Plans can also be those developed by the contractor responsible for implementation.

Political Risk: A risk of financial loss or inability to conduct business faced by investors, corporations, and governments due to government policy changes, government action preventing entry of goods, expropriation or confiscation, currency inconvertibility, politically-motivated interference, government instability, or war.

Practicable: Capable of being done with means at hand and circumstances as they are.

Process: A series of actions, changes, or functions bringing about a result.

Procurement: The acquisition of goods and/or services at the best possible cost, in the right quality and quantity, at the right time, in the right place and from the right source for the direct benefit or use of the hydropower project or operating facility, generally via a contract.

Programme: Relates to the hydropower development programme, which encompasses all project components (construction, environmental, social, resettlement, finance and procurement, and communications, etc.).

Project-Affected Area: The catchment, reservoir, and downstream of the project site and associated dams, and the area affected by any associated developments (e.g. roads, transmissions lines, quarries, construction villages, relocation areas, etc).

Project Affected Communities: The interacting population of various kinds of individuals in the project affected area who are affected either positively or negatively by the hydropower project preparation, implementation and/or operation.

Project Catchment: The portion of the river basin that drains into the project reservoirs, either to pass ultimately through the generation turbines or to spill over the dams into the downstream rivers.

Project Components: Components of the overall hydropower development programme, including design, construction, environmental, social, resettlement, finance, communications and procurement.

Project Lands: The land that is owned, utilised and/or affected by the project.

Protection: To keep in safety and protect from harm, decay, loss, damage or destruction.

Publicly Disclosed: The public is informed that the agreement, commitment, assessment, management plan or significant report has been made or completed, and it is made publicly available either voluntarily (e.g. posted on a website) or on request in a timely manner.

Refurbishment: The state of being restored to its former good condition.

Regional: Refers to a supranational entity in an international context. To refer to administrative subdivisions of a national territory (e.g. with reference to local land use plans) this protocol uses the designation of local.

Relevant: Directly related, connected, applicable, current or pertinent to a topic. In the Protocol, relevance will be determined based on project-specific considerations and analyses. Project representatives make a case for what is relevant and provide evidence to support this, e.g. support of regulatory authorities; the assessor views and seeks evidence to affirm relevance.

Reservoir: Any artificial pondage or lake used by the project for the storage and regulation of water.

Reservoir Area: The area that is inundated when the reservoir is at its maximum expected level and the dry buffer zone above this level.

Resettlement: The process of moving people to a different place to live, because due to the project they are no longer allowed to stay in the area where they used to live.

Resettlees: Those people who are required to be resettled, including those who have formal legal rights, customary or traditional rights, as well as those who have no recognizable rights to the land.

River Basin: The area drained by a river and all its tributaries

Resettlement Action Plan: A document or set of documents specifically developed to identify the actions that will be taken to address resettlement. It would typically include identification of those being resettled; the socio-economic baseline for the resettlees; the measures to be implemented as part of the resettlement process including those relating to resettlement assistance and livelihood support; the legal and compensation frameworks; organisational roles and responsibilities; budget allocation and financial management; the timeframe, objectives and targets; grievance redress mechanisms; monitoring, reporting and review provisions; and understandings around consultation, participation and information exchange.

Sensitivity Analysis: Investigation into how projected performance varies along with changes in the key assumptions on which the projections are based

Short-Term: Covers day-to-day operations.

Significant: Important in effect or consequence, or relatively large.

Stakeholder: One who is interested in, involved in or affected by the hydropower project and associated activities.

Stakeholder Group: A set of stakeholders with common characteristics or interests.

Strategic Fit: The compatibility of the project with local, national and regional needs identified through the priorities and objectives put forth in options assessments and other relevant local, national and regional and multi-national policies and plans.

Suitable: Appropriate for the desired purpose, condition or occasion.

Timely: Occurring at a suitable or opportune time

Transboundary Agreements: Agreements made amongst riparian states about how shared water resources will be utilised by the parties involved, and the processes that will be followed to sustain these understandings.

Transparent / Transparency: Open to public scrutiny, publicly available, and/or able to be viewed or disclosed to the public on request.

Upgrade: To improve to a higher grade or standard.

Vulnerable Social Groups: Social groups who are marginalised or impoverished with very low capacity and means to absorb change.

Hydropower Sustainability Assessment Protocol

Early Stage Assessment Tool

May 2020

Published by:

iha international hydropower association

Acknowledgements

The Hydropower Sustainability Assessment Protocol is the product of the considerable effort of many parties. The members of the Hydropower Sustainability Assessment Forum spent two and a half years deeply involved in research, analyses, meetings, outreach, trialling, review, exchanging views, negotiating content and finding solutions to divergent views. Many had reference groups that were very active in following the Forum process and informing the views of Forum members. The Forum was funded by substantial donations from the governments of Norway, Iceland and Germany, supplemented by funding from the International Hydropower Association, The Nature Conservancy, The World Bank Group, and The World Wide Fund for Nature (WWF). In addition, the in-kind contributions of the Forum members and many supporting organisations were considerable.

The Protocol reflects the intellectual contributions of these many players, and the end product has been enabled because of a shared vision that it can make a significant contribution to advancing sustainable hydropower. The members of the Forum and those reference groups and organisations that have worked with these individuals are gratefully acknowledged:

Developing Countries

Dr Yu Xuezhong, Research Professor, **China Institute of Water Resources and Hydropower Research**, PR China

Mr Zhou Shichun, Senior Engineer, **China Hydropower Engineering Consulting Group Co.,** PR China

Mr Israel Phiri, Manager PPI, **Ministry of Energy and Water Development**, Zambia

Developed Countries

Mr Geir Hermansen, Senior Advisor, Department of Energy, **Norad**, Norway

Prof Gudni A Johannesson, Director General, **National Energy Authority**, Iceland

Ms Kirsten Nyman, Policy Advisor for Sustainable Hydropower, **GTZ**, Germany (observer)

Finance Sector - Economic Aspects

Ms Courtney Lowrance, Director, Environmental and Social Risk Management, Citigroup Global Markets Inc, member of the **Equator Principles Financial Institutions**

Ms Daryl Fields, Senior Water Resources Specialist, **The World Bank** (observer)

Hydropower Sector

Dr Refaat Abdel-Malek, President, **International Hydropower Association**

Mr Andrew Scanlon, Manager Business Sustainability, **Hydro Tasmania**

NGOs - Environmental Aspects

Mr David Harrison, Senior Advisor, Global Freshwater Team, **The Nature Conservancy**

Dr Joerg Hartmann, WWF Dams Initiative Leader, **World Wide Fund for Nature (WWF)**

NGOs - Social Aspects

Mr Michael Simon, Lead, People, Infrastructure and Environment Program, **Oxfam**

Dr Donal O'Leary, Senior Advisor, **Transparency International**

Forum Chair

Mr André Abadie, Director, **Sustainable Finance Ltd**

Forum Coordinator

Dr Helen Locher, Sustainability Forum Coordinator, **International Hydropower Association**

Contents

The Hydropower Sustainability Assessment Protocol

The Hydropower Sustainability Assessment Protocol (the "Protocol") is a sustainability assessment framework for hydropower projects and operations. It outlines the important sustainability considerations for a hydropower project, and enables production of a sustainability profile for that project. The four Protocol assessment tools – Early Stage, Preparation, Implementation, and Operation – are designed to be stand-alone assessments applied at particular stages of the project life cycle. An assessment with one tool does not depend on earlier stage assessments to have been undertaken. The assessment tools are designed to be applicable up to major decision points in the project life cycle, and are most effective where there are repeat applications to help guide continuous improvement measures. The assessment tools and associated decision points are shown in Figure 1.

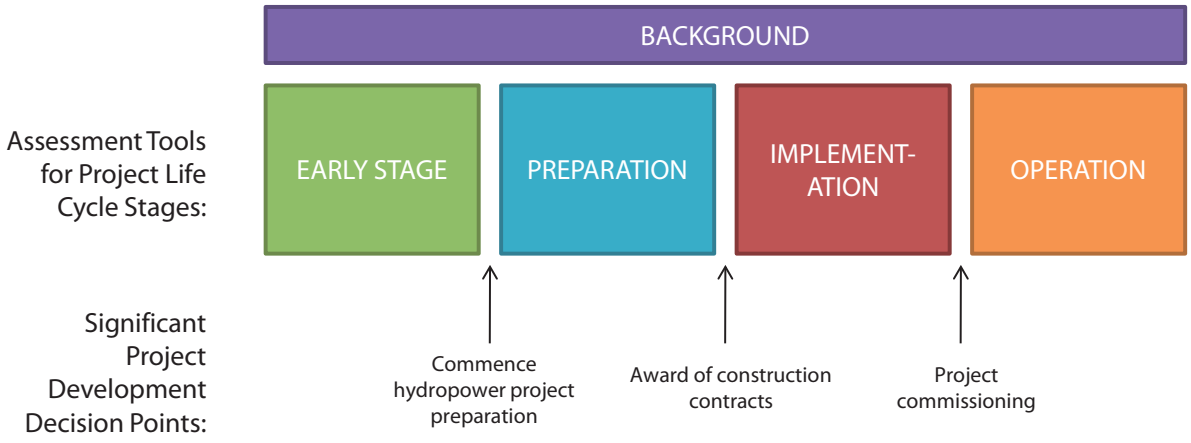

Figure 1 - Protocol Assessment Tools and Major Decision Points

Overview of the Early Stage Assessment Tool

This document provides the Early Stage assessment tool, and assumes that the user has already made him or herself familiar with the Protocol Background which describes the overall approach and use of the Protocol assessment tools. The Early Stage assessment tool is a preliminary screening tool, to assess the strategic environment from which proposals for hydropower projects emerge. It will identify project risks and opportunities at an early stage, in order to identify the challenges and management responses to proceed with a more detailed project investigation. The process should identify consistencies and conflicts relating to energy and water needs and opportunities in a sustainability context. Such an assessment would inform a proponent as to whether there is a strategic basis to move forward with a project proposal.

The Early Stage assessment tool includes key topics relating to the strategic environment; first reviewing existing needs, options and policies, then looking at the political situation and institutional capacities, followed by an assessment of the technical, social, environmental and economic risks. It is recognised that the results of such an assessment may carry a high level of confidentiality.

The Early Stage assessment tool may also be usable for other, broader purposes, such as the identification

of opportunities to improve the sustainability context of hydropower investments. The objective is to encourage better early stage analysis and identification of knowledge gaps.

The Early Stage assessment tool differs from the other three assessment tools in that it is an assessment guide but not a scoring protocol. This is because there is not a clearly formulated project at this stage, nor a strong basis of information from which to derive sustainability scores. A further difference is that early investigations about potential project possibilities are often of confidential nature, especially in the case in which developers have not yet decided whether to invest in more detailed studies, or where there is a highly competitive context of a liberalised energy market. As long as no public announcement about project intentions has been made, this Early Stage assessment tool offers a means to encourage better early stage analysis and identification of knowledge gaps. As soon as detailed technical, environmental, social and financial feasibility studies are undertaken, often under a strict governmental process, the use of the Preparation assessment tool will be appropriate.

ES-1 Demonstrated Need

This topic addresses the needs that justify management and infrastructure investments in water and energy services, as identified through broadly agreed local, national, and regional development objectives and in national and regional policies and plans. The intent is that the capability of a particular hydropower project under consideration to contribute to established needs can be demonstrated.

This topic is important in order to support sustainable development objectives at the local, national and regional levels; and avoid over-or under-investment in energy and water services. It is also important as it seeks a balanced approach between water management and needs and energy management and needs.

Basic Expectations:

- **Assessment:** An assessment of identified needs for water and energy services has been undertaken that includes environmental, social and economic considerations.
- **Outcomes**: Needs for energy and water service projects have been demonstrated.

Advanced Expectations:

In addition to basic expectations, the assessment may try to achieve:

- a higher level of confidence supported by objective evidence that a project can make a significant contribution to demonstrated needs, or can contribute to many demonstrated needs; or
- a broad interpretation of water and energy services with respect to considering environmental and social dimensions.

Assessment Guidance:

Needs for water and energy services are those identified through broadly agreed local, national, and regional development objectives, policies and plans. A hydropower development to meet the energy requirements of an energy-intensive off-taker (e.g. an aluminium smelter) would be considered a demonstrated need if it is included in broadly agreed development objectives, policies and plans.

Water services examples include: water for energy generation, fisheries, floodplain agriculture, food supply, water storage capacity, drinking water supply, sanitation, water for business and industry, irrigation water supply, flood management, navigation, recreation, domestic needs of riparian dwellers, tourist opportunities, vehicle for transboundary cooperation, ecosystem services (e.g. floodplain maintenance, connectivity for migratory species, maintenance of off-river wetlands, nutrient and sediment balance, delta sediment replenishment, estuarine flushing, spawning ground access and maintenance), etc.

Energy services examples include: provision of electricity to meet local, national, regional, and/or international demand or opportunities; provision of grid stability; provision of peak load; provision of ancillary benefits such as spinning reserve, system regulation and improved thermal efficiency, etc.

Examples of evidence: Energy Master Plan; Water Development Plan; country or regional development report; analysis of project fit with demonstrated needs, regional land use and infrastructure development plans

ES-2 Options Assessment

This topic addresses the fit of a hydropower project under consideration amongst the options available to a region to meet energy and water needs, as well as the early stage process undertaken for considering project siting and design alternatives. The intent is that a hydropower project under consideration is supported as one of the priority options for addressing the need for energy and water services, and siting and design alternatives are considered at an early stage.

This topic is important because it compares hydropower options with other options such as other resources types and/or energy and water conservation. It adopts a sustainability perspective to ensure a realistic and comprehensive comparison of options across a range of economic, technical, environmental and social factors.

Basic Expectations:

- **Assessment:** An assessment has been undertaken of the options available to meet demonstrated energy and water needs that considers a range of planning approaches and a range of siting and design alternative options with respect to the project under consideration.
- **Outcomes:** The project is one of the priority options for addressing the need for energy and water services.

Advanced Expectations:

In addition to basic expectations, the assessment may try to achieve:

- a higher level of confidence supported by objective evidence that a project is one of the highest priority options; or
- a high quality approach taken to the options assessment, for example through the breadth of planning approaches considered, or the engagement of stakeholders in the analysis of options, or the criteria utilised for the analysis of options strongly emphasising sustainability or regional/basin-wide considerations.

Assessment Guidance:

Options assessment refers to an assessment that has been undertaken by government, river basin organisations, or other external organisations; however the absence of any available options assessment represents a significant risk for the developer which could be addressed in close collaboration with national authorities and financing agencies.

The full range of planning approaches includes policy, institutional, management and technical.

Energy options examples include: energy efficiency measures (conservation, policies, transmission and distribution measures), increased efficiency in generation (refurbishment and upgrades of existing power stations), the full range of types of energy, and the option of no development.

Water options examples include: a range of infrastructure options as well as conservation, policies, distribution mechanisms, demographic and land use issues.

Criteria or principles for analysis of alternatives might include, by way of example, siting on tributary streams rather than mainstem rivers; avoidance of high value biodiversity areas; avoidance of resettlement, increasing the effectiveness of existing water and energy infrastructure; etc.

Examples of evidence: options assessments, analysis of existing options assessments

ES-3 Policies and Plans

This topic addresses the context set by national and/or regional policies and plans for hydropower project planning, implementation and operations. The intent is that shortfalls, gaps or complexities in national and regional policies and plans can be managed with respect to development and operation of a particular hydropower project under consideration.

This topic is important because the sustainability of hydropower development can be influenced by the quality of integrated planning for resource development, and if the planning context is weak compensation measures on the part of the developer will be required (for example through corporate policies).

Basic Expectations:

- **Assessment:** An assessment of the most relevant policies and plans has been undertaken, including any basin development or integrated water resources management plans.
- **Outcomes:** The project fits with existing policies and plans, and any gaps or shortfalls can be managed.

Advanced Expectations:

In addition to basic expectations, the assessment may try to achieve:

- a higher level of confidence supported by objective evidence that a project fits with the policy and planning context, and that gaps or shortfalls can be managed; or
- a broad approach taken with identification and analysis of relevant policies and plans, including social and environmental; or
- an analysis undertaken of strengths, weaknesses, opportunities and threats of a project with respect to managing gaps or shortfalls in the policy and planning context.

Assessment Guidance:

National and regional policies and plans examples include: development, energy, water (including IWRM), biodiversity, climate, conservation, transboundary, land use, urban and regional infrastructure planning etc. Because hydropower sits at the nexus of energy and water, it touches on a wide array of types of policies and planning instruments. There may be an absence of planning frameworks relevant to certain critical hydropower issues, or dated, poor quality or even contradictory with other policies and plans. Policies and plans may provide insufficient guidance on regulatory requirements for project preparation, approvals, implementation and operation. Potential hydropower projects may have implications that cross jurisdictional boundaries, in which case different sets of policies and plans would be relevant.

Social and environmental related policies and plans examples include: poverty eradication, food security, maintenance of fisheries, protection of high value sites (e.g. national parks, World Heritage sites, Ramsar wetlands, sites of cultural significance, recognised significant landscapes), etc.

Examples of evidence: national and regional policies and plans, evaluation of project fit with policies and plans, evaluation of status of river basin plans and river basin sustainability issues

ES-4 Political Risks

This topic addresses political risks of a region that may have implications for hydropower project development and operations. The intent is that political risks influencing development and management of a hydropower project under consideration are understood and can be managed.

This topic is important because the risk that a government may unilaterally repudiate its obligations or prevent others in its jurisdiction from honouring their obligations may affect the level and lending terms of financing for hydroelectric projects in its jurisdiction, as well as long term sustainability of the projects themselves.

Basic Expectations:

- **Assessment:** An assessment has been undertaken of political risks most relevant to the project, including transboundary issues.
- **Outcomes:** The project can manage identified political risks.

Advanced Expectations:

In addition to basic expectations, the assessment may try to achieve:

- a higher level of confidence supported by objective evidence that a project can manage a broad range of political risks; or
- opportunities for the project to contribute to or cooperate with measures that encourage reduction or mitigation of political risks; or
- an analysis undertaken of strengths, weaknesses, opportunities and threats of a project with respect to managing political risks.

Assessment Guidance:

Political risk is a risk of financial loss or inability to conduct business faced by investors, corporations, and governments due to government policy changes, government action preventing entry of goods, expropriation or confiscation, currency inconvertibility, politically-motivated interference, government instability, or war.

Transboundary issues would take into account institutional arrangements upstream and downstream of the project and basin-wide sharing of resources

Reducation or mitigation of political risks can be through, for example: energy sector reform, sound fiscal management, transboundary agreements, anti-corruption strategies, etc.

Examples of evidence: analysis of political risk, analysis of transboundary issues, agreements and institutions; authoritative assessment of political risk / sovereign stability; National Governance Audits; options to address political risks; records of meetings with representatives from governments, transboundary institutions and other key stakeholder groups

ES-5 Institutional Capacity

This topic addresses the capacities of the institutions that have a role in the development and operation of hydropower projects. The intent is that institutional capacity requirements and the existing capacity with respect to the hydropower project under consideration have been evaluated, and capacity shortfalls can be addressed.

This topic is important because the development of water and energy services in general, and of a hydropower project in particular, requires a comprehensive and balanced set of capacities amongst a range of stakeholders, namely governments/regulators, developers, financial institutions, contractors, suppliers, labour force, civil society and affected people. Where such skills are lacking in any of these sectors, such shortfalls may be mitigated by drawing on externally available resources, with the eventual objective of developing local capacity by transferring skills and technology.

Basic Expectations:

- **Assessment:** An assessment of the capacities of institutions most relevant to the hydropower project has been undertaken.
- **Outcomes:** The project can manage critical shortfalls, gaps or complexities in institutional capacities.

Advanced Expectations:

In addition to basic expectations, the assessment may try to achieve:

- a higher level of confidence supported by objective evidence that a project can manage critical shortfalls, gaps or complexities; or
- a rigorous and broad approach taken to identification and assessment of institutions and capacities; or
- opportunities for the project to contribute to or cooperate with measures that encourage strengthening of institutional capacities; or
- an analysis undertaken of strengths, weaknesses, opportunities and threats of a project with respect to managing critical shortfalls, gaps or complexities in institutional capacities.

Assessment Guidance:

Institution examples include: the executive, the legislature, political parties, anticorruption organisations, judiciary, grievance addressing mechanisms (e.g. the Ombudsman), specific civil service/public sector agencies, law enforcement agencies, Freedom of Information, media, local and regional government, civil society, private sector, international institutions (e.g. some provide peer review of anti-corruption efforts), audit/oversight institutions, public contracting system, etc.

Institutional capacity in the context of a hydropower project primarily relates to the capacity of a given national institutional framework to handle the administration of the planning, implementing and operation of hydropower projects in a predictable, responsible and timely manner. Examples for hydropower related institutional capacity may include the existence and rigorous application of the following key processes implying the availability of appropriate human resources both in term of quantity and competences: project-specific assessment and licensing processes, meaningful stakeholder engagement, establishment of independent review committees, monitoring and following-up of license conditions, treatment of grievances, harmonisation of different governmental agencies requirements, the transparency of decision-making processes, etc.

Examples of evidence: analysis of institutional capacities; options to address institutional capacity shortfalls; records of meetings with representatives from government, key institutions, independent analysts and other key stakeholder groups

ES-6 Technical Issues and Risks

This topic addresses early identification and analysis of technical issues and risks that may influence decisions to invest in preparation of a hydropower project under consideration. The intent is that technical issues and risks have been evaluated at an early stage, and decisions to invest in project preparation are informed on these matters.

This topic is important because without an early stage analysis, technical issues and risks may be encountered after the developer has made significant investments into project preparation and it may be difficult to consider an alternative project.

Basic Expectations:

- **Assessment:** An assessment has been undertaken of technical issues and risks most relevant to the project.
- **Outcomes:** The project is likely to be able to manage technical issues and risks.

Advanced Expectations:

In addition to basic expectations, the assessment may try to achieve:

- a higher level of confidence supported by objective evidence that a project can fully manage technical risks; or
- an analysis undertaken of strengths, weaknesses, opportunities and threats of a project with respect to managing technical risks.

Assessment Guidance:

Technical issues and risks might relate to, for example: availability and reliability of the hydrological resource, seismic stability, other natural hazards, geotechnical stability, access to construction materials, asset safety, etc.

Examples of evidence: desk-top analyses of technical issues and risks, area-specific analyses, expert opinions; records of meetings with relevant technical experts

ES-7 Social Issues and Risks

This topic addresses early identification and analysis of social issues and risks that may influence decisions to invest in preparation of a hydropower project under consideration. The intent is that social issues and risks have been evaluated at an early stage, and decisions to invest in project preparation are informed on these matters.

This topic is important because without an early stage analysis, social issues and risks may be encountered after the developer has made significant investments into project preparation and it may be difficult to consider an alternative project.

Basic Expectations:

- **Assessment:** An assessment has been undertaken of social issues and risks most relevant to the project.
- **Outcomes:** The project is likely to minimise and manage negative social impacts and deliver net benefits to project-affected communities.

Advanced Expectations:

In addition to basic expectations, the assessment may try to achieve:

- a higher level of confidence supported by objective evidence that a project can avoid, minimize, mitigate and/or fully compensate negative social impacts; or
- the assessment takes into account opportunities, and there is potential for some social opportunities or enhancements to existing environmental issues to be realised; or
- the assessment takes into account risks relating to legacy issues or cumulative impacts; or
- an analysis undertaken of strengths, weaknesses, opportunities and threats of a project with respect to managing social risks.

Assessment Guidance:

Social issues and risks might relate to, for example: potential land and water use conflicts, project affected community composition, socio-economic status and livelihoods, likelihood of resettlement requirements, labour and workforce capacity, community safety, public health, cultural heritage, likelihood of community acceptance, communication and consultation needs and issues, legacy issues, cumulative impacts, social unrest, etc.

Examples of evidence: desk-top analyses of social issues and risks and social benefit opportunities; area-specific analyses; expert opinions; records of meetings with representatives from government, NGOs, potential project affected communities, indigenous communities and other key stakeholder groups.

ES-8 Environmental Issues and Risks

This topic addresses early identification and analysis of environmental issues and risks that may influence decisions to invest in preparation of a hydropower project under consideration. The intent is that environmental issues and risks have been evaluated at an early stage, and decisions to invest in project preparation are informed on these matters.

This topic is important because without an early stage analysis, environmental issues and risks may be encountered after the developer has made significant investments into project preparation and it may be difficult to consider an alternative project.

Basic Expectations:

- **Assessment:** An assessment has been undertaken of environmental issues and risks most relevant to the project.
- **Outcomes:** The project is likely to minimise and manage negative environmental impacts.

Advanced Expectations:

In addition to basic expectations, the assessment may try to achieve:

- a higher level of confidence supported by objective evidence that a project can avoid, minimize, mitigate and/or fully compensate negative environmental impacts; or
- identification of opportunities for environmental enhancement, and there is potential for some of these enhancements to be realised; or
- identification of risk relating to legacy issues or cumulative impacts; or
- an analysis undertaken of strengths, weaknesses, opportunities and threats of a project with respect to managing environmental risks.

Assessment Guidance:

Environmental issues and risks might relate to, for example: biodiversity, migration of aquatic species, threatened species, wetlands of significance, critical habitats, weeds, pest species, greenhouse gas emissions from the reservoir, erosion, sedimentation, water quality, air quality, legacy issues, cumulative impacts, etc.

Examples of evidence: desk-top analyses of environmental issues and risks and environmental enhancement opportunities; strategic environmental assessments; area-specific analyses; expert opinions; records of meetings with representatives from government, NGOs, local and other key stakeholder groups

ES-9 Economic and Financial Issues and Risks

This topic addresses early identification and analysis of economic and financial issues and risks that may influence decisions to invest in preparation of a hydropower project or system of projects. The intent is that economic and financial issues and risks have been evaluated at an early stage, the project will deliver a net economic benefit, that the project or the system within which it operates will be financially viable, and decisions to invest in project preparation are informed on these matters.

This topic is important because without an early stage analysis, economic and financial issues and risks may be encountered after the developer has made significant investments into project preparation and it may be difficult to consider an alternative project.

Basic Expectations:

- **Assessment:** An assessment has been undertaken of financial issues, risks and opportunities most relevant to the project, and likely costs and benefits.
- **Outcomes:** The project or the corporate entity to which it belongs is likely to manage financial issues, attract finance, and deliver a net economic benefit within the sphere of influence of the given hydropower project.

Advanced Expectations:

In addition to basic expectations, the assessment may try to achieve:

- a higher level of confidence that a project or corporate entity to which it belongs can manage financial issues under a broad range of circumstances, fund environmental and social mitigation measures, and readily attract finance; or
- a high level of confidence supported by a broad consideration of potential costs and benefits including social and environmental externalities that the project can be deliver significant and sustainable net benefits; or
- an analysis undertaken of strengths, weaknesses, opportunities and threats of a project with respect to managing financial risks.

Assessment Guidance:

Financial viability is the ability of an entity to continue to achieve its operating objectives and fulfill its mission from a financial perspective over the long term. Some projects may be multi-purpose in which hydropower is not the primary purpose, in which case the financial objective of the hydropower component may be to support delivery of the other purposes of the scheme (e.g. water supply, irrigation water, etc). For some projects the financial contribution is measured from the perspective of the system within which it operates; for example, some pump storage projects may run at a loss but enable a greater profit to be made from other power stations within the system because of the greater efficiencies gained.

Financial issues and risks examples include: very high project costs; inability to meet required costs; uncertainties with respect to revenue streams; currency exchange instability; difficulties in access to project finance; access to renewable incentive schemes; regional pricing; market stability; market access; likelihood of major inflation or depreciation; etc.

Economic issues and risks examples include: few identifiable opportunities for additional benefits; early stage cost-benefit analysis shows no net project benefit; excessive social and environmental costs; etc.

EARLY STAGE

Some **financial and economic information** may have a high degree of commercial sensitivity, and evidence for this topic may need to be viewed under a confidentiality agreement.

Social and environmental externalities refers to by-products of activities that affect the well-being of people or damage the environment, where those impacts are not reflected in market prices (for example, pollution); costs or benefits associated with externalities do not enter standard cost accounting schemes.

Examples of evidence: evaluation of financial issues and risks; early stage cost-benefit analysis; identification of sources of finance; economic and finance issues and risk assessment; records of meetings with representatives from government, financial institutions, development banks and key stakeholder groups

Glossary of Terms

Additional Benefits: Benefits for the region that can be leveraged from the project.

Accountability: Obligation of an individual, firm, or institution to account for its activities, accept responsibility for them, and to disclose the results in a transparent manner.

Accountable: Responsible to or liable to account for someone or for some activity.

Adequate: Sufficient or enough to satisfy a requirement or meet a need.

Agreement: A recorded understanding between individuals, groups or entities to follow a specific course of conduct or action. It may be incorporated into, for example, a memorandum of understanding, minutes of a meeting, a letter of intent, a joint statement of principles, a contract, an operating licence, etc.

Appropriate: Suitable for a particular person, condition, occasion, or place; fitting; meeting identified needs or requirements.

Baseline: A set of measurements, statistics, or conditions used as a basis for later comparison. The baseline refers to the pre-project conditions, prior to the initiation of the project, against which post-project changes can be compared. For operating hydropower facilities, if a pre-project baseline does not exist then the present condition is taken as the baseline.

Commitment: A binding pledge or promise to do, give, or refrain from doing something.

Community Groups: Groups of people with common characteristics or interests living together within the larger society. There are many different ways to view these groups, and these will need to be defined in meaningful ways for the project. These may include, by way of example, urban dwellers, rural dwellers, Indigenous Peoples, ethnic minorities, people of a common profession or religion, disabled, elderly, illiterate, women, men, children, etc.

Compliance: Adherence to legal requirements, policies and public commitments.

Comprehensive: All relevant components have been considered and addressed.

Conformance: Addresses the level of conformance of implementation measures with most up-to-date project-related plans.

Consent: Signed agreements with community leaders or representative bodies who have been authorised by the affected communities which they represent, through an independent and self-determined decision-making process undertaken with sufficient time and in accordance with cultural traditions, customs and practices.

Corruption: Lack of integrity or honesty (especially susceptibility to bribery); use of a position of trust for dishonest gain.

Credible: Capable of being believed; plausible; worthy of confidence; reliable.

Cultural Heritage: The legacy of physical artefacts and intangible attributes of a group or society that are inherited from past generations, maintained in the present and bestowed for the benefit of future generations.

Cumulative Impacts: Cumulative impacts are those that result from the incremental impact of the project when added to other past, present, and reasonably foreseeable future actions. Effects should be assessed in terms of the capacity of the water resource, ecosystem, and/or affected communities to accommodate such impacts. Analyses need to be defined within realistic boundaries.

Deception: The fact or state of being deceived; to be given cause to believe what is not true; to be mislead.

Developer: The lead entity or consortium of entities investing in the development of a hydropower project.

Directly Affected Stakeholder: Those stakeholders with substantial rights, risks and responsibilities in relation to the issue. These may be inside the project affected area (e.g. project affected communities) or outside the project-affected area (e.g. government regulators, finance institution representatives, or investment partners).

Disclosure: Made publicly available (see also "Publicly disclosed").

Economic Displacement: Loss of assets, access to assets, or income sources or means of livelihoods as a result of (i) acquisition of land, (ii) changes in land use or access to land, (iii) restriction on land use or access to natural resources including water resources, legally designated parks, protected areas or restricted access areas such as reservoir catchments and (iv) changes in environment leading to health concerns or impacts on livelihoods. Economic displacement applies whether such losses and restrictions are full or partial, and permanent or temporary.

Effective: Producing or capable of producing an intended, expected and/or desired effect.

Engaged: Interacted with, often through consultation processes.

Equitable: Fair, just or impartial

Evidence: Evidence provided by an auditee and used by an assessor to verify whether and to what degree a criterion has been met. Evidence can be qualitative or quantitative information, records or statements of fact, either verbal or documented. It is retrievable or reproducible; not influenced by emotion or prejudice; based on facts obtained through observation, measurements, documentation, tests or other means; factual; reproducible; objective and verifiable.

Expert: A person with a high degree of skill in or knowledge of a certain subject, as a result of a high degree of experience or training in that subject.

Gender Analysis: The process of assessing the impact that an activity may have on females and males, and on gender relations. It can be used to ensure that men and women are not disadvantaged by development activities, to enhance the sustainability and effectiveness of activities, or to assess and build capacity and commitment to gender sensitive planning.

Governance: The combination of processes and structures that inform, direct, manage and monitor the activities of the project toward the achievement of its objectives.

Grievance Mechanisms: The processes by which stakeholders are able to raise concerns, grievances and legitimate complaints, as well as the project procedures to track and respond to any grievances.

Human Rights: The basic rights and freedoms to which all humans are entitled, encompassing civil, political, economic, social, and cultural rights, and enshrined in international declarations such as the Universal Declaration on Human Rights 1948.

Hydrological Resource: Water inflows to the project.

Impact: Effect or consequence of an action or event; the degree to which an impact is interpreted as negative or positive depends on context and perspective.

Independent Review: Expert review by someone not employed by the project and with no financial interest in profits made by the project.

Indigenous Peoples: A distinct social and cultural group possessing the following characteristics in varying degrees: self-identification as members of a distinct indigenous cultural group and recognition of this identity by others; collective attachment to geographically distinct habitats or ancestral territories in the project area and to the natural resources in these habitats and territories; customary cultural, economic, social or political institutions that are separate from those of the dominant society or culture; an indigenous language, often different from the official language of the country or region.

Integrated: Merged, interspersed, embedded into something.

Integrated Water Resources Management (IWRM): A process which promotes the coordinated development and management of water, land and related resources, in order to maximize the resultant economic and social welfare in an equitable manner without compromising the sustainability of vital ecosystems.

Intermediaries: Workers engaged through third parties who are either performing work directly related to the functions essential for the project for a substantial duration, or who are geographically working at the project location.

Invasive Species: A species that does not naturally occur in a specific area and whose introduction does or is likely to cause economic or environmental harm or harm to human health.

Land Rehabilitation: The process of returning the land to some degree of its former state after disturbance or damage associated with project implementation.

Legacy Issues: Impacts of previous projects that are unmitigated or not compensated with a similar good or service, or long-standing issues with a present (existing) project, or pre-existing issues in the present location of a new project.

Livelihood: The capabilities, assets (stores, resources, claims and access) and activities required for a means of living.

Living Standards: The level of material comfort as measured by the goods, services, and luxuries available to an individual, group, or nation; indicators of household well-being; examples include: consumption, income, savings, employment, health, education, nutrition, housing, and access to electricity, clean water, sanitation, health services, educational services, transport, etc.

Local: Administrative subdivisions of a national territory (e.g. with reference to local land use plans)

Long-Term: The planned life of the hydropower project.

Maintenance: The work of keeping something in proper condition; upkeep.

Management Plan: A management plan is a tool used as a reference for managing a particular project issue, and establishes the why, what, how, who, how much, and when for that issue.

Management System: The framework of processes and procedures used to ensure that an organisation can fulfil all tasks required to achieve its objectives.

Maximised: Achieved to as great an extent practicable, taking into account all constraints.

Minimised: Achieved to as little an extent practicable, taking into account all constraints.

Mitigation: Moderation, alleviation, and/or relief of a negative impact

Non-Compliance: Not meeting legal, licence, contractual or permit obligations

Non-Conformance: Not meeting targets and objectives in the management plans; these may or may not be publicly stated commitments, but they are not legally binding and violation can not incur legal action.

Non-Critical: Not essential for something to be suitable, adequate and/or effective

Occupational Health and Safety: Protecting the safety, health and welfare of people engaged in work or employment, for example through preventing disease or injury that might arise as a direct result of the workplace activities.

Offset: Measurable conservation outcomes resulting from actions designed to compensate for significant adverse biodiversity impacts arising from project development and persisting after appropriate avoidance, minimization, and restoration measures have been taken. Generally, these are not within the project site.

Optimal: Best fit, once all considerations have been factored in, based on the outcomes of a consultative process

Optimisation Process: The process by which alternatives have been considered towards determining the best fit

Outstanding: Not settled or resolved.

Plans: Management measures to address an identified issue, that may or may not be formalised into business management plans. Plans can include documented planned arrangements, for example based on agreements for forward actions made at meetings. Plans may also be those of the developer, owner or operator, or plans of the relevant government agency or other institution which has the primary responsibility for that sustainability topic. Plans can also be those developed by the contractor responsible for implementation.

Political Risk: A risk of financial loss or inability to conduct business faced by investors, corporations, and governments due to government policy changes, government action preventing entry of goods, expropriation or confiscation, currency inconvertibility, politically-motivated interference, government instability, or war.

Practicable: Capable of being done with means at hand and circumstances as they are.

Process: A series of actions, changes, or functions bringing about a result.

Procurement: The acquisition of goods and/or services at the best possible cost, in the right quality and quantity, at the right time, in the right place and from the right source for the direct benefit or use of the hydropower project or operating facility, generally via a contract.

Programme: Relates to the hydropower development programme, which encompasses all project components (construction, environmental, social, resettlement, finance and procurement, and communications, etc.).

Project-Affected Area: The catchment, reservoir, and downstream of the project site and associated dams, and the area affected by any associated developments (e.g. roads, transmissions lines, quarries, construction villages, relocation areas, etc).

Project Affected Communities: The interacting population of various kinds of individuals in the project affected area who are affected either positively or negatively by the hydropower project preparation, implementation and/or operation.

Project Catchment: The portion of the river basin that drains into the project reservoirs, either to pass ultimately through the generation turbines or to spill over the dams into the downstream rivers.

Project Components: Components of the overall hydropower development programme, including design, construction, environmental, social, resettlement, finance, communications and procurement.

Project Lands: The land that is owned, utilised and/or affected by the project.

Protection: To keep in safety and protect from harm, decay, loss, damage or destruction.

Publicly Disclosed: The public is informed that the agreement, commitment, assessment, management plan or significant report has been made or completed, and it is made publicly available either voluntarily (e.g. posted on a website) or on request in a timely manner.

Refurbishment: The state of being restored to its former good condition.

Regional: Refers to a supranational entity in an international context. To refer to administrative subdivisions of a national territory (e.g. with reference to local land use plans) this protocol uses the designation of local.

Relevant: Directly related, connected, applicable, current or pertinent to a topic. In the Protocol, relevance will be determined based on project-specific considerations and analyses. Project representatives make a case for what is relevant and provide evidence to support this, e.g. support of regulatory authorities; the assessor views and seeks evidence to affirm relevance.

Reservoir: Any artificial pondage or lake used by the project for the storage and regulation of water.

Reservoir Area: The area that is inundated when the reservoir is at its maximum expected level and the dry buffer zone above this level.

Resettlement: The process of moving people to a different place to live, because due to the project they are no longer allowed to stay in the area where they used to live.

Resettlees: Those people who are required to be resettled, including those who have formal legal rights, customary or traditional rights, as well as those who have no recognizable rights to the land.

River Basin: The area drained by a river and all its tributaries

Resettlement Action Plan: A document or set of documents specifically developed to identify the actions that will be taken to address resettlement. It would typically include identification of those being resettled; the socio-economic baseline for the resettlees; the measures to be implemented as part of the resettlement process including those relating to resettlement assistance and livelihood support; the legal and compensation frameworks; organisational roles and responsibilities; budget allocation and financial management; the timeframe, objectives and targets; grievance redress mechanisms; monitoring, reporting and review provisions; and understandings around consultation, participation and information exchange.

Sensitivity Analysis: Investigation into how projected performance varies along with changes in the key assumptions on which the projections are based

Short-Term: Covers day-to-day operations.

Significant: Important in effect or consequence, or relatively large.

Stakeholder: One who is interested in, involved in or affected by the hydropower project and associated activities.

Stakeholder Group: A set of stakeholders with common characteristics or interests.

Strategic Fit: The compatibility of the project with local, national and regional needs identified through the priorities and objectives put forth in options assessments and other relevant local, national and regional and multi-national policies and plans.

Suitable: Appropriate for the desired purpose, condition or occasion.

Timely: Occurring at a suitable or opportune time

Transboundary Agreements: Agreements made amongst riparian states about how shared water resources will be utilised by the parties involved, and the processes that will be followed to sustain these understandings.

Transparent / Transparency: Open to public scrutiny, publicly available, and/or able to be viewed or disclosed to the public on request.

Upgrade: To improve to a higher grade or standard.

Vulnerable Social Groups: Social groups who are marginalised or impoverished with very low capacity and means to absorb change.

Hydropower Sustainability Assessment Protocol

Preparation
Assessment Tool

May 2020

Published by:

iha
international hydropower association

Acknowledgements

The Hydropower Sustainability Assessment Protocol is the product of the considerable effort of many parties. The members of the Hydropower Sustainability Assessment Forum spent two and a half years deeply involved in research, analyses, meetings, outreach, trialling, review, exchanging views, negotiating content and finding solutions to divergent views. Many had reference groups that were very active in following the Forum process and informing the views of Forum members. The Forum was funded by substantial donations from the governments of Norway, Iceland and Germany, supplemented by funding from the International Hydropower Association, The Nature Conservancy, The World Bank Group, and The World Wide Fund for Nature (WWF). In addition, the in-kind contributions of the Forum members and many supporting organisations were considerable.

The Protocol reflects the intellectual contributions of these many players, and the end product has been enabled because of a shared vision that it can make a significant contribution to advancing sustainable hydropower. The members of the Forum and those reference groups and organisations that have worked with these individuals are gratefully acknowledged:

Developing Countries

Dr Yu Xuezhong, Research Professor, **China Institute of Water Resources and Hydropower Research**, PR China

Mr Zhou Shichun, Senior Engineer, **China Hydropower Engineering Consulting Group Co.,** PR China

Mr Israel Phiri, Manager PPI, **Ministry of Energy and Water Development**, Zambia

Developed Countries

Mr Geir Hermansen, Senior Advisor, Department of Energy, **Norad**, Norway

Prof Gudni A Johannesson, Director General, **National Energy Authority**, Iceland

Ms Kirsten Nyman, Policy Advisor for Sustainable Hydropower, **GTZ**, Germany (observer)

Finance Sector - Economic Aspects

Ms Courtney Lowrance, Director, Environmental and Social Risk Management, Citigroup Global Markets Inc, member of the **Equator Principles Financial Institutions**

Ms Daryl Fields, Senior Water Resources Specialist, **The World Bank** (observer)

Hydropower Sector

Dr Refaat Abdel-Malek, President, **International Hydropower Association**

Mr Andrew Scanlon, Manager Business Sustainability, **Hydro Tasmania**

NGOs - Environmental Aspects

Mr David Harrison, Senior Advisor, Global Freshwater Team, **The Nature Conservancy**

Dr Joerg Hartmann, WWF Dams Initiative Leader, **World Wide Fund for Nature (WWF)**

NGOs - Social Aspects

Mr Michael Simon, Lead, People, Infrastructure and Environment Program, **Oxfam**

Dr Donal O'Leary, Senior Advisor, **Transparency International**

Forum Chair

Mr André Abadie, Director, **Sustainable Finance Ltd**

Forum Coordinator

Dr Helen Locher, Sustainability Forum Coordinator, **International Hydropower Association**

Contents

The Hydropower Sustainability Assessment Protocol

The Hydropower Sustainability Assessment Protocol (the "Protocol") is a sustainability assessment framework for hydropower projects and operations. It outlines the important sustainability considerations for a hydropower project, and enables production of a sustainability profile for that project. The four Protocol assessment tools – Early Stage, Preparation, Implementation, and Operation – are designed to be stand-alone assessments applied at particular stages of the project life cycle. An assessment with one tool does not depend on earlier stage assessments to have been undertaken. The assessment tools are designed to be applicable up to major decision points in the project life cycle, and are most effective where there are repeat applications to help guide continuous improvement measures. The assessment tools and associated decision points are shown in Figure 1.

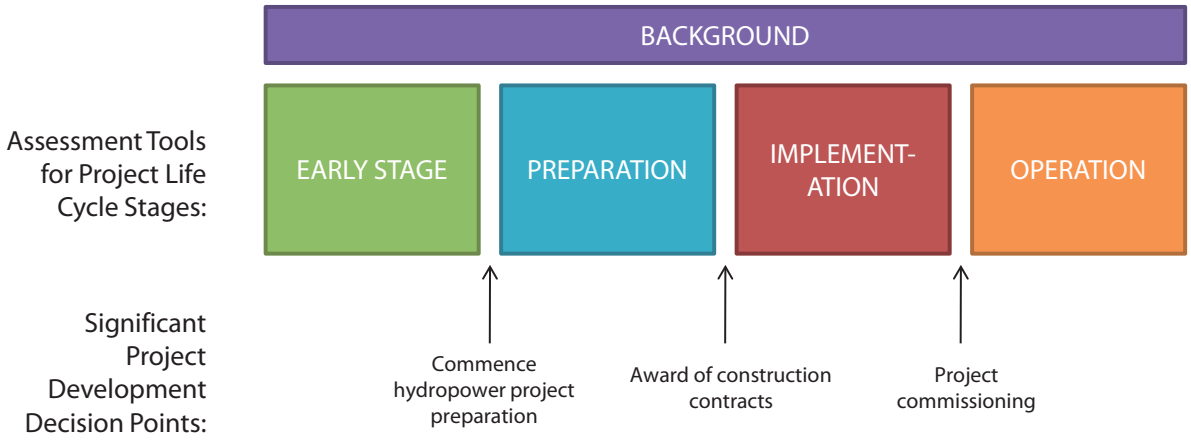

Figure 1 - Protocol Assessment Tools and Major Decision Points

Overview of the Preparation Assessment Tool

This document provides the Preparation assessment tool, and assumes that the user has already made him or herself familiar with the Protocol Background which describes the overall approach and use of the Protocol assessment tools. The Preparation assessment tool assesses the preparation stage of a hydropower project, during which investigations, planning and design are undertaken for all aspects of the project. Following project preparation, the awarding of construction contracts is a significant decision point. An assessment conducted at this point in time would assess whether all preparatory requirements have been met, management plans are in place, and commitments are appropriate and binding. This Protocol assessment tool can be used prior to, and to inform, the decision to move forward with project implementation. Following this point, construction commences along with relevant elements of environmental and social action plans.

Preparation Topic Relevance Guide

Not all topics in the Preparation assessment tool will be relevant for every project assessment, and their relevance must be considered on a project-by-project basis. The project representative would make a case for

a topic to be not relevant and present evidence to support this. The assessor reviews the evidence and draws a conclusion, documenting the evidence cited, the quality of the evidence, and the basis for this conclusion. Some examples of circumstances that might make topics not relevant, subject to presentation of credible evidence, could be:

- No cultural heritage identified in the project affected area ➔ Cultural Heritage topic is not relevant
- No Indigenous Peoples in the project affected area ➔ Indigenous Peoples topic is not relevant
- No resettlement required by the project ➔ Resettlement topic is not relevant.

P-1 Communications and Consultation

This topic addresses the identification and engagement with project stakeholders, both within the company as well as between the company and external stakeholders (e.g. affected communities, governments, key institutions, partners, contractors, catchment residents, etc). The intent is that stakeholders are identified and engaged in the issues of interest to them, and communication and consultation processes establish a foundation for good stakeholder relations throughout the project life.

Scoring:

1	*There are significant gaps relative to basic good practice.*
2	*Most relevant elements of basic good practice have been undertaken, but there is one significant gap.*
3	**Assessment:** Stakeholder mapping has been undertaken to identify and analyse stakeholders, to establish those that are directly affected, and to establish communication requirements and priorities, with no significant gaps. **Management:** Communications and consultation plans and processes, including an appropriate grievance mechanism, have been developed at an early stage applicable to project preparation, implementation and operation that outline communication and consultation needs and approaches for various stakeholder groups and topics. **Stakeholder Engagement:** The project preparation stage has involved appropriately timed communications and engagement, often two-way, with directly affected stakeholders on topics of interest and relevance to them; engagement is undertaken in good faith; ongoing processes are in place for stakeholders to raise issues and get feedback. **Conformance/Compliance:** Processes and objectives relating to communications and consultation have been and are on track to be met with no major non-compliances or non-conformances, and any communications related commitments have been or are on track to be met.
4	*All relevant elements of basic good practice have been undertaken and in one or more cases exceeded, but there is one significant gap in the requirements for proven best practice.*
5	**Assessment:** In addition, the stakeholder mapping takes broad considerations into account. **Management:** In addition, communication and consultation plans and processes show a high level of sensitivity to communication and consultation needs and approaches for various stakeholder groups and topics; and processes are in place to anticipate and respond to emerging risks and opportunities. **Stakeholder Engagement:** In addition, engagement with directly affected stakeholders has been inclusive and participatory; negotiations are undertaken in good faith; and feedback on how issues raised have been taken into consideration has been thorough and timely. **Conformance/Compliance**: In addition, there are no non-compliances or non-conformances.

Assessment Guidance:

Stakeholders are those who are interested in, involved in or affected by the hydropower project and associated activities.

Stakeholder mapping refers to identification and grouping of stakeholders in a meaningful way, for example based on stakeholder rights, risks and responsibilities. An example of "rights" would be land rights.

Directly Affected Stakeholders are those stakeholders with substantial rights, risks and responsibilities in relation to the issue. These may be inside the project affected area (e.g. project affected communities) or outside the project-affected area (e.g. government regulators, finance institution representatives, or investment partners).

Grievance mechanisms refer to the processes by which stakeholders are able to raise concerns, grievances and legitimate complaints, as well as the project procedures to track and respond to any grievances.

Needs and approaches for stakeholder groups could include consideration of: cultural norms, gender, literacy level, vulnerable social groups, disabilities, logistical constraints, etc.

Good faith engagement is engagement that is undertaken with an honest intent to reach a mutually satisfactory understanding on the issues of concern.

Broad considerations within stakeholder mapping could include, for example: the geographic or compositional extent of stakeholder groups identified and considered, the interrelationships amongst stakeholder groups, the level of vulnerability to adverse project impacts and risks, and consideration of rights, risks and responsibilities, etc.

Processes to anticipate emerging risks and opportunities could include, for example, participation of project representatives in a catchment management committee.

Good faith negotiation involves (i) willingness to engage in a process; (ii) provision of information necessary for informed negotiation; (iii) exploration of key areas of importance; (iv) mutually acceptable procedures for negotiation; (v) willingness to modify position; (vi) provision of sufficient time to both parties for decision-making; (vii) agreements on proposed compensation framework, mitigation measures, and development interventions.

Potential interviewees: project communications staff; project manager; stakeholder representatives; project affected communities representatives

Examples of evidence: project stakeholder mapping document; project communications and/or consultation plans; communications protocols; grievance mechanisms

P-2 Governance

This topic addresses corporate and external governance considerations for the project. The intent is that the developer has sound corporate business structures, policies and practices; addresses transparency, integrity and accountability issues; can manage external governance issues (e.g. institutional capacity shortfalls, political risks including transboundary issues, public sector corruption risks); and can ensure compliance.

Scoring:

1

There are significant gaps relative to basic good practice.

2

Most relevant elements of basic good practice have been undertaken, but there is one significant gap.

3

Assessment: Assessments have been undertaken of political and public sector governance issues, and corporate governance requirements and issues, through the project development cycle with no significant gaps.

Management: Processes are in place to manage corporate, political and public sector risks, compliance, social and environmental responsibility, grievance mechanisms, ethical business practices, and transparency; policies and processes are communicated internally and externally as appropriate; and independent review mechanisms are utilised to address sustainability issues in cases of project capacity shortfalls, high sensitivity of particular issues, or the need for enhanced credibility.

Stakeholder Engagement: The business interacts with a range of directly affected stakeholders to understand issues of interest to them; and the business makes significant project reports publicly available, and publicly reports on project performance, in some sustainability areas.

Conformance/Compliance: The project has no major non-compliances.

Outcomes: There are no significant unresolved corporate and external governance issues identified.

4

All relevant elements of basic good practice have been undertaken and in one or more cases exceeded, but there is one significant gap in the requirements for proven best practice.

5

Assessment: In addition, there are no significant opportunities for improvement in the assessment of political and public sector governance issues and corporate governance requirements and issues.

Management: In addition, contractors are required to meet or have consistent policies as the developer; and processes are in place to anticipate and respond to emerging risks and opportunities.

Stakeholder Engagement: In addition, the business makes significant project reports publicly available and publicly reports on project performance in sustainability areas of high interest to its stakeholders.

Conformance/Compliance: The project has no non-compliances.

Outcomes: In addition, there are no unresolved corporate and external governance issues identified.

Assessment Guidance:

Governance broadly refers to the combination of processes and structures that inform, direct, manage and monitor the activities of the project toward the achievement of its objectives.

Corporate governance is a term that refers broadly to the rules, processes, or laws by which businesses are operated, regulated, and controlled

Corporate governance requirements may include, for example: business administration, policies and processes, risk management, corporate social responsibility, ethical business practices, accountability and stakeholder relations, compliance, etc.

Corporate governance issues may relate to, for example: lack of capacity in key external institutional structures, policies and processes important to the project; public sector corruption risks; political risks; internal corruption risks; compliance; management of project risks; etc.

External governance considerations include legal, judicial, and institutional structures, processes and policies relevant to the project. Examples include: the executive, the legislature, political parties, anticorruption organisations, judiciary, grievance addressing mechanisms (e.g. the Ombudsman), specific civil service/public sector agencies, law enforcement agencies, Freedom of Information, media, local and national government, civil society, private sector, international institutions (e.g. some provide peer review of anti-corruption efforts), audit/oversight institutions, public contracting system, etc.

Political risk is a risk of financial loss or inability to conduct business faced by investors, corporations, and governments due to government policy changes, government action preventing entry of goods, expropriation or confiscation, currency inconvertibility, politically-motivated interference, government instability, or war.

Transboundary issues would take into account institutional arrangements that could address the management of upstream and downstream impacts of the project and basin-wide sharing of resources.

Corruption risks may be within the business such as with how finances are managed, or within the public sector such as not addressing licence or permit violations. Public sector corruption risks during project preparation may include, for example, limited options considered, short-cutting of assessment/preparation requirements, or non-transparent approvals; and at the project implementation and operation may include, for example, a blind eye to licence and permit violations.

Processes to ensure ethical business practices could include, for example: a business Code of Ethics, an employee Code of Conduct, a business Integrity Pact, anti-bribery or anti-corruption policies and procedures for reporting and investigation (such as Transparency International's Business Principles for Countering Bribery (BPCB), a whistle-blowing arrangement, etc.

Compliance is with respect to all relevant laws, policies, permits, agreements, codes of practice and publicly stated commitments.

Independent review refers to expert review by someone not employed by the project and with no financial interest in profits made by the project. An expert is a person with a high degree of skill in or knowledge of a certain subject, as a result of a high degree of experience or training in that subject. Forms of independent review may vary from contracting an expert consultant to provide a written review of a particular assessment, plan or report, to a panel of experts comprising a mix of expertise appropriate to the project and providing periodic assessment and written reports on issues identified to be within its scope of review. Areas of particular sensitivity would be identified in the environmental and social impact assessment; one area is often resettlement arising from a hydropower project, and this may require independent review of the Resettlement Action Plan.

Potential interviewees: a Board member; the project manager; business managers for corporate governance, compliance, internal audit, business risk; experts on public sector governance; other relevant third parties such as anti-corruption civil society organisations

Examples of evidence: business internal website and external website for vision, values, policies, structure, procedures, annual reports; assessment of public sector governance issues; internal audit reports; project compliance plan; reports to Board on ethical business practices and compliance; log of ethical business practices grievance; third party review reports; relevant documentation on public sector governance issues such as reports of Transparency International on National Integrity Systems (NIS) and the Corruption Perceptions Index (CPI)

P-3 Demonstrated Need and Strategic Fit

This topic addresses the contribution of the project in meeting demonstrated needs for water and energy services, as identified through broadly agreed local, national and regional development objectives and in national and regional policies and plans. The intent is that the project can demonstrate its strategic fit with development objectives and relevant policies and plans can be demonstrated, and that the project is a priority option to meet identified needs for water and energy services.

Scoring:

1	*There are significant gaps relative to basic good practice.*
2	*Most relevant elements of basic good practice have been undertaken, but there is one significant gap.*
3	**Assessment:** An assessment has been undertaken of needs for water and energy services, of options to meet water and energy needs; and of national and regional policies and plans relevant to those needs, with no significant gaps. **Stakeholder Engagement:** The results of the assessment of strategic fit are publicly disclosed. **Outcomes:** The strategic fit of the project with needs for water and energy services, and relevant policies and plans can be demonstrated.
4	*All relevant elements of basic good practice have been undertaken and in one or more cases exceeded, but there is one significant gap in the requirements for proven best practice.*
5	**Assessment:** In addition, the assessment is based on dialogue with government planners, policy makers and key stakeholder groups; and the assessment shows a strong emphasis on social and environmental needs, policies and plans including the need for sustainable development of the river basin and integrated water resource management. **Stakeholder Engagement:** (No addition to basic good practice) **Outcomes:** In addition the project is one of the priority options to address demonstrated needs.

Assessment Guidance:

Needs for water and energy services are those identified through broadly agreed local, national and regional development objectives, policies and plans. A hydropower development to meet the energy requirements of an energy-intensive off-taker (e.g. an aluminium smelter) would be considered a demonstrated need if it is included in broadly agreed development objectives, policies and plans.

Water services examples include: water for energy generation, fisheries, floodplain agriculture, food supply, water storage capacity, drinking water supply, sanitation, water for business and industry, irrigation water supply, flood management, navigation, recreation, domestic needs of riparian dwellers, tourist opportunities, vehicle for transboundary cooperation, ecosystem services (e.g. floodplain maintenance, connectivity for migratory species, maintenance of off-river wetlands, nutrient and sediment balance, delta sediment replenishment, estuarine flushing, spawning ground access and maintenance), etc.

Energy services examples include: provision of electricity to meet local, national and/or regional demand or opportunities; provision of grid stability; provision of peak load; provision of ancillary benefits such as spinning reserve, system regulation and improved thermal efficiency, etc.

National and regional policies and plans examples include: development, energy, water, biodiversity, climate, conservation, transboundary, land use, etc.

Social and environmental needs, policies and plans examples include: poverty eradication, food security, maintenance of fisheries, protection of high value sites (e.g. national parks, World Heritage sites, Ramsar wetlands, sites of cultural significance, recognised significant landscapes), etc.

Potential interviewees: project manager; government representatives (e.g. energy, water, development departments); stakeholder representatives; project affected communities representatives

Examples of evidence: Energy Master Plan; Water Development Plan; Country Development Report; strategic environmental assessments; options assessments; energy demand projections; local, national or regional development assessments including livelihoods and living standards; conservation plans; climate adaptation plans; report on analysis of relevant policies and plans; report on project demonstrated need and strategic fit; use of multi-criteria analysis in assessing options

P-4 Siting and Design

This topic addresses the evaluation and determination of project siting and design options, including the dam, power house, reservoir and associated infrastructure. The intent is that siting and design are optimised as a result of an iterative and consultative process that has taken into account technical, economic, financial, environmental and social considerations.

Scoring:

1	*There are significant gaps relative to basic good practice.*
2	*Most relevant elements of basic good practice have been undertaken, but there is one significant gap.*
3	**Assessment:** Technical information has been analysed at an early stage alongside social, environmental, economic, financial, and regulatory considerations in order to develop a preliminary project design and some options around this. **Management:** An optimisation process has been undertaken to assess the project siting and design options. **Stakeholder Engagement:** The siting and design optimisation process has involved appropriately timed, and often two-way, engagement with directly affected stakeholders; ongoing processes are in place for stakeholders to raise issues and get feedback. **Outcomes:** The final project siting and design has responded to many sustainability considerations for siting and design.
4	*All relevant elements of basic good practice have been undertaken and in one or more cases exceeded, but there is one significant gap in the requirements for proven best practice.*
5	**Assessment:** In addition, options take into consideration sustainable river basin design and integrated water resources management. **Management:** (No addition to basic good practice) **Stakeholder Engagement:** In addition, engagement with directly affected stakeholders has been inclusive, and participatory; and feedback on how issues raised have been taken into consideration has been thorough and timely. **Outcomes:** The final project siting and design is optimal with respect to sustainability considerations for siting and design.

Assessment Guidance:

Sustainability considerations for siting and design examples include: prioritising alternatives that provide opportunities for multiple use benefits, that are on already developed river systems, that minimize the area flooded per unit of energy (GWh) produced, that maximize opportunities for and do not pose unsolvable threats to vulnerable social groups, that enhance public health and minimize public health risks, that minimize population displacement, that avoid exceptional natural and human heritage sites, that have lower impacts on rare, threatened or vulnerable species, that maximize habitat restoration and protect high quality habitats, that achieve or complement community supported objectives in downstream areas (i.e. environmental flows), that have associated catchment management benefits, that have lower sedimentation and erosion risks, that avoid exceptional greenhouse gas emissions from reservoirs, etc.

Technical considerations for siting and design examples include: geological characteristics, morphology, flow characteristics, access issues, etc.

Optimal in this context means best fit once all identified sustainability considerations have been factored in, based on the outcomes of a consultative process.

Potential interviewees: project manager; project designers; stakeholder representatives; project affected communities representatives; (if relevant) representatives of resettlement or host communities.

Examples of evidence: pre-feasibility studies; feasibility studies; reports on options assessment e.g. multi-criteria analyses; records of design change to avoid or minimize disturbance and/or maximise opportunities; reports on stakeholder input and responses; minutes from public meetings.

P-5 Environmental and Social Impact Assessment and Management

This topic addresses the assessment and planning processes for environmental and social impacts associated with project implementation and operation throughout the area of impact of the project. The intent is that environmental and social impacts are identified and assessed, and avoidance, minimisation, mitigation, compensation and enhancement measures designed and implemented.

Scoring:

1 *There are significant gaps relative to basic good practice.*

2 *Most relevant elements of basic good practice have been undertaken, but there is one significant gap.*

3 **Assessment:** Assessments of project environmental and social impacts have been undertaken for project implementation and operation, including evaluation of associated facilities, scoping of cumulative impacts, role and capacity of third parties, and impacts associated with primary suppliers, using appropriate expertise and with no significant gaps; and a baseline has been established and well-documented for the pre-project condition against which post-project changes can be compared.

Management: Environmental and social issues management plans and processes have been developed with appropriate expertise (internal and external) for project implementation and operation with no significant gaps; in addition to key social and environmental issues relating to the hydropower project, plans address construction related waste, noise, air quality, land disturbance and rehabilitation; the environmental and social impact assessment and key associated management plans are publicly disclosed.

Stakeholder Engagement: The environmental and social impact assessment and management planning process has involved appropriately timed, and often two-way, engagement with directly affected stakeholders; ongoing processes are in place for stakeholders to raise issues and get feedback.

Outcomes: Environmental and social plans avoid, minimise and mitigate negative impacts with no significant gaps.

4 *All relevant elements of basic good practice have been undertaken and in one or more cases exceeded, but there is one significant gap in the requirements for proven best practice.*

5 **Assessment:** In addition the assessment takes broad considerations into account, and both risks and opportunities; and the social impact assessment incorporates assessment of human rights

Management: In addition, processes are in place to anticipate and respond to emerging risks and opportunities; plans are embedded within an internationally recognised environmental management system which is third party verified, such as ISO 14001; and independent review mechanisms are utilised.

Stakeholder Engagement: In addition, engagement with directly affected stakeholders has been inclusive and participatory; and feedback on how issues raised have been taken into consideration has been thorough and timely.

Outcomes: In addition, environmental and social plans avoid, minimise, mitigate and compensate negative project impacts with no identified gaps; and plans provide for enhancements to pre-project environmental or social conditions or contribute to addressing issues beyond those impacts caused by the project.

Assessment Guidance:

Key environmental issues include aquatic and terrestrial biodiversity, threatened species, critical habitats, ecosystem integrity and connectivity issues, water quality, erosion and sedimentation. Environmental impacts of the project that extend beyond the jurisdictional boundaries in which the project is located would need to be assessed and included in management plans.

Key social issues include project-affected communities, Indigenous Peoples, ethnic minorities, resettlement, cultural heritage (both physical and non-physical), and public health; and are analysed with respect to socio-economic indicators (including living standards, livelihoods, and health statistics) as well as gender. Social impacts of the project that extend beyond the jurisdictional boundaries in which the project is located would need to be assessed and included in management plans.

Associated facilities are defined as those facilities that would not be constructed if the project did not exist, and where the project would not be viable without the other facility. These facilities may be funded, owned, constructed, and/or operated separately from the project, and in some cases, by third parties. Examples pertinent to a hydropower project could include roads, transmission lines, buildings, etc.

Cumulative impacts are those that result from the incremental impact of the project when added to other past, present, and reasonably foreseeable future actions. Effects should be assessed in terms of the capacity of the water resource, ecosystem, and/or affected communities to accommodate such impacts. Analyses need to be defined within realistic boundaries.

Third parties are local and national governments, contractors, and suppliers; an effective assessment should identify the different entities involved and the roles they play, and the corresponding risks they present to the client in order to help achieve environmental and social outcomes.

Primary suppliers are those first-tier suppliers who are providing goods or materials essential for the project, which may incur environmental and social impacts in this supply activity. An example pertinent to a hydropower project could be a quarry supplying construction materials.

Non-physical cultural heritage refers to traditions, festivals, rituals, folklore, storytelling, drama, etc.

Land rehabilitation is the process of returning project-affected land to some degree of its former state after disturbance or damage associated with project implementation.

Appropriate expertise refers to specialists with experience in the key identifiable topical areas of the assessment and management plans, giving particular attention to the differences between environmental areas and social impact areas. These specialists could be internal or external to the project developer; internal expertise in managing environmental and social issues is of particular importance with respect to this topic.

Avoid, minimise, mitigate and compensate is a sequential process. Measures to avoid or prevent negative or adverse impacts are always prioritised, and where avoidance is not practicable, then minimisation of adverse impacts is sought. Where avoidance and minimisation are not practicable, then mitigation and compensation measures are identified and undertaken commensurate with the project's risks and impacts.

Broad considerations within the assessment might be exhibited by, for example: a broad view of the project affected area; consideration of the project catchment area; a broad view of relevant issues; a broad interpretation of important concepts such as livelihoods or living standards; a broad range of approaches considered; a broad view of stakeholder perspectives on the various issues; a focus on interrelationships amongst issues; sustainable river

basin development considerations; integrated water resources management considerations; legacy issues; and more detailed analysis of cumulative impacts; etc.

Human rights are the basic rights and freedoms to which all humans are entitled, encompassing civil, political, economic, social, and cultural rights, and enshrined in international declarations such as the Universal Declaration on Human Rights 1948.

Independent review refers to expert review by someone not employed by the project and with no financial interest in profits made by the project. An expert is a person with a high degree of skill in or knowledge of environmental and social subjects relevant to hydropower impacts, as a result of a high degree of experience or training in that subject. Forms of independent review may vary from contracting an expert consultant to provide a written review of a particular assessment, plan or report, to a panel of experts comprising a mix of expertise appropriate to the project and providing periodic assessment and written reports on issues identified to be within its scope of review.

Potential interviewees: project managers responsible for environmental and social issues assessment and management; government representatives responsible for environmental and social issues; stakeholder representatives; project affected communities representatives; external experts

Examples of evidence: regulatory requirements for EIA / SIA; EIA / SIA and associated reports; environmental and social management plans; records of consultation and stakeholder involvement; records of response to stakeholder issues; third party review report; qualifications of experts utilised; evidence of appropriate separate expertise used for environmental and social issues recognising that in many cases single experts may not have sufficient breadth of expertise to cover both aspects

P-6 Integrated Project Management

This topic addresses the developer's capacity to coordinate and manage all project components, taking into account project construction and future operation activities at all project-affected areas. The intent is that the project meets milestones across all components, delays in any component can be managed, and one component does not progress at the expense of another.

Scoring:

1	*There are significant gaps relative to basic good practice.*
2	*Most relevant elements of basic good practice have been undertaken, but there is one significant gap.*
3	**Management:** An integrated project management plan and processes have been developed that takes into account all project components and activities with no significant gaps; and a construction management plan has been developed that identifies construction risks and describes processes that contractors and others are required to follow to manage these risks. **Outcomes:** The project is likely to meet overall budget and timing objectives and targets, and plans avoid, minimise and mitigate construction risks with no significant gaps.
4	*All relevant elements of basic good practice have been undertaken and in one or more cases exceeded, but there is one significant gap in the requirements for proven best practice.*
5	**Management:** In addition, the integrated project management plan sets out measures to manage interface and delay issues without impinging on overall project timetables and budgets; construction management plans ensure that land disturbance and waste generation activities will be managed so that later rehabilitation activities can be undertaken efficiently and effectively; and processes are in place to anticipate and respond to emerging risks and opportunities. **Outcomes:** In addition, the project is highly likely to meet overall budget and timing objectives and targets; and plans avoid, minimise, mitigate and compensate construction risks with no identified gaps.

Assessment Guidance:

Project components refers to components of the overall hydropower development programme including design, construction, environmental, social, resettlement, finance, communications and procurement; examples include: design, construction, environmental, social, resettlement, finance, communications and procurement, etc.

Integrated project management plan examples of considerations include: scheduling, interface targets, significant path analysis, communications, cost control, etc.

Construction risks examples include: safety, air, noise and water pollution, land contamination, land disturbance, water management, waste management, introduced species, health, migratory workforce/local community conflicts, etc. These may be identified and evaluated in the environmental and social impact assessment.

Construction management plan examples of considerations include: chemical and waste storage and handling, pollution, land disturbance, health, safety, community relations, and site zoning for special area protection. The plans may be developed by the project managers, or by the contractors themselves. Early in the preparation stage management of construction risks may be outlined in environmental and social management plans, and later incorporated into construction management plans.

Land disturbance and waste generation activities in the construction management plans can incorporate many measures which are mindful of the later requirements for construction site restoration and rehabilitation; example include: stockpiling of topsoil, seed collection, location of works areas, quarries, spoil heaps below the future minimum water level, etc.

Avoid, minimise, mitigate and compensate is a sequential process. Measures to avoid or prevent negative or adverse impacts are always prioritised, and where avoidance is not practicable, then minimisation of adverse impacts is sought. Where avoidance and minimisation are not practicable, then mitigation and compensation measures are identified and undertaken commensurate with the project's risks and impacts.

Potential interviewees: project manager; construction manager

Examples of evidence: organisational structure; management team qualifications; integrated programme management plans, analyses and reports; construction management plan; construction contracts

P-7 Hydrological Resource

This topic addresses the level of understanding of the hydrological resource availability and reliability to the project, and the planning for generation operations based on these available water inflows. The intent is that the project's planned power generation takes into account a good understanding of the hydrological resource availability and reliability in the short- and long-term, taking into account other needs, issues or requirements for the inflows and outflows as well as likely future trends that could affect the project.

Scoring:

1	*There are significant gaps relative to basic good practice.*
2	*Most relevant elements of basic good practice have been undertaken, but there is one significant gap.*
3	**Assessment:** An assessment of hydrological resource availability has been undertaken utilising available data, field measurements, appropriate statistical indicators, and a hydrological model; issues which may impact on water availability or reliability have been identified and factored into the modelling; and scenarios, uncertainties and risks have been evaluated. **Management:** A plan and processes for generation operations have been developed to ensure efficiency of water use, based on analysis of the hydrological resource availability, a range of technical considerations, an understanding of power system opportunities and constraints, and social, environmental and economic considerations including downstream flow regimes.
4	*All relevant elements of basic good practice have been undertaken and in one or more cases exceeded, but there is one significant gap in the requirements for proven best practice.*
5	**Assessment:** In addition, issues that may impact on water availability or reliability have been comprehensively identified; and uncertainties and risks have been extensively evaluated over the short- and long-term. **Management:** In addition, generation operations planning has a long-term perspective; takes into consideration multiple uses and integrated water resources management; fully optimises and maximises efficiency of water use; and has the flexibility to anticipate and adapt to future changes.

Assessment Guidance:

Hydrological resource means water inflows to the project.

Issues which may impact on water availability and reliability examples include: upstream hydro operators, future water resource use developments, future development of water-reliant land uses (e.g. agriculture, industry, population growth), catchment condition, etc. If the project is reliant on water resources that extend beyond the jurisdictional boundaries in which the project is located, the implications of this would need to be fully considered. Climate change impacts on hydrology are addressed under topic P-24 Climate Change Mitigation and Resilience.

Technical considerations for generation planning examples include: water inflow patterns; reservoir characteristics; gate and spillway design, turbine type, number and characteristics, safety issues etc.

Power system opportunities and constraints examples include: patterns of demand for energy (e.g. base vs peak load), power prices, other generators and their capacities and constraints, transmission issues, etc.

Fully optimise and maximise efficiency of water use means the plan is the best use of the hydrological resource given the opportunities and constraints relating to technical, social, economic, environmental, financial considerations and is based on an iterative and consultative process.

Potential interviewees: company, government and/or independent hydrologists; power system planners; project designers; river basin authority representative; stakeholder representatives; project affected communities representatives; wetland, fisheries and ecosystem specialists; downstream authorities in a transboundary context.

Examples of evidence: hydrological analyses; analyses of water resource demands affecting the project; analyses of power system and market opportunities; simulation and optimisation model scenarios and outputs; systems operations plan for the project.

P-8 Infrastructure Safety

This topic addresses planning for dam and other infrastructure safety during project preparation, implementation and operation. The intent is that life, property and community are protected from the consequences of dam failure and other infrastructure safety risks.

Scoring:

1 *There are significant gaps relative to basic good practice.*

2 *Most relevant elements of basic good practice have been undertaken, but there is one significant gap.*

3 **Assessment:** An assessment has been undertaken of dam and other infrastructure safety risks with appropriate expertise during project preparation, construction and operation, with no significant gaps.

Management: Dam and other infrastructure safety management plans and processes have been developed for project implementation and operation in conjunction with relevant regulatory and local authorities with no significant gaps and provide for communication of public safety measures; emergency response plans include awareness and training programs and emergency response simulations; and dam safety is independently reviewed.

Outcomes: Plans avoid, minimise and mitigate safety risks with no significant gaps.

4 *All relevant elements of basic good practice have been undertaken and in one or more cases exceeded, but there is one significant gap in the requirements for proven best practice.*

5 **Assessment:** In addition. the assessment includes consideration of a broad range of scenarios, and includes both risks and opportunities.

Management: In addition, processes are in place to anticipate and respond to emerging risks and opportunities; plans provide for public safety measures to be widely communicated in a timely and accessible manner; and emergency response plans are independently reviewed.

Outcomes: In addition, plans contribute to addressing safety issues beyond those risks caused by the project itself.

Assessment Guidance:

Safety risks examples include: seismic, geotechnical, dam or generation unit failure, electric shock, hydrological risk, drowning, road accidents, accidents arising from community interactions with project activities, etc.

Appropriate expertise refers to specialists with proven experience designing and constructing projects of a similar complexity, giving particular attention to engineering safety competencies such as geotechnical, structural, electrical, mechanical, and fire specialities.

Safety management measures examples include: signage, exclusion zones, emergency preparedness, monitoring, inspections, training, incident response, communication, allocation of responsibilities, etc.

Communication of public safety measures could be, for example, through public signage, documentation appropriately lodged with local authorities, awareness raising through various types of community engagements, verbal communication by on-site patrolmen or other similar mechanisms, etc.

Emergency response simulations may be undertaken, for example, through training or workshop exercises for company staff, regional authorities, etc.

Independent review refers to expert review by someone not employed by the project and with no financial interest in profits made by the project. An expert is a person with a high degree of skill in or knowledge of dam and infrastructure safety, as a result of a high degree of experience or training in that subject. Forms of independent review may vary from contracting an expert consultant to provide a written review of a particular assessment, plan or report, to inclusion of a safety expert in a panel of experts.

Avoid, minimise, mitigate and compensate is a sequential process. Measures to avoid or prevent negative or adverse impacts are always prioritised, and where avoidance is not practicable, then minimisation of adverse impacts is sought. Where avoidance and minimisation are not practicable, then mitigation and compensation measures are identified and undertaken commensurate with the project's risks and impacts

Minimisation and mitigation of safety risks can be achieved by, for example, identifying and performing the necessary analyses to determine or eliminate safety risks according to relevant standards and to the extent necessary, implement measures in the project design to mitigate identified safety concerns.

Contributions to safety issues beyond project risks might include, for example, improving the safety of some existing roads or traffic infrastructure, signage in public places about speeding or drowning risks, etc.

Potential interviewees: project manager; project designers; project safety manager; local authorities; stakeholder representatives; project affected community representatives

Examples of evidence: safety risk assessments; safety management plans; emergency preparedness plans; safety standards; independent review reports.

P-9 Financial Viability

This topic addresses both access to finance, and the ability of a project to generate the required financial returns to meet project funding requirements, including funding of measures aimed at ensuring project sustainability. The intent is that projects proceed with a sound financial basis that covers all project funding requirements including social and environmental measures, financing for resettlement and livelihood enhancement, delivery of project benefits, and commitments to shareholders/investors.

Scoring:

1	*There are significant gaps relative to basic good practice.*
2	*Most relevant elements of basic good practice have been undertaken, but there is one significant gap.*
3	**Assessment:** An assessment of corporate financial viability, including potential project costs and likely revenue streams, has been undertaken using recognised models with no significant gaps; analyses include risk assessment, scenario testing and sensitivity analyses. **Management:** Financial management plans and processes have been developed for project implementation and operation with no significant gaps, and opportunities for project financing have been evaluated and pursued. **Outcomes:** The project can manage financial issues under a range of scenarios, can service its debt, can pay for all plans and commitments including social and environmental, and access to capital can be demonstrated.
4	*All relevant elements of basic good practice have been undertaken and in one or more cases exceeded, but there is one significant gap in the requirements for proven best practice.*
5	**Assessment:** In addition, project costs and revenue streams are fully detailed; and financial viability of the project has been analysed and optimised including extensive scenario testing, risk assessment, and sensitivity analyses. **Management:** In addition, financial management plans provide for well-considered contingency measures for all environmental and social mitigation plans and commitments; and processes are in place to anticipate and respond to emerging risks and opportunities. **Outcomes:** In addition, the project can manage financial issues under a broad range of scenarios.

Assessment Guidance:

Financial viability is the ability of an entity to continue to achieve its operating objectives and fulfill its mission from a financial perspective over the long term. Some projects may be multi-purpose in which hydropower is not the primary purpose, in which case the financial objective of the hydropower component may be to support delivery of the other purposes of the scheme (e.g. water supply, irrigation water, etc). For some projects the financial contribution is measured from the perspective of the system within which it operates; for example, some pump storage projects may run at a loss but enable a greater profit to be made from other power stations within the system because of the greater efficiencies gained.

Project costs examples include: costs for construction, operations and maintenance, and includes equipment, supplies, labour, tax, land/water resource rights, and costs of environmental and social mitigation plans.

Revenue streams examples include: the electricity market, the Power Purchase Agreement, and revenue associated with investment drivers for new market entrants (e.g. access to carbon finance).

Financial models at a minimum have the project costs and revenue streams as inputs and financial returns as outputs; examples of uses include: examine implications of various market conditions, trends and risks on financial viability of the project through scenario testing, risk assessment, sensitivity analysis, etc.

Financial issues and risks examples include: very high project costs; inability to meet required costs; uncertainties with respect to revenue streams; currency exchange instability; difficulties in access to project finance; access to renewable incentive schemes; regional pricing; market stability; market access; likelihood of major inflation or depreciation; financial viability of the principal power off-takers etc.

Some **financial information** may have a high degree of commercial sensitivity, and evidence for this topic may need to be viewed under a confidentiality agreement.

Potential interviewees: project financial officers; corporate financial officers; principal financing institution representative; independent financial expert

Examples of evidence: analysis of financing options; financial modelling reports; financial risk analysis; financial plans; financial status reports; third party review reports; annual financial reports for company, project, and principal off-taker(s)

P-10 Project Benefits

This topic addresses the additional benefits that can arise from a hydropower project, and the sharing of benefits beyond one-time compensation payments or resettlement support for project affected communities. The intent is that opportunities for additional benefits and benefit sharing are evaluated and implemented, in dialogue with affected communities, so that benefits are delivered to communities affected by the project.

Scoring:

1	*There are significant gaps relative to basic good practice.*
2	*Most relevant elements of basic good practice have been undertaken, but there is one significant gap.*
3	**Assessment:** An assessment of opportunities to increase the development contribution of the project through additional benefits and/or benefit sharing strategies has been undertaken; and the pre-project baseline against which delivery of benefits can be evaluated post-project is well-documented. **Management:** Project benefit plans and processes have been developed for project implementation and operation that incorporate additional benefit or benefit sharing commitments; commitments to project benefits are publicly disclosed. **Stakeholder Engagement:** The assessment and planning process relating to project benefits has involved appropriately timed, and often two-way, engagement with directly affected stakeholders; ongoing processes are in place for stakeholders to raise issues and get feedback. **Outcomes:** Plans deliver benefits for communities affected by the project.
4	*All relevant elements of basic good practice have been undertaken and in one or more cases exceeded, but there is one significant gap in the requirements for proven best practice.*
5	**Assessment:** In addition, broad considerations have been taken into account in identifying opportunities. **Management:** In addition, processes have been developed to anticipate and respond to emerging risks and opportunities. **Stakeholder Engagement:** In addition, engagement with directly affected stakeholders has been inclusive and participatory; and feedback on how issues raised have been taken into consideration has been thorough and timely. **Outcomes:** In addition, plans deliver significant and sustained benefits for communities affected by the project.

Assessment Guidance:

Additional benefits refers to benefits that can be leveraged from the project; examples include: capacity building, training and local employment; infrastructure such as bridges, access roads, boat ramps; improved services such as for health and education; support for other water usages such as irrigation, navigation, flood/drought control, aquaculture, leisure; increased water availability for industrial and municipal water supply; etc.

Benefit sharing is distinct from one-time compensation payments or resettlement support; examples include:

- equitable access to electricity services – project affected communities are among the first to be able to access the benefits of electricity services from the project, subject to contextual constraints (e.g. power safety, preference);
- non-monetary entitlements to enhance resource access – project affected communities receive enhanced local access to natural resources;
- revenue sharing – project affected communities share the direct monetary benefits of hydropower according to a formula and approach defined in regulations; this goes beyond a one-time compensation payment or short-term resettlement support; and trust funds.

Broad considerations might be exhibited by, for example: a broad view of the geographic area under consideration; a breadth of types of benefits or approaches; a breadth of stakeholder interests; an understanding of interrelationships amongst opportunities and policies, plans and development objectives; a broad analysis of trends, approaches and existing and emerging standards relating to benefit sharing; etc.

Potential interviewees: project manager; government representative (e.g. department of economic development); stakeholder representatives; project affected communities representatives

Examples of evidence: analysis of relevant development indicators; analysis of potential project benefits; analysis of benefit sharing options and opportunities; meeting minutes or reports demonstrating stakeholder input and involvement; benefit sharing plan

P-11 Economic Viability

This topic addresses the net economic viability of the project. The intent is that there is a net benefit from the project once all economic, social and environmental costs and benefits are factored in.

Scoring:

1	*There are significant gaps relative to basic good practice.*
2	*Most relevant elements of basic good practice have been undertaken, but there is one significant gap.*
3	**Assessment:** An assessment of economic viability has been undertaken with no significant gaps; the assessment has involved identification of costs and benefits of the project and either valuation in monetary terms or documentation in qualitative or quantitative dimensions. **Stakeholder Engagement:** The results of the economic viability analysis are publicly disclosed. **Outcomes:** From an economic perspective, a net benefit can be demonstrated.
4	*All relevant elements of basic good practice have been undertaken and in one or more cases exceeded, but there is one significant gap in the requirements for proven best practice.*
5	**Assessment:** In addition, the assessment takes broad considerations into account, and includes sensitivity analyses. **Stakeholder Engagement:** The economic viability analysis is publicly disclosed. **Outcomes:** In addition, the project benefits outweigh project costs under a wide range of circumstances.

PREPARATION

Assessment Guidance:

Cost-benefit analysis seeks to quantify all of the costs and benefits of a proposal in monetary terms, including items for which the market does not provide a satisfactory measure of economic value.

Demonstration of net benefits could be provided through qualitative or quantitative indicators. An example of a quantitative indicator is rate of return. Rate of return from an economic perspective is an indicator for the developmental impact of a project proposal, allowing comparisons with other energy sector investment options. Unlike the financial rate of return, which is mainly of interest to the organisations with commercial stakes in a proposal, the economic rate of return is of interest to society at large. Depending on the perspective of the evaluation, alternative indicators such as the net present value of the project, or the economic costs per unit of capacity installed or power generated, may be used.

Broad considerations might be exhibited by, for example: a broad view on relevant issues requiring costs and benefits; a broad view of stakeholder perspectives on what is a cost or a benefit; a recognition and method of addressing interrelationships amongst issues; a broad analysis of approaches to economic viability analyses as a foundation to the approach taken; etc.

Some **economic information** may have a high degree of commercial sensitivity, and evidence for this topic may need to be viewed under a confidentiality agreement.

Potential interviewees: project manager; government representative (e.g. department of economic development); funding agency economist; independent experts

Examples of evidence: analysis of economic context; analysis, quantification and valuation of project costs and benefits; loan appraisal reports; economic analyses of natural resources and riparian linked livelihoods

P-12 Procurement

This topic addresses all project-related procurement including works, goods and services. The intent is that procurement processes are equitable, transparent and accountable; support achievement of project timeline, quality and budgetary milestones; support developer and contractor environmental, social and ethical performance; and promote opportunities for local industries.

Scoring:

1	*There are significant gaps relative to basic good practice.*
2	*Most relevant elements of basic good practice have been undertaken, but there is one significant gap.*
3	**Assessment:** An assessment of major supply needs, supply sources, relevant legislation and guidelines, supply chain risks and corruption risks has been undertaken with no significant gaps. **Management:** Procurement plans and processes have been developed for project implementation and operation with no significant gaps. **Conformance/Compliance:** Processes and objectives relating to procurement have been and are on track to be met with no major non-compliances or non-conformances, and any procurement related commitments have been or are on track to be met. **Outcomes:** Procurement of works, goods and services across major project components is equitable, efficient, transparent, accountable, ethical and timely, and contracts are progressing or have been concluded within budget or that changes on contracts are clearly justifiable.
4	*All relevant elements of basic good practice have been undertaken and in one or more cases exceeded, but there is one significant gap in the requirements for proven best practice.*
5	**Assessment:** In addition, the assessment includes opportunities for local suppliers and local capacity development. **Management:** In addition, processes are in place to anticipate and respond to emerging risks and opportunities; sustainability and anti-corruption criteria are specified in the pre-qualification screening; and anti-corruption measures are strongly emphasised in procurement planning processes. **Conformance/Compliance:** In addition, there are no non-compliances or non-conformances. **Outcomes:** In addition, opportunities for local suppliers including initiatives for local capacity development have been delivered or are on track to be delivered.

Assessment Guidance:

Major supply needs examples include: design, economic, financial, technical, environmental and social consultancies; contractors for project construction works; supply of major goods and complex control equipment for project construction, etc.

Supply chain risks relate to inability to meet the contract provisions (e.g. with respect to cost, time, quality, specifications), corruption, transport impediments, human rights (e.g. child labour, forced labour used by suppliers of suppliers), etc.

Corruption risks at the contracting / bid evaluation stage examples include: non-transparent prequalification, confusing tender documents, non-transparent or non-objective selection procedures, bid clarifications not shared with other bidders, award decisions not made public, or not justified, deception and collusion, unjustified agents' fees, conflicts of interest of officials and consultants, etc.

Procurement plans and processes should address provision of a procurement policy, pre-qualification screening, bidding, awarding

of contracts, anti-corruption measures, and mechanisms to respond to bidder complaints. Development of procurements plans and processes for implementation and operation may not have been done during the project preparation stage in cases where the project is sent to a bidding process at the end of the preparation stage. In such cases, the plan for procurement could consist of a commitment to utilize the corporate entity's procurement plans and processes which would then be required to meet the stated criteria.

Screening could be for, by way of example, quality, reputation, cost, contractor prior performance on meeting contractual obligations (time, cost, specifications), etc.

Contracts have already been awarded during the project preparation stage for investigations, design, environmental and social impact assessments, etc. If contracts have not been concluded within budget, evidence should be provided to show that the changes on contracts are clearly justifiable.

Screening based on sustainability criteria might encompass additional criteria which could include, by way of example, social, environmental, ethics, human rights, health and safety performance, preference and support to local suppliers where they meet other criteria, etc.

Procurement opportunities may relate to new suppliers, new technologies, capacity development opportunities through liaising with government economic development initiatives, grants, RandD initiatives, contractual arrangements, etc.

Local suppliers are those within geographic proximity of the project-affected area who can or have the potential to meet the need to deliver required good and services; the definition of 'local' will be context specific (e.g. those in the project affected area or local government district).

Local capacity development refers to assistance that is provided to entities in the proximity of the project which have an identified need to develop a certain skill or competence or general upgrading of performance ability in order to meet or deliver a desired service.

Screening to address anti-corruption might specify, by way of example, that companies tendering must have a code of conduct addressing anti-corruption.

Anti-corruption measures examples include: open bidding contracting processes to be above a low threshold, contracting authority and its employees commit to an anti-corruption policy, project integrity pacts, mechanisms to report corruption and protect whistleblowers, confidentiality limited to legally protected information, etc.

Potential interviewees: project manager; project procurement officer; representative of an anti-corruption NGO

Examples of evidence: relevant purchasing policy and procedures; project procurement plan; analysis of local supply sources and capacities; tender requirements / specifications; bidding documents; supplier screening criteria; evaluation of supplier performance; bidder grievance log; record of compliance with relevant legislation and guidelines including those of financing agencies

P-13 Project-Affected Communities and Livelihoods*

This topic addresses impacts of the project on project affected communities, including economic displacement, impacts on livelihoods and living standards, and impacts to rights, risks and opportunities of those affected by the project. The intent is that livelihoods and living standards impacted by the project are improved relative to pre-project conditions for project affected communities with the aim of self-sufficiency in the long-term, and that commitments to project affected communities are fully delivered over an appropriate period of time.

Topics P-14 'Resettlement' and P-15 'Indigenous Peoples' that follow specifically address two sub-sets of project affected communities.

Scoring:

1 *There are significant gaps relative to basic good practice.*

2 *Most relevant elements of basic good practice have been undertaken, but there is one significant gap.*

3 **Assessment:** An assessment of issues relating to project affected communities has been undertaken with no significant gaps, utilising local knowledge.

Management: Management plans and processes for issues that affect project affected communities have been developed with no significant gaps including monitoring procedures, utilising local expertise when available; and if there are formal agreements with project affected communities these are publicly disclosed.

Stakeholder Engagement: Engagement with project affected communities has been appropriately timed and often two-way; ongoing processes are in place for project affected communities to raise issues and receive feedback.

Stakeholder Support: Affected communities generally support or have no major ongoing opposition to the plans for the issues that specifically affect their community.

Outcomes: Plans provide for livelihoods and living standards impacted by the project to be improved, and economic displacement fairly compensated, preferably through provision of comparable goods, property or services.

4 *All relevant elements of basic good practice have been undertaken and in one or more cases exceeded, but there is one significant gap in the requirements for proven best practice.*

5 **Assessment:** In addition, the assessment takes broad considerations into account, and both risks and opportunities.

Management: In addition, processes are in place to anticipate and respond to emerging risks and opportunities.

Stakeholder Engagement: In addition, engagement with project affected communities has been inclusive and participatory; and feedback on how issues raised have been taken into consideration has been thorough and timely.

Stakeholder Support: In addition, formal agreements with nearly all the directly affected communities have been reached for the mitigation, management and compensation measures relating to their communities.

Outcomes: In addition plans provide for livelihoods and living standards that are impacted by the project to be improved with the aim of self-sufficiency in the long-term; and the project contributes to addressing issues for project affected communities beyond impacts caused by the project itself.

Assessment Guidance:

Project affected communities are the interacting population of various kinds of individuals in the area surrounding the hydropower project who are affected either positively or negatively by the hydropower project and its associated infrastructure.

Assessment of project affected communities would include their livelihoods, living standards, the nature of the impacts of the project on their livelihoods and living standards, and the degree of economic displacement; analysis of gender and vulnerable groups should be included.

Livelihood refers to the capabilities, assets (stores, resources, claims and access) and activities required for a means of living. **Improvement of livelihoods** refers to compensatory measures taken to address impacts of the project on pre-project livelihoods so that those affected are able to move forward with viable livelihoods with improved capabilities or assets relative to the pre-project conditions; for example supporting farmers to continue to be able to farm or to pursue alternatives, accompanied by sufficient support mechanisms that not only enable any changes to livelihoods to be well-established but also so that they have increased capabilities or access to the necessary resources (including training, information, materials, access, supplies etc).

Living standards refer to the level of material comfort as measured by the goods, services, and luxuries available to an individual, group, or nation; indicators of household well-being; examples include: consumption, income, savings, employment, health, education, nutrition, housing, and access to electricity, clean water, sanitation, health services, educational services, transport, etc. **Improvement in living standards** would be demonstrated by improvement in the indicators of the level of material comfort.

Economic displacement refers to the loss of assets, access to assets, or income sources or means of livelihoods as a result of (i) acquisition of land, (ii) changes in land use or access to land, (iii) restriction on land use or access to natural resources including water resources, legally designated parks, protected areas or restricted access areas such as reservoir catchments and (iv) changes in environment leading to health concerns or impacts on livelihoods. Economic displacement applies whether such losses and restrictions are full or partial, and permanent or temporary.

Issues that affect project affected communities may include, for example: loss or constraints on livelihoods, lowering of living standards, or economic displacement brought about due to changes associated with the project such as changes to river management and flow regimes. Specific examples could include: impacts on health or safety; impacts on cultural practices; impacts on lands, forest and riverbanks; loss of paddy lands, of home gardens, of riverbank gardens; loss of ownership, access to , or use of sacred sites, community forest, or other natural resources, etc. In cases the impacts may result in project affected communities needing to move, but they may not be considered part of the resettlement community because the physical resettlement was a secondary impact and not a primary impact of the project.

Stakeholder support may be expressed through community members or their representatives, and may be evident through means such as surveys, signatures on plans, records of meetings, verbal advice, public hearing records, public statements, governmental license, court decisions, etc.

Broad considerations might be exhibited by, for example: a broad view of the project affected area; a broad view of relevant issues; a broad interpretation of important concepts such as livelihoods or living standards; a broad range of approaches considered; a broad view of stakeholder perspectives on the various issues; a focus on interrelationships amongst issues; legacy issues; cumulative impacts; a human rights based approach; etc.

Interrelationships amongst issues may include, for example: erosion of riverbanks downstream of the project causing incremental and long-term loss of land essential to sustain livelihoods, or safety concerns due to rapidly fluctuating river flows downstream of the project causing riparian communities to feel unsafe and eventually having to relocate.

Opportunities for project-affected communities may include, for example: training and capacity building; education; health services; employment; transportation; contributions to provide for cultural traditions or events, etc.

Measures to address project affected communities issues may include, for example: works to protect downstream riparian lands; downstream flow regime agreements to enable sustained livelihoods for downstream communities; access agreements to project lands to enable continued access to sacred sites, community forest, traditional medicinal plants; support for new industries; protection of sacred sites; etc.

Potential interviewees: representatives of project affected communities; project social issues manager; government expert; local authority; independent experts

Examples of evidence: assessment report on project affected communities and livelihoods; gender analysis; human rights issues analysis; records of consultation and project affected community involvement; records of response to project affected community issues; third party review report; report on compensation measures; agreements on compensation measures; assessments and agreements on cultural sensitive areas and customs.

* This was a topic with an area of non-consensus in development of the Protocol, relating to the Stakeholder Support criterion. It is the belief of Oxfam that basic good practice (Level 3) should be "Affected communities generally support or have no major ongoing opposition to the project".

P-14 Resettlement*

This topic addresses physical displacement arising from the hydropower project development. The intent is that the dignity and human rights of those physically displaced are respected; that these matters are dealt with in a fair and equitable manner; and that livelihoods and standards of living for resettlees and host communities are improved.

Scoring:

1 *There are significant gaps relative to basic good practice.*

2 *Most relevant elements of basic good practice have been undertaken, but there is one significant gap.*

3

Assessment: An assessment of the resettlement implications of the project has been undertaken early in the project preparation stage to establish the socio-economic baseline for resettlement for potential resettlees and host communities, and has included an economic assessment of required resettlement including ongoing costs for improvement in living standards.

Management: A Resettlement Action Plan and associated processes have been developed in a timely manner for project implementation and operation, which includes an up-to-date socio-economic baseline, compensation framework, grievance mechanisms, and monitoring procedures; and formal agreements with resettlees and host communities are publicly disclosed.

Stakeholder Engagement: Engagement with directly affected stakeholders has been appropriately timed, culturally appropriate and two-way; ongoing processes are in place for resettlees and host communities to raise issues and get feedback; and resettlees and host communities have been involved in the decision-making around relevant resettlement options and issues.

Stakeholder Support: Resettlees and host communities generally support or have no major on-going opposition to the Resettlement Action Plan.

Outcomes: Plans provide for resettlement to be treated in a fair and equitable manner, and resettlees and host communities to experience a timely improvement in livelihoods and living standards.

4 *All relevant elements of basic good practice have been undertaken and in one or more cases exceeded, but there is one significant gap in the requirements for proven best practice.*

5

Assessment: In addition, the assessment takes broad considerations into account, and both risks and opportunities.

Management: In addition, processes are in place to anticipate and respond to emerging risks and opportunities.

Stakeholder Engagement: In addition, engagement with resettlees and host communities has been inclusive and participatory; and feedback on issues how raised have been taken into consideration has been thorough and timely.

Stakeholder Support: In addition, there is consent with legally binding agreements by the resettlees and host communities for the Resettlement Action Plan.

Outcomes: In addition, plans provide for resettlees and host communities to experience a timely improvement in livelihoods and living standards with the aim of self-sufficiency in the long term.

Assessment Guidance:

Topic relevance: This topic will not be relevant if credible evidence provided shows that there is no requirement for resettlement arising from the project activities.

Resettlement is the process of moving people to a different place to live, because due to the project they are no longer allowed to stay in the area where they used to live.

Livelihood refers to the capabilities, assets (stores, resources, claims and access) and activities required for a means of living. **Improvement of livelihoods** refers to compensatory measures taken to address impacts of the project on pre-project livelihoods so that those affected are able to move forward with viable livelihoods with improved capabilities or assets relative to the pre-project conditions; for example supporting farmers to continue to be able to farm or to pursue alternatives, accompanied by sufficient support mechanisms that not only enable any changes to livelihoods to be well-established but also so that they have increased capabilities or access to the necessary resources (including training, information, materials, access, supplies etc).

Living standards refer to the level of material comfort as measured by the goods, services, and luxuries available to an individual, group, or nation; indicators of household well-being examples include: consumption, income, savings, employment, health, education, nutrition, housing, and access to electricity, clean water, sanitation, health services, educational services, transport, etc.

Resettlees are those people who are required to be resettled, including those who have formal legal rights, customary or traditional rights, as well as those who have no recognizable rights to the land.

Socio-economic baseline for resettlement includes analysis of community structures, gender, vulnerable social groups, living standards and economic valuation of livelihoods and asset loss.

Host communities refers to the communities to which resettlees are relocated.

Resettlement Action Plan refers to a document or set of documents specifically developed to identify the actions that will be taken to address resettlement. It would typically include identification of those being resettled; the socio-economic baseline for the resettlees; the measures to be implemented as part of the resettlement process including those relating to resettlement assistance and livelihood support; the legal and compensation frameworks; organisational roles and responsibilities; budget allocation and financial management; the timeframe, objectives and targets; grievance redress mechanisms; monitoring, reporting and review provisions; and understandings around consultation, participation and information exchange. In cases where resettlees' livelihoods have been land-based, and where consistent with resettlees' preferences, strong consideration may be given to land-for-land compensation.

Grievance mechanisms refer to the processes by which stakeholders are able to raise concerns, grievances and legitimate complaints, as well as the project procedures to track and respond to any grievances.

Stakeholder support may be expressed through community members or their representatives, and may be evident through means such as surveys, signatures on plans, records of meetings, verbal advice, public hearing records, public statements, governmental license, court decisions, etc.

Broad considerations might be exhibited by, for example: a broad interpretation of definitional terms; a broad view of relevant issues; a broad view of stakeholder perspectives on the various issues; a broad approach to types of data collection and important indicators; a focus on interrelationships amongst issues; a broad analysis of trends, approaches and existing and emerging standards relating to resettlement; consideration of legacy issues; consideration of cumulative impacts; etc.

Consent means signed agreements with community leaders or representative bodies who have been authorised by the affected communities which they represent, through an independent and self-determined decision-making process undertaken with sufficient time and in accordance with cultural traditions, customs and practices.

Potential interviewees: community representatives affected by resettlement and land acquisition; representatives from resettlement host communities; project social issues manager; independent reviewer; representative from the responsible governmental authority.

Examples of evidence: assessment report on resettlement and land acquisition; records of consultation and affected stakeholder involvement; records of response to resettlement and land acquisition issues; third party review report; resettlement action plans; land acquisition plans; compensation agreements; agreements on resettlement action plan; baseline social conditions report; livelihood analysis; impoverishment risk analysis; mitigation, resettlement and development action plans, including project benefit sharing mechanisms; NGO reports.

* This was a topic with two areas of non-consensus in development of the Protocol, both relating to the Stakeholder Support criterion. It is the belief of Oxfam that basic good practice (Level 3) should be "Resettlees and host communities generally support or have no major on-going opposition to the project", and that proven best practice (Level 5) should be "In addition, there is consent with legally binding agreements by the resettlees and host communities for the project", noting that those forced to resettle and host communities may choose to express that consent through their support for a Resettlement Action Plan.

P-15 Indigenous Peoples*

This topic addresses the rights at risk and opportunities of Indigenous Peoples with respect to the project, recognising that as social groups with identities distinct from dominant groups in national societies, they are often the most marginalized and vulnerable segments of the population. The intent is that the project respects the dignity, human rights, aspirations, culture, lands, knowledge, practices and natural resource-based livelihoods of Indigenous Peoples in an ongoing manner throughout the project life.

Scoring:

1 *There are significant gaps relative to basic good practice.*

2 *Most relevant elements of basic good practice have been undertaken, but there is one significant gap.*

3

Assessment: An assessment of the representation of Indigenous Peoples in the project-affected community has been undertaken, including identification of their rights at risk in relation to the project, utilising local knowledge and expertise.

Management: Plans and processes have been developed for project implementation and operation to address the Indigenous Peoples' rights at risk in relation to the project; and formal commitments are publicly disclosed.

Stakeholder Engagement: Good-faith consultation with Indigenous Peoples' institutions of representation and decision-making, as determined by them, has been carried out through a process that was appropriately timed, culturally appropriate and two-way; ongoing processes are in place for Indigenous Peoples to raise issues and get feedback; and a mutually-agreed disputes procedure is in place.

Stakeholder Support: Free, Prior and Informed Consent has been achieved with respect to the Indigenous Peoples' rights at risk following the principle of proportionality.

Outcomes: Plans provide for negative impacts of the project to Indigenous Peoples' rights to be avoided, minimised, mitigated or compensated with no significant gaps, and some practicable opportunities for positive impacts to be achieved.

4 *All relevant elements of basic good practice have been undertaken and in one or more cases exceeded, but there is one significant gap in the requirements for proven best practice.*

5

Assessment: In addition, the assessment takes broad considerations into account, including wider opportunities for Indigenous Peoples.

Management: In addition, processes are in place to anticipate and respond to emerging risks and opportunities.

Stakeholder Engagement: In addition, feedback on how issues raised have been taken into consideration has been thorough and timely.

Stakeholder Support: In addition, Free, Prior and Informed Consent of directly affected indigenous groups has been achieved for the entire project.

Outcomes: In addition, Free, Prior and Informed Consent of directly affected indigenous groups has been achieved for the entire project.

Assessment Guidance:

Topic relevance: This topic will not be relevant if credible evidence provided shows that there are no Indigenous Peoples in the project affected area.

Indigenous Peoples refers to a distinct social and cultural group possessing the following characteristics in varying degrees: self-identification as members of a distinct indigenous cultural group and recognition of this identity by others; collective attachment to geographically distinct habitats or ancestral territories in the project area and to the natural resources in these habitats and territories; customary cultural, economic, social or political institutions that are separate from those of the dominant society or culture; an indigenous language, often different from the official language of the country or part of the country within which they reside. In some countries, interactions with Indigenous Peoples may be required to be conducted through a specific government agency.

Indigenous Peoples' rights are documented in places such as in the United Nations Declaration on the Rights of Indigenous Peoples (UNDRIP) and the International Labour Organisation Convention No. 169. They include right to self- determination, right to ownership and property, right to practise and revitalise cultural traditions and customs, right to manifest, practise, develop and teach their spiritual and religious traditions, customs and ceremonies, right to the conservation and protection of the environment and the productive capacity of their lands or territories and resources. Indigenous Peoples' rights are considered at risk when project activities or impacts prevent Indigenous Peoples from exercising their rights.

Processes to address issues that may affect Indigenous Peoples' rights are ideally self-identified, and may include avoidance and mitigation plans and processes: protection of cultural practices, land entitlement and protection, health assistance, scheduling of project activities to not disturb customary practices, support for festivals or traditions, improved or more secure access to natural resource-based livelihoods, etc.

Good-faith consultation involves (i) willingness to engage in a process and availability to meet at reasonable times and frequency on the part of all parties; (ii) sharing of information that is accessible and understandable to the Indigenous Peoples, disseminated in a culturally-appropriate manner and in the local language(s)/dialect(s); (ii) commitment that Indigenous Peoples have been fully informed of project impacts affecting their rights; (iv) use of mutually acceptable procedures for negotiation; (v) willingness to change initial positions and modify offers where possible; and (vi) provision of sufficient time for the Indigenous Peoples to consider information using their customary internal processes.

Institutions of representation and decision-making are community leaders or representative bodies who have been self-determined by the affected communities which they represent.

Free, Prior and Informed Consent comprises a process and an outcome. The process involves (i) good-faith consultation; (ii) mutual and cross-cultural understanding with dialogue that is ongoing and open, and gender and inter-generationally inclusive whenever possible (with gender and age disaggregated data and analysis); (iii) inclusive and participatory engagement, including during the assessment of issues and the identification of mitigation measures, with clarity on the level of participation of Indigenous Peoples throughout the consultation process; (iv) provision of adequate resources to ensure that the Indigenous Peoples representatives can participate in the FPIC process equitably, including the services of independent technical or legal consultants (such as Indigenous Peoples Organization); (v) mutual agreement on the process and desired outcome from the outset of the consultation; and (vi) documentation that is evaluated on an ongoing basis, is verifiable by a mutually agreed methodology, and made publicly available. The outcome is the agreement and the evidence thereof (including thorough documentation of how the agreement was achieved). Types of evidence include surveys, signatures on plans, records of meetings, video/audio records, public hearing records, public statements, governmental license, court decisions, etc. Recollections of community elders cannot be accepted as evidence without supplementary forms acknowledged by and easily accessible to the counterparties to the agreements. FPIC does not require unanimity in the indigenous community and does not grant individuals or groups veto rights over a project. At the level of proven best practice, FPIC is to be achieved for the entire project, irrespective of the principle of proportionality.

Principle of proportionality stipulates that the extent of consultation and consent required is proportional to the nature and scope of the indigenous rights that are impacted by the project. Ordinarily, consent will not be required for impacts that are not significant to Indigenous Peoples. However, good-faith consultation is required for this determination. Two situations, in which a project must obtain the consent of an indigenous community, are stated in the UN DRIP as follows: (i) when the project will result in the community's relocation from its traditional territories, and (ii) in cases involving the storage or disposal of toxic waste within indigenous lands.

Disputes procedure is a mutually-agreed two-way resolution mechanism allowing for both the Indigenous Peoples and the developer to raise disputes and seek resolution.

Avoid, minimise, mitigate and compensate is a sequential process. Measures to avoid or prevent negative or adverse impacts are always prioritised, and where avoidance is not practicable, then minimisation of adverse impacts is sought. Where avoidance and minimisation are not practicable, then mitigation and compensation measures are identified and undertaken commensurate with the project's risks and impacts.

Broad considerations might be exhibited by, for example: a broad definitional view of Indigenous Peoples (e.g. including ethnic minorities); a broad view of the project affected area; a broad view of indigenous rights and relevant issues; a broad interpretation of important concepts such as cultural sensitivities; a broad range of approaches considered; a focus on interrelationships amongst issues; legacy issues; cumulative impacts; a broad analysis of trends, approaches and existing and emerging standards relating to Indigenous Peoples; etc.

Opportunities for Indigenous Peoples are ideally self-identified, and may include, for example: better access to education, health facilities, fresh water, new land or resource access, new housing or better access to materials for housing, new livelihood opportunities, development of treaties or formal agreements that give greater security over the long term, etc.

Potential interviewees: representatives of project affected indigenous communities; project social issues manager; independent reviewer; representative from the responsible governmental authority

Examples of evidence: assessment report on Indigenous Peoples; records of consultation and project affected community involvement; records of response to issues that may affect Indigenous Peoples; third party review report; Indigenous Peoples management plans; agreements on measures for Indigenous Peoples.

* This was a topic of non-consensus among the HSAF in development of the Protocol, relating to the focus of support and consent given by Indigenous Peoples (whether for management plans or for the project itself). A review of the topic was conducted by the Hydropower Sustainability FPIC Working Group in 2019 and an update was approved by the HSGC in 2020. The update led to the inclusion of FPIC requirements in the scoring statements for basic good practice.

P-16 Labour and Working Conditions

This topic addresses labour and working conditions, including employee and contractor opportunity, equity, diversity, health and safety. The intent is that workers are treated fairly and protected.

Scoring:

1 *There are significant gaps relative to basic good practice.*

2 *Most relevant elements of basic good practice have been undertaken, but there is one significant gap.*

3 **Assessment:** An assessment has been undertaken of human resource and labour management requirements for the project, including project occupational health and safety (OH&S) issues, risks, and management measures, with no significant gaps.

Management: Human resource and labour management policies, plans and processes have been developed for project implementation and operation that cover all labour management planning components, including those of contractors, subcontractors, and intermediaries, with no significant gaps.

Stakeholder Engagement: Ongoing processes are in place for employees and contractors to raise human resources and labour management issues and get feedback.

Outcomes: There are no identified inconsistencies of labour management policies, plans and practices with internationally recognised labour rights.

4 *All relevant elements of basic good practice have been undertaken and in one or more cases exceeded, but there is one significant gap in the requirements for proven best practice.*

5 **Assessment:** In addition, the assessment takes broad considerations into account, and both risks and opportunities.

Management: In addition, processes are in place to anticipate and respond to emerging risks and opportunities.

Stakeholder Engagement: In addition, feedback on how issues raised have been taken into consideration has been thorough and timely.

Outcomes: In addition, labour management policies, plans and practices are demonstrated to be consistent with internationally recognised labour rights.

Assessment Guidance:

Labour management plan components include: human resources policies, staff and workforce planning, occupational health and safety, equal opportunity, staff development and training, grievance mechanisms, and (where appropriate) collective bargaining mechanisms

Occupational health and safety is about protecting the safety, health and welfare of people engaged in work or employment, for example through preventing disease or injury that might arise as a direct result of the workplace activities.

Intermediaries are workers engaged through third parties who are either performing work directly related to the functions essential for the project for a substantial duration, or who are geographically working at the project location.

Broad considerations might be exhibited by, for example: a broad view of relevant issues; a broad approach to types of data collection and important indicators; a focus on interrelationships amongst issues; a broad analysis of trends, approaches and existing and emerging standards relating to labour and working conditions; understanding of relevant human rights; etc.

Internationally recognised labour rights are documented in places such as the IFC Performance Standard 2, the International Labour Organisation standards, and the Human Rights Council 2008 Report of John Ruggie "Protect, Respect and Remedy: a Framework for Business and Human Rights". They include freedom of association, right to equal pay for equal work, right to organize and participate in collective bargaining, right to equality at work, right to non-discrimination, right to just and favourable remuneration, abolition of slavery and forced labour, right to a safe work environment, abolition of child labour, right to rest and leisure, right to work, right to family life. Evidence of no inconsistencies would be no policies, plans or practices that show workers are prevented from the ability to exercise these rights; evidence of consistency could be for example an analysis of alignment.

Potential interviewees: project human resources staff; company human resources staff; project manager, contracted workforce manager, project safety officer; staff or contractor representatives; external experts; unions and shop stewards; female workers

Examples of evidence: policies, plans and programs relating to human resources, employees, contractors, equity, occupational health and safety, workforce planning, and grievance mechanisms; national and international standards for labour and OH&S

P-17 Cultural Heritage

This topic addresses cultural heritage, with specific reference to physical cultural resources, at risk of damage or loss by the hydropower project and associated infrastructure impacts (e.g. new roads, transmission lines). The intent is that physical cultural resources are identified, their importance is understood, and measures are in place to address those identified to be of high importance.

Scoring:

1 *There are significant gaps relative to basic good practice.*

2 *Most relevant elements of basic good practice have been undertaken, but there is one significant gap.*

3 **Assessment:** A cultural heritage assessment has been undertaken with no significant gaps; the assessment includes identification and recording of physical cultural resources, evaluation of the relative levels of importance, and identification of any risks arising from the project.

Management: Plans and processes to address physical cultural resources have been developed for project implementation and operation with no significant gaps; plans include arrangements for chance finds, and ensure that cultural heritage expertise will be on site and regularly liaised with by the project management team during construction.

Stakeholder Engagement: The assessment and planning for cultural heritage issues has involved appropriately timed, and often two-way, engagement with directly affected stakeholders; ongoing processes are in place for stakeholders to raise issues and get feedback.

Stakeholder Support: There is general support or no major ongoing opposition amongst directly affected stakeholder groups for the cultural heritage assessment, planning or implementation measures.

Outcomes: Plans avoid, minimise, mitigate and compensate negative impacts on cultural heritage arising from project activities with no significant gaps.

4 *All relevant elements of basic good practice have been undertaken and in one or more cases exceeded, but there is one significant gap in the requirements for proven best practice.*

5 **Assessment:** In addition, the assessment takes broad considerations into account, and both risks and opportunities.

Management: In addition, processes are in place to anticipate and respond to emerging risks and opportunities; and plans are supported by public, formal and legally enforceable commitments.

Stakeholder Engagement: In addition, engagement with directly affected stakeholders has been inclusive and participatory; and feedback on how issues raised have been taken into consideration has been thorough and timely.

Stakeholder Support: In addition, formal agreements with the directly affected stakeholder groups have been reached for cultural heritage management measures.

Outcomes: In addition, plans avoid, minimise, mitigate and compensate negative cultural heritage impacts with no identified gaps; and contribute to addressing cultural heritage issues beyond those impacts caused by the project.

Assessment Guidance:

Topic relevance: This topic will not be relevant if credible evidence provided shows that there are no physical cultural resources identified in the project affected area.

Cultural heritage refers to the legacy of physical artefacts and intangible attributes of a group or society that are inherited from past generations, maintained in the present and bestowed for the benefit of future generations.

Physical cultural resources refer to movable or immovable objects, sites, structures, groups of structures, and natural features and landscapes that have archaeological, paleontological, historical, architectural, religious, aesthetic, or other cultural significance. Physical cultural resources may be located in urban or rural settings, and may be above or below ground, or under water. Their cultural interest may be at the local, provincial or national level, or within the international community.

Non-physical cultural heritage examples include: traditions, festivals, rituals, folklore, storytelling, drama, etc. These should be addressed under Topic P-5 Environmental and Social Impact Assessment and Management in this Protocol assessment.

Cultural heritage risks may include, for example: inundation of important sites or artefacts under the new reservoir; damage or destruction to important sites or artefacts due to construction activities; loss of access to important sites due to changes to access routes (e.g. new canals or linear infrastructure with barrier fencing, major roads); disturbance of spirits associated with special sites; etc.

Plans and processes to address physical cultural resources may include, for example: documentation and record-keeping; relocation; creation of protected areas; new access routes; appeasement ceremonies; etc.

Avoid, minimise, mitigate and compensate is a sequential process. Measures to avoid or prevent negative or adverse impacts are always prioritised, and where avoidance is not practicable, then minimisation of adverse impacts is sought. Where avoidance and minimisation are not practicable, then mitigation and compensation measures are identified and undertaken commensurate with the project's risks and impacts.

Protection means to keep in safety and protect from harm, decay, loss, damage or destruction.

Stakeholder support may be expressed through community members or their representatives, and may be evident through means such as surveys, signatures on plans, records of meetings, verbal advice, public hearing records, public statements, governmental license, court decisions, etc.

Broad considerations might be exhibited by, for example: a broad view of relevant issues; a broad approach to types of data collection; a focus on interrelationships amongst issues; a broad analysis of trends, approaches and existing and emerging standards relating to cultural heritage; a broad perspective with respect to the assessment of significance of the heritage finds; etc.

Interrelationships amongst issues could include, for example, erosion and sedimentation effects on important heritage locations, risks of vandalism or theft by contractors or the public, etc.

Cultural heritage opportunities may include, for example: partnerships with heritage organisations; establishment of initiatives recognising heritage values such as festivals, museums or visiting experts; programmes to preserve traditional activities; access to special grants for heritage protection works; etc.

Potential interviewees: project environmental and social issues manager, local cultural heritage expert, representative from relevant government department (e.g. heritage or environment); external experts; project affected community representatives

Examples of evidence: cultural heritage impact statements; conservation plans; records of consultation and response to stakeholder issues; heritage plans and agreements; national and international standards.

P-18 Public Health

This topic addresses public health issues associated with the hydropower project. The intent is that the project does not create or exacerbate any public health issues, and that improvements in public health can be achieved through the project in project-affected areas where there are significant pre-existing public health issues.

Scoring:

1	*There are significant gaps relative to basic good practice.*
2	*Most relevant elements of basic good practice have been undertaken, but there is one significant gap.*
3	**Assessment:** A public health issues assessment has been undertaken with no significant gaps; the assessment includes public health system capacities and access to health services, and has considered health needs, issues and risks for different community groups. **Management:** Plans and processes to address identified public health issues have been developed for project implementation and operation with no significant gaps. **Stakeholder Engagement:** The assessment and planning for public health has involved appropriately timed, and often two-way, engagement with directly affected stakeholders, including health officials and project affected communities; ongoing processes are in place for stakeholders to raise issues and get feedback. **Outcomes:** Plans avoid, minimise and mitigate negative public health impacts arising from project activities with no significant gaps.
4	*All relevant elements of basic good practice have been undertaken and in one or more cases exceeded, but there is one significant gap in the requirements for proven best practice.*
5	**Assessment:** In addition, the assessment takes broad considerations into account, and both risks and opportunities. **Management:** In addition, processes are in place to anticipate and respond to emerging risks and opportunities. **Stakeholder Engagement:** In addition, engagement with directly affected stakeholders has been inclusive and participatory; and feedback on how issues raised have been taken into consideration has been thorough and timely. **Outcomes:** In addition, plans avoid, minimise, mitigate and compensate negative public health impacts with no identified gaps; and provide for enhancements to pre-project public health conditions or contribute to addressing public health issues beyond those impacts caused by the project.

Assessment Guidance:

Topic relevance: This topic will always be relevant, because even with the case in which there are no individuals or communities living in the project affected area, there will be residents in the area due to the new project and issues, risks and opportunities should be identified and planned for

Public health issues examples include: disease introduced by construction workforce (e.g. HIV, Aids); vector borne diseases (e.g. malaria, schistosomiasis); communicable and non-communicable diseases, malnutrition, psychological disorders, social well-being; loss or contamination of traditional resources; mercury or heavy metal bio-accumulation; etc.

Avoid, minimise, mitigate and compensate is a sequential process. Measures to avoid or prevent negative or adverse impacts are always prioritised, and where avoidance is not practicable, then minimisation of adverse impacts is sought. Where avoidance and minimisation are not practicable, then mitigation and compensation measures are identified and undertaken commensurate with the project's risks and impacts.

Broad considerations might be exhibited by, for example: a broad view of relevant issues; a broad approach to types of data collection and important indicators; a focus on interrelationships amongst issues; a broad analysis of trends, approaches and existing and emerging standards relating to public health; etc.

Public health opportunities examples include: improved access to electricity, clean water and sanitation; development or upgrading of public health facilities; provision of equipment, training, health education, immunisations; increased access to low-cost, high-quality protein diet through increased availability of fish, etc.

Health needs, issues and risks for different community groups would be with respect to, for example: gender, age, ethnicity, use of and access to traditional medicines, etc.

Public health management measures examples include: measures to reduce mosquito-borne disease risks; storing of medical supplies and immunisations; educational, awareness and disease prevention training; water quality testing; etc.

Potential interviewees: project social issues manager, independent public health expert, representative from government health department, project affected community representatives

Examples of evidence: public health issues and opportunities assessment; public health management plans; national and international standards

P-19 Biodiversity and Invasive Species

This topic addresses ecosystem values, habitat and specific issues such as threatened species and fish passage in the catchment, reservoir and downstream areas, as well as potential impacts arising from pest and invasive species associated with the planned project. The intent is that there are healthy, functional and viable aquatic and terrestrial ecosystems in the project-affected area that are sustainable over the long-term, and that biodiversity impacts arising from project activities are managed responsibly.

Scoring:

1	*There are significant gaps relative to basic good practice.*
2	*Most relevant elements of basic good practice have been undertaken, but there is one significant gap.*
3	**Assessment:** An assessment of terrestrial biodiversity; aquatic biodiversity including passage of aquatic species and loss of connectivity to significant habitat; and risks of invasive species has been undertaken with no significant gaps. **Management:** Plans and processes to address identified biodiversity issues have been developed for project implementation and operation with no significant gaps. **Outcomes:** Plans avoid, minimise, mitigate and compensate negative biodiversity impacts arising from project activities with no significant gaps.
4	*All relevant elements of basic good practice have been undertaken and in one or more cases exceeded, but there is one significant gap in the requirements for proven best practice.*
5	**Assessment:** In addition, the assessment takes broad considerations into account, and both risks and opportunities. **Management:** In addition, processes are in place to anticipate and respond to emerging risks and opportunities; and commitments in plans are public, formal and legally enforceable. **Outcomes:** In addition, plans avoid, minimise, mitigate and compensate negative biodiversity impacts due to project activities with no identified gaps; and plans provide for enhancements to pre-project biodiversity conditions or contribute to addressing biodiversity issues beyond those impacts caused by the project.

Assessment Guidance:

Biodiversity issues may include, for example: loss of habitat; fish migration barriers; loss of spawning grounds; loss of habitat connectivity; loss or declines in important food chain species; loss of wetlands; poaching, hunting or over-exploitation of significant species; introduction of weed or pest species; etc.

Measures to protect or enhance biodiversity examples include: catchment protection, creation of reserves or protected areas, habitat conservation and improvement, species management plans, translocations, habitat rehabilitation, new habitat creation, managed flow releases, etc.

Measures to address passage of aquatic species examples include: fish ladders, fish elevators, catch and release programs, fish hatcheries, re-stocking programs, mechanisms for diversion away from turbines for downstream passage, assisted cues (water chemistry, operational conditions), choice of turbine design, etc.

Measures to address invasive species examples include: reservoir vegetation clearing prior to

filling, physical barriers to pest species passage, pollution control, physical removal or containment, chemical treatment, reservoir water residence times, managed flow releases, etc.

Avoid, minimise, mitigate and compensate is a sequential process. Measures to avoid or prevent negative or adverse impacts are always prioritised, and where avoidance is not practicable, then minimisation of adverse impacts is sought. Where avoidance and minimisation are not practicable, then mitigation and compensation measures are identified and undertaken commensurate with the project's risks and impacts.

Compensate in the context of biodiversity impacts in cases may be in the form of establishing or supporting offset programs. **Offsets** are measurable conservation outcomes resulting from actions designed to compensate for significant adverse biodiversity impacts arising from project development and persisting after appropriate avoidance, minimization, and restoration measures have been taken. Generally, these are not within the project site.

Broad considerations may include, for example: consideration of cumulative impacts; a catchment or river basin perspective; a broad view of the project affected area; a broad view of relevant issues; a broad approach to data collection; a focus on interrelationships amongst issues; etc.

Biodiversity opportunities may include, for example, forming partnerships with wildlife protection groups; catchment management committees and projects; joint research ventures around fish passage or hatcheries; employing or working with local communities to act as wardens for protected areas; creation of business ventures from non-timber forest resources, capacity building and educational initiatives, eco-tourism ventures, creation of bird and waterfowl sanctuaries, fish protection zones, wetland protection, etc.

Potential interviewees: project environmental issues manager; aquatic and terrestrial ecologists; project design engineers (in relation to fish passage); representatives of relevant government departments (e.g. fisheries, wildlife, environment, forests); representatives of local communities; independent experts

Examples of evidence: assessment of terrestrial biodiversity; assessment of aquatic biodiversity; fish studies; fish passage technical feasibility assessments; third party review reports; biodiversity management plans; invasive species management plans; commitments and agreements; economic and livelihood valuation from fish catch and non-timber forest products baselines from local communities

P-20 Erosion and Sedimentation

This topic addresses the management of erosion and sedimentation issues associated with the project. The intent is that erosion and sedimentation caused by the project is managed responsibly and does not present problems with respect to other social, environmental and economic objectives, and that external erosion or sedimentation occurrences which may have impacts on the project are recognised and managed.

Scoring:

1	*There are significant gaps relative to basic good practice.*
2	*Most relevant elements of basic good practice have been undertaken, but there is one significant gap.*
3	**Assessment:** An erosion and sedimentation issues assessment has been undertaken with no significant gaps; the assessment identifies impacts that may be caused by the project, issues that may impact on the project, and establishes an understanding of the sediment load and dynamics for the affected river system. **Management:** Plans and processes to address identified erosion and sedimentation issues have been developed for project implementation and operation with no significant gaps. **Outcomes:** Plans avoid, minimise and mitigate erosion and sedimentation issues arising from project activities and erosion and sedimentation issues that may impact on the project with no significant gaps.
4	*All relevant elements of basic good practice have been undertaken and in one or more cases exceeded, but there is one significant gap in the requirements for proven best practice.*
5	**Assessment:** In addition, the assessment takes broad considerations into account, and both risks and opportunities. **Management:** In addition, processes are in place to anticipate and respond to emerging risks and opportunities. **Outcomes:** In addition, plans avoid, minimise, mitigate and compensate erosion and sedimentation issues due to project activities with no identified gaps; and plans provide for enhancements to pre-project erosion and sedimentation conditions or contribute to addressing erosion and sedimentation issues beyond those impacts caused by the project.

Assessment Guidance:

Erosion and sedimentation issues that may be caused by the project include direct land disturbance due to roads and construction works, or to reservoir shorelines due to fluctuating water levels; and indirect land disturbance due to changed river flows and sediment loads. Consideration of what is an issue needs to take into account that there will be landscape adjustments brought about by the hydropower project that continue for many years until a new equilibrium is reached, particularly in the downstream river channels; negative impacts would therefore be considered those erosion and sedimentation occurrences caused by the project that present problems with respect to other social, environmental and/or economic objectives, or externally caused occurrences of erosion or sedimentation that impact on the ability of the project to meet its own social, environmental or economic objectives.

Issues that may impact on the project might, for example, be naturally high sediment loads which may impact on the reservoir life, wear and tear of turbines, increased maintenance needs for tunnels, canals and other water conduits; or landslips or land disturbances due to other catchment activities that could increase sediment loads into the project reservoir or adversely affect transport routes on which the project is reliant, etc.

Erosion and sedimentation management measures might include, for example: catchment treatment works such as sediment check structures; project design features such as sediment sluice gates; water management measures such as to avoid turbidity or shoreline erosion; reforestation and re-vegetation activities; measures to address land use practices; etc.

Avoid, minimise, mitigate and compensate is a sequential process. Measures to avoid or prevent negative or adverse impacts are always prioritised, and where avoidance is not practicable, then minimisation of adverse impacts is sought. Where avoidance and minimisation are not practicable, then mitigation and compensation measures are identified and undertaken commensurate with the project's risks and impacts.

Broad considerations may include, for example: consideration of cumulative impacts; a broad approach to data collection; a focus on interrelationships amongst issues (e.g. loss of riverbank gardens affecting livelihoods, or long-term erosion affecting cultural heritage features); etc.

Erosion and sedimentation opportunities may include, for example, forming partnerships with land-use protection or catchment management groups; joint research projects around erosion or sedimentation management; new technologies; carbon credits for reafforestation with benefits of erosion and sedimentation risk reduction; etc.

Potential interviewees: project environmental manager; government representative (e.g. from environment department), independent expert

Examples of evidence: erosion and sedimentation assessment reports; erosion and sedimentation management plans for construction and operation.

P-21 Water Quality

This topic addresses the management of water quality issues associated with the project. The intent is that water quality in the vicinity of the project is not adversely impacted by project activities.

Scoring:

1	*There are significant gaps relative to basic good practice.*
2	*Most relevant elements of basic good practice have been undertaken, but there is one significant gap.*
3	**Assessment:** A water quality issues assessment has been undertaken with no significant gaps. **Management:** Plans and processes to address identified water quality issues have been developed for project implementation and operation with no significant gaps. **Outcomes:** Plans avoid, minimise and mitigate negative water quality impacts arising from project activities with no significant gaps.
4	*All relevant elements of basic good practice have been undertaken and in one or more cases exceeded, but there is one significant gap in the requirements for proven best practice.*
5	**Assessment:** In addition, the assessment takes broad considerations into account, and both risks and opportunities. **Management:** In addition, processes are in place to anticipate and respond to emerging risks and opportunities. **Outcomes:** In addition, plans avoid, minimise, mitigate and compensate negative water quality impacts with no identified gaps; and plans provide for enhancements to pre-project water quality conditions or contribute to addressing water quality issues beyond those impacts caused by the project.

PREPARATION

Assessment Guidance:

Water quality issues examples include at the construction stage: turbidity, run-off, and pollutants from construction activity; and at the operation stage: reduced oxygenation, aseasonal temperatures, stratification potential, pollutant inflow, nutrient capture, algal bloom potential, release of toxicants from inundated sediments, etc.

Water quality management measures at the construction stage are often oriented around avoidance or mitigation of spot issues e.g. oil bunding, sediment traps, etc. At the operation stage the measures are often longer-term and may be built into design features; they may include, for example: design features such as a multi-level off-take or aeration features to address dissolved oxygen levels; water management measures such as to ensure adequate water circulation and through-flow; vegetation management to address organic decomposition; addressing pollutants from non-project activities such as sewage, wastes, contaminated sites, etc.

Avoid, minimise, mitigate and compensate is a sequential process. Measures to avoid or prevent negative or adverse impacts are always prioritised, and where avoidance is not practicable, then minimisation of adverse impacts is sought. Where avoidance and minimisation are not practicable, then mitigation and compensation measures are identified and undertaken commensurate with the project's risks and impacts.

Broad considerations may include, for

example: consideration of cumulative impacts; a broad approach to data collection; a focus on interrelationships amongst issues (e.g. water quality affecting viability of fishing, access to drinking water, inter-linkages with catchment activities and land-use practices); etc.

Water quality opportunities may include, for example: addressing pollutants from non-project activities such as sewage, wastes, contaminated sites; groundwater stabilisation, improved water quality through oxygenation or temperature dispersion; new technologies; new service providers; partnerships with community waterway health monitoring groups; etc.

Potential interviewees: project environmental manager; government representative (e.g. from environment department), independent expert

Examples of evidence: water quality monitoring reports; water quality management plans for construction and operation

P-22 Reservoir Planning

This topic addresses the planning for management of environmental, social and economic issues within the reservoir area during project implementation and operation. The intent is that the reservoir will be well managed taking into account power generation operations, environmental and social management requirements, and multi-purpose uses where relevant.

Scoring:

1	*There are significant gaps relative to basic good practice.*
2	*Most relevant elements of basic good practice have been undertaken, but there is one significant gap.*
3	**Assessment:** An assessment has been undertaken of the important considerations prior to and during reservoir filling and during reservoir operations, with no significant gaps. **Management:** Plans and processes to manage reservoir preparation, filling and operations have been developed.
4	*All relevant elements of basic good practice have been undertaken and in one or more cases exceeded, but there is one significant gap in the requirements for proven best practice.*
5	**Assessment:** In addition, the assessment is based on dialogue with local community representatives, and takes broad considerations, risks and opportunities into account. **Management:** In addition, reservoir plans are based on dialogue with local community and government representatives; and processes are in place to anticipate and respond to emerging risks and opportunities.

PREPARATION

Assessment Guidance:

Topic relevance: This topic is relevant if there is any storage of water.

Reservoir refers to any artificial pondage or lake used by the project for the storage and regulation of water.

Reservoir area refers to the area that is inundated when the reservoir is at its maximum expected level and the dry buffer zone above this level.

Considerations prior to reservoir filling refers to preparations for any significant timing elements of construction, social or environmental management plans which might have bearing on the reservoir area; examples include: clearing of vegetation, management of contaminated or cultural heritage sites that would be inundated, construction of boat ramps, preparation of areas to receive relocated wildlife, etc.

Considerations during reservoir filling examples include: safety, wildlife management, land or slope stability, timing of reservoir filling in relation to resettlement or other management activities, etc.

Considerations for reservoir operations examples include: optimising power generation, maintenance requirements, debris management (particularly an issue in monsoon prone parts of the world), multiple uses (e.g. commercial, recreational), safety, flood management, shoreline erosion, reservoir sedimentation, public access, water quality, biodiversity, invasive species, water-borne diseases, monitoring, etc.

Broad considerations might be exhibited by, for example: an awareness of climate change issues, multi-purpose considerations, leveraging off the reservoir for other industries (e.g. tourism, aquaculture, irrigation) or as a vehicle for development (e.g. source of clean water, fisheries and other livelihoods, improved water-based transport), etc.

Opportunities may include, for example: additional investors interested in spin-off industries; RandD projects around environmental mitigation measures or greenhouse gas emissions research; pilot testing of design features; etc.

Potential interviewees: project manager; construction manager; project environmental and social issues managers; local government representative

Examples of evidence: integrated project management plans; construction management plans; reservoir design documents; model output for reservoir operations; relevant excerpts of environmental and social impact assessments and management plans

P-23 Downstream Flow Regimes

This topic addresses the flow regimes downstream of hydropower project infrastructure in relation to environmental, social and economic impacts and benefits. The intent is that flow regimes downstream of hydropower project infrastructure are planned and delivered with an awareness of and measures incorporated to address environmental, social and economic objectives affected by those flows.

Scoring:

1

There are significant gaps relative to basic good practice.

2

Most relevant elements of basic good practice have been undertaken, but there is one significant gap.

3

Assessment: An assessment of flow regimes downstream of project infrastructure over all potentially affected river reaches, including identification of the flow ranges and variability to achieve different environmental, social and economic objectives, has been undertaken based on relevant scientific and other information with no significant gaps.

Management: Plans and processes for delivery of downstream flow regimes have been developed that include the flow objectives; the magnitude, range and variability of the flow regimes; the locations at which flows will be verified; and ongoing monitoring; and where formal commitments have been made, these are publicly disclosed.

Stakeholder Engagement: The assessment and planning process for downstream flow regimes has involved appropriately timed, and often two-way, engagement with directly affected stakeholders; ongoing processes are in place for stakeholders to raise issues with downstream flow regimes and get feedback.

Outcomes: Plans for downstream flows take into account environmental, social and economic objectives, and where relevant, agreed transboundary objectives.

4

All relevant elements of basic good practice have been undertaken and in one or more cases exceeded, but there is one significant gap in the requirements for proven best practice.

5

Assessment: In addition, the assessment is based on field studies, and takes broad considerations, risks and opportunities into account.

Management: In addition, processes are in place to anticipate and respond to emerging risks and opportunities; and commitments in plans are public, formal and legally enforceable.

Stakeholder Engagement: In addition, engagement with directly affected stakeholders has been inclusive and participatory; and feedback on how issues raised have been taken into consideration has been thorough and timely.

Outcomes: In addition, plans for downstream flow regimes represent an optimal fit amongst environmental, social and economic objectives.

Assessment Guidance:

Flow regimes is with reference to the fact that there may be multiple sites at which flows are affected by project infrastructure, e.g. downstream of a diversion dam as well as downstream of the main dam or the turbines.

Downstream flow regimes might be specified for different components and stages of projects in a manner such as, for example: minimum flows in part of certain seasons, maximum flows in part of certain seasons, or specific flow events such as a flushing flow or a flood intended to inundate flood plains. Individual countries may have laws specifying downstream flow requirements; in such circumstances it will be necessary to see how social, economic and environmental considerations can still be taken into account. In cases where the downstream impact of the project on flow regimes extends beyond the jurisdiction in which the project is found, any implications of this would need to be taken into consideration.

Optimal in this context means best fit once all identified environmental, social and economic considerations have been factored in, based on the outcomes of a consultative process; the best fit may in fact allow relaxed flow targets in a particular river reach because another river reach has objectives that are considered of higher priority. A decision on optimal downstream flow may be reached in many different manners depending on the context; it may come out of a government led public hearing process, for example, or may be proposed by the proponent based on a sound process and accepted by the regulator as part of the project approval, etc.

Broad considerations may include, for example: cumulative impacts, sustainable river basin development, integrated water resources management, a broad view of relevant issues; a broad view of stakeholder perspectives on the various issues; a broad approach to data collection; a focus on interrelationships amongst issues (e.g. linkages between flow and biodiversity, fisheries and food supply with longer term effects on social migration or public health); etc.

Flow-related risks include, for example: declines in biodiversity and abundance, loss of riverine access, safety issues, loss of riverbank gardens and flood recession agriculture opportunities, loss of connectivity of off-river wetlands, etc.

Flow-related opportunities include, for example: design of facilities and operations (including increase of turbine or outlet capacity) that allow for planned high flow releases to benefit flood plain connectivity and other environmental flow targets; establishment of a hydropower compensation fund to allow for improvement in flood plain connectivity, flood risk management and flood plain ecosystem management; etc.

Potential interviewees: project manager; hydrologist; project environmental and social issues managers; aquatic ecologist; independent environmental flows expert; stakeholder representatives; project affected community representatives; downstream riparian community representatives; representative from the responsible governmental authority; downstream transboundary community representatives if relevant

Examples of evidence: assessment of downstream flows in relation to flow-related objectives; downstream flow regime plans specifying range, variability and verification location; system operations plans; design documents in relation to release mechanisms; records of consultation and stakeholder involvement; records of response to stakeholder issues; third party review report; commitments and agreements

P-24 Climate Change Mitigation and Resilience

This topic addresses the estimation and management of the project's greenhouse gas (GHG) emissions, analysis and management of the risks of climate change for the project, and the project's role in climate change adaptation. The intent is that the project's GHG emissions are consistent with low carbon power generation, the project is resilient to the effects of climate change, and the project contributes to wider adaptation to climate change.

Scoring:

1 *There are significant gaps relative to basic good practice.*

2 *Most relevant elements of basic good practice have been undertaken, but there is one significant gap.*

3

Assessment:

For climate mitigation: power density has been calculated; if power density is below 5 W/m^2, net GHG emissions (gCO_2e) of electricity generation have been estimated and independently-verified; if power density is below 5 W/m^2 and estimated emissions are above 100 gCO_2e/kWh, a site-specific assessment of GHG emissions has been undertaken; and an assessment of the project's fit with national and/or regional policies and plans on mitigation has been undertaken.

For climate resilience: an assessment of the project's resilience to climate change has been undertaken, which incorporates an assessment of plausible climate change at the project site, identifies a range of resulting climatological and hydrological conditions at the project site, and applies these conditions in a documented risk assessment or stress test that encompasses dam safety, other infrastructural resilience, environmental and social risks, and power generation availability; and an assessment of the project's potential adaptation services and fit with national and/or regional policies and plans for adaptation has been undertaken.

Management:

For climate mitigation: if GHG emissions estimates assume design and management measures, there are plans to put these measures in place.

For climate resilience: the project design is based on plausible climate change scenarios; and structural and operational measures are planned for design, implementation and operation phases to avoid or reduce the identified climate risks.

Stakeholder Engagement:

For climate mitigation: power density calculations, estimated GHG emissions, and / or the results of a site-specific assessment have been publicly disclosed.

For climate resilience: plans for the management of climate risks have been discussed with stakeholders.

Outcomes:

For climate mitigation: the project's GHG emissions are demonstrated to be consistent with low carbon power generation, and the fit of the project with national and regional policies and plans for mitigation can be demonstrated.

For climate resilience: plans will deliver a project that is resilient to climate change under a range of scenarios; and the fit of the project with national and regional policies and plans for adaptation can be demonstrated.

4 *All relevant elements of basic good practice have been undertaken and in one or more cases exceeded, but there is one significant gap in the requirements for proven best practice.*

5

Assessment:

For climate mitigation: in addition, if a site-specific assessment is required, it incorporates a broad range of scenarios, uncertainties and risks.

For climate resilience: in addition, assessment of resilience incorporates sensitivity analysis and project-specific hydrological modelling using recognized climate models.

Management:

For climate mitigation: in addition, design and management measures have been developed for implementation and operation phases of the project to respond to risks and opportunities including offsetting emissions; plans have been developed to monitor parameters used in GHG emissions estimates or to monitor GHG stocks.

For climate resilience: in addition, resilience measures take account of a broad range of risks and inter-relationships, and processes are in place to respond to unanticipated climate change; and plans have been developed to provide adaptation services if necessary.

Stakeholder Engagement:

In addition, the assessment of project resilience has been publicly disclosed.

Outcomes:

For climate mitigation: in addition, project net emissions are minimised or project operations facilitate system emissions reductions.

For climate resilience: in addition, the project is resilient under a broad range of scenarios; and the project will contribute to climate change adaptation at local, regional or national levels.

Assessment Guidance:

Climate change mitigation is defined, by the Inter-governmental Panel on Climate Change (IPCC, Fifth Assessment Report, glossary), as a human intervention to reduce the sources or enhance the sinks of GHG and other substances which may contribute directly or indirectly to climate change.

Resilience is the capacity of social, economic and environmental systems to cope with a hazardous event or trend or disturbance, responding or reorganizing in ways that maintain their essential function, identity and structure, while also maintaining the capacity for adaptation, learning and transformation (IPCC, Fifth Assessment Report, glossary).

Climate Change adaptation is defined by the Inter-governmental Panel on Climate Change (IPCC, Fifth Assessment Report, glossary) as the process of adjustment to actual or expected climate and its effects. In human systems, adaptation seeks to moderate or avoid harm or exploit beneficial opportunities. In some natural systems, human intervention may facilitate adjustment to expected climate and its effects. Hydropower-specific examples include flood control and drought management.

Power density is calculated using the average reservoir area (the area of flooded land, net of the pre-impoundment water body) and the capacity of the power facilities in the project fed by this water body. A number of facilities may be included where they are part of one project or scheme being developed and assessed (for example, a scheme of two facilities in a cascade, or a project with main and ecological power plants). Existing or separately planned facilities that will form a cascade with the project being assessed are not included in this calculation.

Net GHG emissions estimates should deliver an estimate of emissions in gCO_2e per kWh, using a recognized tool such as the G-res tool or site-specific calculations. Recognised tools or site-specific calculations should take into account pre-impoundment GHG emissions from the

catchment, post-impoundment GHG emissions from the catchment, unrelated anthropogenic sources, emissions from construction and ongoing operational activities, the life cycle of the water body of at least 100 years, and the allocation of emissions between electricity generation and other services provided by multipurpose projects. Estimates made using a tool such as the G-res Tool should have been independently verified.

The estimation of GHG emissions may be an **iterative process** during design and preparation. For projects with emissions estimated at more than 100 gCO_2e per kWh, design, construction and operational measures would be identified to lower emissions below this figure.

A broad range of scenarios, uncertainties and risks in emissions assessment would encompass potential changes in the catchment, trends and risks related to anthropogenic sources of carbon inflows, inter-relationships between issues such as project construction and in-migration, the influence of climate change-induced temperature increases and altered inflows.

Estimates of pre-impoundment emissions should be based on measurements of sufficient spatial and temporal extent and resolution, whether as part of site-specific assessments, or the establishment of a pre-impoundment baseline.

Design measures that influence GHG emissions include the reservoir area, retention time, and the off-take level (for example, multi-level off-takes).

Operational measures to manage emissions include measures to reduce carbon loading in inflows, reservoir management to reduce reservoir stratification (mixing, and oxygenation measures), and operational procedures for the use of design features such as multi-level off-takes.

Measures that can be taken during implementation that may reduce emissions include clearance of biomass in the reservoir area, vehicle fleet management and transport planning, and the selection of cement supplier.

Measures to respond to risks of higher emissions than anticipated may include design features or operational measures that can be instigated in response to emissions measurements. Active involvement in the development of the catchment to minimise carbon inflows would also minimise risks.

Opportunities concerning emissions reductions include opportunities to add additional renewables facilities, such as floating solar, or take opportunities to increase power density with further expansion.

Consistency with low carbon power generation may be demonstrated by alignment with national plans for mitigation, and: a power density greater than or equal to 5 W/m^2; or net emissions intensity that is less than internationally-recognised thresholds at the time of the assessment (such as less than 100 gCO_2e/kWh); or emissions reductions at the system level.

For the purposes of the assessment, **system emissions** shall mean greenhouse gas emissions associated with the local, regional or national grid to which the project is connected.

An assessment of **plausible climate change** would use all available secondary information, and follow a sequential approach such as: a. obtain all relevant historical climatological and hydrological data for the project area, and identify observed climatological and hydrological trends, including extreme events at a river basin scale; b. obtain data from global, regional or basin-scale climate models relevant to the project area, for a range of scenarios, and assess the degree of consistency between them; c. based on a and b, establish plausible climatological and hydrological conditions for the project site.

Climatological conditions at the project site refers to annual averages, seasonal averages, and ranges of temperatures and precipitation, changes in the type and seasonal distribution of precipitation, and extreme weather events. Changes in these conditions will have effects on **hydrological and other conditions** including, for example, run-off, seasonal patterns of run-off, glacial melt or timing of glacial melt, intensity of floods and droughts, presence of ice (resulting in ice jams or affecting

infrastructure such as power lines), frequency or magnitude of landslides, and sediment transport.

A **risk assessment or stress test** would be documented, for example in a risk register or matrix. This would set out the range of potential risks and hazards, assess the probability and magnitude of the impacts of each. It would identify and prioritise measures to avoid, minimise and mitigate the risks and impacts, and promote an approach of decision-making under uncertainty.

Measures for project resilience may not be only engineering measures. Non-engineering measures may include risk monitoring and risk management plans, disaster risk reduction and management plans, or other climate risk management plans.

Sensitivity analysis in the assessment of resilience refers to analysis of the increased probability and severity of impacts in relation to ranges of conditions.

Risks and inter-relationships in resilience refers to lower probability risks, and inter-relationships between issues, for example an increase in temperatures resulting in increased peak electricity demand which results in increased downstream flow variations for communities.

Environmental and social risks refers to the increased risk for the local environment and communities that result from the project within a context of a changing climate. For example downstream environmental flows may not be feasible with decreased flows resulting from climate change. This risk needs to be assessed and suitable mitigation developed.

Conversely, the project may have opportunities to provide **adaptation services** to the local environment and communities, above and beyond the risks created by the project. For example, these may include the provision of water for irrigation, drought preparedness programmes, flood preparedness programmes and early warning systems, and community infrastructure such as water supplies.

Public disclosure of emissions calculations is important for credibility. Public disclosure of power density refers to the disclosure of the details of the calculation, demonstrating how the calculation conforms to the definition of power density above and public information on the project design.

In stakeholder engagement, it is important that plans for the management of increased dam safety and environmental and social risks have been discussed with stakeholders, for example in the development of plans for emergency preparedness.

National or regional policies and plans relevant to mitigation may include NDCs (nationally-determined contributions), NAMAs (nationally-appropriate mitigation actions), national climate change mitigation plans, etc. A project would fit with national or regional policies and plans if, for example, generation with similar emissions are cited in policies and plans, or the project is below baseline power sector emissions. In some jurisdictions there may be more stringent requirements for emissions than values in the scoring statements, and the project should fit with the requirements applying currently. There are also likely to be national policies plans and commitments on adaptation (for example national adaptation plans).

Potential interviewees: GHG emissions assessment researchers; verifier of GHG emissions assessment; design engineers; hydrologists; environmental manager; social experts; ESIA consultants; dam safety engineers; regional and national climate scientists; designated national authorities (DNAs); disaster preparedness authorities; emergency response services.

Examples of evidence: power density calculation; results of G-res Tool application or other tool; verification report on G-res Tool application; climate change studies in the region; analysis of plausible climate change, and conditions at the project site; risk assessment or stress tests; national and regional policies and plans on mitigation and adaptation; feasibility study; operational plans; environmental and social management plans; disaster preparedness and response plans; minutes of meetings with stakeholders; evidence of public disclosure, etc.

Glossary of Terms

Additional Benefits: Benefits for the region that can be leveraged from the project.

Accountability: Obligation of an individual, firm, or institution to account for its activities, accept responsibility for them, and to disclose the results in a transparent manner.

Accountable: Responsible to or liable to account for someone or for some activity.

Adequate: Sufficient or enough to satisfy a requirement or meet a need.

Agreement: A recorded understanding between individuals, groups or entities to follow a specific course of conduct or action. It may be incorporated into, for example, a memorandum of understanding, minutes of a meeting, a letter of intent, a joint statement of principles, a contract, an operating licence, etc.

Appropriate: Suitable for a particular person, condition, occasion, or place; fitting; meeting identified needs or requirements.

Baseline: A set of measurements, statistics, or conditions used as a basis for later comparison. The baseline refers to the pre-project conditions, prior to the initiation of the project, against which post-project changes can be compared. For operating hydropower facilities, if a pre-project baseline does not exist then the present condition is taken as the baseline.

Commitment: A binding pledge or promise to do, give, or refrain from doing something.

Community Groups: Groups of people with common characteristics or interests living together within the larger society. There are many different ways to view these groups, and these will need to be defined in meaningful ways for the project. These may include, by way of example, urban dwellers, rural dwellers, Indigenous Peoples, ethnic minorities, people of a common profession or religion, disabled, elderly, illiterate, women, men, children, etc.

Compliance: Adherence to legal requirements, policies and public commitments.

Comprehensive: All relevant components have been considered and addressed.

Conformance: Addresses the level of conformance of implementation measures with most up-to-date project-related plans.

Consent: Signed agreements with community leaders or representative bodies who have been authorised by the affected communities which they represent, through an independent and self-determined decision-making process undertaken with sufficient time and in accordance with cultural traditions, customs and practices.

Corruption: Lack of integrity or honesty (especially susceptibility to bribery); use of a position of trust for dishonest gain.

Credible: Capable of being believed; plausible; worthy of confidence; reliable.

Cultural Heritage: The legacy of physical artefacts and intangible attributes of a group or society that are inherited from past generations, maintained in the present and bestowed for the benefit of future generations.

Cumulative Impacts: Cumulative impacts are those that result from the incremental impact of the project when added to other past, present, and reasonably foreseeable future actions. Effects should be assessed in terms of the capacity of the water resource, ecosystem, and/or affected communities to accommodate such impacts. Analyses need to be defined within realistic boundaries.

Deception: The fact or state of being deceived; to be given cause to believe what is not true; to be mislead.

Developer: The lead entity or consortium of entities investing in the development of a hydropower project.

Directly Affected Stakeholder: Those stakeholders with substantial rights, risks and responsibilities in relation to the issue. These may be inside the project affected area (e.g. project affected communities) or outside the project-affected area (e.g. government regulators, finance institution representatives, or investment partners).

Disclosure: Made publicly available (see also "Publicly disclosed").

Economic Displacement: Loss of assets, access to assets, or income sources or means of livelihoods as a result of (i) acquisition of land, (ii) changes in land use or access to land, (iii) restriction on land use or access to natural resources including water resources, legally designated parks, protected areas or restricted access areas such as reservoir catchments and (iv) changes in environment leading to health concerns or impacts on livelihoods. Economic displacement applies whether such losses and restrictions are full or partial, and permanent or temporary.

Effective: Producing or capable of producing an intended, expected and/or desired effect.

Engaged: Interacted with, often through consultation processes.

Equitable: Fair, just or impartial

Evidence: Evidence provided by an auditee and used by an assessor to verify whether and to what degree a criterion has been met. Evidence can be qualitative or quantitative information, records or statements of fact, either verbal or documented. It is retrievable or reproducible; not influenced by emotion or prejudice; based on facts obtained through observation, measurements, documentation, tests or other means; factual; reproducible; objective and verifiable.

Expert: A person with a high degree of skill in or knowledge of a certain subject, as a result of a high degree of experience or training in that subject.

Gender Analysis: The process of assessing the impact that an activity may have on females and males, and on gender relations. It can be used to ensure that men and women are not disadvantaged by development activities, to enhance the sustainability and effectiveness of activities, or to assess and build capacity and commitment to gender sensitive planning.

Governance: The combination of processes and structures that inform, direct, manage and monitor the activities of the project toward the achievement of its objectives.

Grievance Mechanisms: The processes by which stakeholders are able to raise concerns, grievances and legitimate complaints, as well as the project procedures to track and respond to any grievances.

Human Rights: The basic rights and freedoms to which all humans are entitled, encompassing civil, political, economic, social, and cultural rights, and enshrined in international declarations such as the Universal Declaration on Human Rights 1948.

Hydrological Resource: Water inflows to the project.

Impact: Effect or consequence of an action or event; the degree to which an impact is interpreted as negative or positive depends on context and perspective.

Independent Review: Expert review by someone not employed by the project and with no financial interest in profits made by the project.

Indigenous Peoples: A distinct social and cultural group possessing the following characteristics in varying degrees: self-identification as members of a distinct indigenous cultural group and recognition of this identity by others; collective attachment to geographically distinct habitats or ancestral territories in the project area and to the natural resources in these habitats and territories; customary cultural, economic, social or political institutions that are separate from those of the dominant society or culture; an indigenous language, often different from the official language of the country or region.

Integrated: Merged, interspersed, embedded into something.

Integrated Water Resources Management (IWRM): A process which promotes the coordinated development and management of water, land and related resources, in order to maximize the resultant economic and social welfare in an equitable manner without compromising the sustainability of vital ecosystems.

Intermediaries: Workers engaged through third parties who are either performing work directly related to the functions essential for the project for a substantial duration, or who are geographically working at the project location.

Invasive Species: A species that does not naturally occur in a specific area and whose introduction does or is likely to cause economic or environmental harm or harm to human health.

Land Rehabilitation: The process of returning the land to some degree of its former state after disturbance or damage associated with project implementation.

Legacy Issues: Impacts of previous projects that are unmitigated or not compensated with a similar good or service, or long-standing issues with a present (existing) project, or pre-existing issues in the present location of a new project.

Livelihood: The capabilities, assets (stores, resources, claims and access) and activities required for a means of living.

Living Standards: The level of material comfort as measured by the goods, services, and luxuries available to an individual, group, or nation; indicators of household well-being; examples include: consumption, income, savings, employment, health, education, nutrition, housing, and access to electricity, clean water, sanitation, health services, educational services, transport, etc.

Local: Administrative subdivisions of a national territory (e.g. with reference to local land use plans)

Long-Term: The planned life of the hydropower project.

Maintenance: The work of keeping something in proper condition; upkeep.

Management Plan: A management plan is a tool used as a reference for managing a particular project issue, and establishes the why, what, how, who, how much, and when for that issue.

Management System: The framework of processes and procedures used to ensure that an organisation can fulfil all tasks required to achieve its objectives.

Maximised: Achieved to as great an extent practicable, taking into account all constraints.

Minimised: Achieved to as little an extent practicable, taking into account all constraints.

Mitigation: Moderation, alleviation, and/or relief of a negative impact

Non-Compliance: Not meeting legal, licence, contractual or permit obligations

Non-Conformance: Not meeting targets and objectives in the management plans; these may or may not be publicly stated commitments, but they are not legally binding and violation can not incur legal action.

Non-Critical: Not essential for something to be suitable, adequate and/or effective

Occupational Health and Safety: Protecting the safety, health and welfare of people engaged in work or employment, for example through preventing disease or injury that might arise as a direct result of the workplace activities.

Offset: Measurable conservation outcomes resulting from actions designed to compensate for significant adverse biodiversity impacts arising from project development and persisting after appropriate avoidance, minimization, and restoration measures have been taken. Generally, these are not within the project site.

Optimal: Best fit, once all considerations have been factored in, based on the outcomes of a consultative process

Optimisation Process: The process by which alternatives have been considered towards determining the best fit

Outstanding: Not settled or resolved.

Plans: Management measures to address an identified issue, that may or may not be formalised into business management plans. Plans can include documented planned arrangements, for example based on agreements for forward actions made at meetings. Plans may also be those of the developer, owner or operator, or plans of the relevant government agency or other institution which has the primary responsibility for that sustainability topic. Plans can also be those developed by the contractor responsible for implementation.

Political Risk: A risk of financial loss or inability to conduct business faced by investors, corporations, and governments due to government policy changes, government action preventing entry of goods, expropriation or confiscation, currency inconvertibility, politically-motivated interference, government instability, or war.

Practicable: Capable of being done with means at hand and circumstances as they are.

Process: A series of actions, changes, or functions bringing about a result.

Procurement: The acquisition of goods and/or services at the best possible cost, in the right quality and quantity, at the right time, in the right place and from the right source for the direct benefit or use of the hydropower project or operating facility, generally via a contract.

Programme: Relates to the hydropower development programme, which encompasses all project components (construction, environmental, social, resettlement, finance and procurement, and communications, etc.).

Project-Affected Area: The catchment, reservoir, and downstream of the project site and associated dams, and the area affected by any associated developments (e.g. roads, transmissions lines, quarries, construction villages, relocation areas, etc).

Project Affected Communities: The interacting population of various kinds of individuals in the project affected area who are affected either positively or negatively by the hydropower project preparation, implementation and/or operation.

Project Catchment: The portion of the river basin that drains into the project reservoirs, either to pass ultimately through the generation turbines or to spill over the dams into the downstream rivers.

Project Components: Components of the overall hydropower development programme, including design, construction, environmental, social, resettlement, finance, communications and procurement.

Project Lands: The land that is owned, utilised and/or affected by the project.

Protection: To keep in safety and protect from harm, decay, loss, damage or destruction.

Publicly Disclosed: The public is informed that the agreement, commitment, assessment, management plan or significant report has been made or completed, and it is made publicly available either voluntarily (e.g. posted on a website) or on request in a timely manner.

Refurbishment: The state of being restored to its former good condition.

Regional: Refers to a supranational entity in an international context. To refer to administrative subdivisions of a national territory (e.g. with reference to local land use plans) this protocol uses the designation of local.

Relevant: Directly related, connected, applicable, current or pertinent to a topic. In the Protocol, relevance will be determined based on project-specific considerations and analyses. Project representatives make a case for what is relevant and provide evidence to support this, e.g. support of regulatory authorities; the assessor views and seeks evidence to affirm relevance.

Reservoir: Any artificial pondage or lake used by the project for the storage and regulation of water.

Reservoir Area: The area that is inundated when the reservoir is at its maximum expected level and the dry buffer zone above this level.

Resettlement: The process of moving people to a different place to live, because due to the project they are no longer allowed to stay in the area where they used to live.

Resettlees: Those people who are required to be resettled, including those who have formal legal rights, customary or traditional rights, as well as those who have no recognizable rights to the land.

River Basin: The area drained by a river and all its tributaries

Resettlement Action Plan: A document or set of documents specifically developed to identify the actions that will be taken to address resettlement. It would typically include identification of those being resettled; the socio-economic baseline for the resettlees; the measures to be implemented as part of the resettlement process including those relating to resettlement assistance and livelihood support; the legal and compensation frameworks; organisational roles and responsibilities; budget allocation and financial management; the timeframe, objectives and targets; grievance redress mechanisms; monitoring, reporting and review provisions; and understandings around consultation, participation and information exchange.

Sensitivity Analysis: Investigation into how projected performance varies along with changes in the key assumptions on which the projections are based

Short-Term: Covers day-to-day operations.

Significant: Important in effect or consequence, or relatively large.

Stakeholder: One who is interested in, involved in or affected by the hydropower project and associated activities.

Stakeholder Group: A set of stakeholders with common characteristics or interests.

Strategic Fit: The compatibility of the project with local, national and regional needs identified through the priorities and objectives put forth in options assessments and other relevant local, national and regional and multi-national policies and plans.

Suitable: Appropriate for the desired purpose, condition or occasion.

Timely: Occurring at a suitable or opportune time

Transboundary Agreements: Agreements made amongst riparian states about how shared water resources will be utilised by the parties involved, and the processes that will be followed to sustain these understandings.

Transparent / Transparency: Open to public scrutiny, publicly available, and/or able to be viewed or disclosed to the public on request.

Upgrade: To improve to a higher grade or standard.

Vulnerable Social Groups: Social groups who are marginalised or impoverished with very low capacity and means to absorb change.

Understanding the Protocol's Gradational Approach

The gradational approach undertaken in the Preparation, Implementation and Operation assessments tools can be understood by examination of Table 1. This table provides general guidance on characteristics that are likely to be exhibited for these different criteria at the five different scoring levels. The scoring statements found in the Preparation, Implementation and Operation assessment tools have been guided by the approach shown in Table 1. This table is not intended to be the basis for assigning of scores, as sufficient information should be provided on the topic pages. However, this table can be referred to during an assessment if there is insufficient information in the topic scoring statements and in the topic-specific assessment guidance to help the assessor to determine a score. If there are questions in the assessment process about whether the assessment, management and stakeholder engagement approaches are sufficient for basic good practice, Table 1 may be of assistance.

Table 1 - Understanding the Protocol's Gradational Approach

This table captures characteristics that are likely to be exhibited at different scoring levels for each of the criteria used in the Hydropower Sustainability Assessment Protocol.

Level	Assessment	Management
5	Suitable, adequate and effective assessment with no significant opportunities for improvement. In addition to basic good practice (Level 3), the assessment is likely to take a relatively broad, external or regional view or perspective; emphasise opportunities; and show a high level examination of interrelationships amongst relevant sustainability issues.	Suitable, adequate and effective management processes with no significant opportunities for improvement. In addition to basic good practice (Level 3), management plans and processes are likely to show excellent anticipation of, and response to, emerging issues or opportunities; senior management and/or executive decisions are likely to be timely, efficient and effective in response to monitoring data, investigations and issues arising; and, in cases, commitments in plans are public, formal and legally enforceable.
4	Suitable, adequate and effective assessment with only a few minor gaps. In addition to basic good practice (Level 3), the assessment is likely to exhibit some recognition of broader, external or regional issues; opportunities; and interrelationships amongst relevant sustainability issues.	Suitable, adequate and effective management processes with only a few minor gaps. In addition to basic good practice (Level 3), management plans and processes are likely to exhibit good anticipation of, and response to, emerging issues or opportunities; and, in cases, commitments in plans are public and formal.
3	Suitable adequate and effective assessment with no significant gaps. This would typically encompass (as appropriate to the topic and life cycle stage) identification of the baseline condition including relevant issues, appropriate geographic coverage, and appropriate data collection and analytical methodologies; identification of relevant organisational roles and responsibilities, and legal, policy and other requirements; appropriate utilisation of expertise and local knowledge; and appropriate budget and time span. At level 3 the assessment encompasses the considerations most relevant to that topic, but tends to have a predominantly project-focussed view or perspective and to give stronger emphasis to impacts and risks than it does to opportunities.	Suitable, adequate and effective management processes with no significant gaps. These would typically encompass (as appropriate to the topic and life cycle stage) development and implementation of plans that: integrate relevant assessment or monitoring findings; are underpinned by policies; describe measures that will be taken to address the considerations most relevant to that topic; establish objectives and targets; assign roles, responsibilities and accountabilities; utilise expertise appropriate to that topic; allocate finances to cover implementation requirements with some contingency; outline processes for monitoring, review and reporting; and are periodically reviewed and improved as required.
2	A significant gap in assessment processes relative to basic good practice (Level 3).	A significant gap in management processes relative to basic good practice (Level 3).
1	Significant gaps in assessment processes relative to basic good practice (Level 3)	There are significant gaps in management processes relative to basic good practice (Level 3)

Stakeholder Engagement	Stakeholder Support	Outcomes	Conformance/ Compliance
Suitable, adequate and effective stakeholder engagement processes with no significant opportunities for improvement. In addition to basic good practice (Level 3), the engagement is likely to be inclusive and participatory with the directly affected stakeholders; thorough feedback is likely to be available on how directly affected stakeholder issues are taken in to consideration; in cases, there is likely to be directly affected stakeholder involvement in decision-making; and information identified through engagement processes to be of high interest to stakeholders is released publicly in a timely and easily accessible manner.	There is support of nearly all directly affected stakeholder groups for the assessment, planning or implementation measures for that topic, or no opposition by these stakeholders. In cases formal agreements or consent with the directly affected stakeholder groups have been reached for management measures for that topic.	In addition to basic good practice (Level 3), there may be exhibited enhancements to pre-project conditions; contributions to addressing issues beyond those impacts caused by the project; leveraging of opportunities; or significant contribution to capacity building.	No non-compliances or non-conformances.
Suitable, adequate and effective stakeholder engagement processes with only a few minor gaps. In addition to basic good practice (Level 3), there is likely to be good feedback on how directly affected stakeholder issues have taken into consideration; and information on sustainability topics understood to be of high interest to stakeholders is voluntarily released publicly.	There is support of a large majority of directly affected stakeholder groups for the assessment, planning or implementation measures for that topic, or only very low level opposition by these stakeholders.	In addition to basic good practice (Level 3), there may be exhibited full compensation of negative impacts; some positive enhancements; or evidence of capacity building associated with the project.	Very few minor non-compliances and non-conformances that can be readily remedied.
Suitable, adequate and effective stakeholder engagement processes with no significant gaps. These would typically encompass (as appropriate to the topic and life cycle stage): Identification of directly affected stakeholders; Appropriate forms, timing, frequency and locations of stakeholder engagement, often two-way; Freedom for affected stakeholders to participate; Attention to special stakeholder engagement considerations relating to gender, minorities, cultural sensitivities, level of literacy, and those who might require particular assistance; Mechanisms by which stakeholders can see that their issues are recognised and acknowledged, and how they have been or are being responded to; and disclosure of information on significant sustainability topics (in cases, this may be on request).	There is general support amongst directly affected stakeholder groups for the assessment, planning or implementation measures for that topic, or no significant ongoing opposition by these stakeholders.	As appropriate to the topic and the life cycle stage, there may be exhibited avoidance of harm, minimisation and mitigation of negative impacts; fair and just compensation; fulfilment of obligations; or effectiveness of implementation plans.	No major non-compliances and non-conformances.
A significant gap in stakeholder engagement processes relative to basic good practice (Level 3).	There is support amongst some directly affected stakeholder groups for the assessment, planning or implementation measures for that topic, with some opposition.	A significant gap relative to basic good practice (Level 3), for example, some deterioration in baseline condition.	A major non-compliance or non-conformance.
There are significant gaps in stakeholder engagement processes relative to basic good practice (Level 3).	There is low support amongst directly affected stakeholder groups for the assessment, planning or implementation measures for that topic, or a majority oppose.	Significant gaps relative to basic good practice (Level 3), for example deterioration in baseline conditions with delay or difficulties in addressing negative impacts.	major non-compliances and non-conformances.

Hydropower Sustainability Assessment Protocol

Implementation
Assessment Tool

May 2020

IMPLEMENTATION

Published by:

iha
international hydropower association

Acknowledgements

The Hydropower Sustainability Assessment Protocol is the product of the considerable effort of many parties. The members of the Hydropower Sustainability Assessment Forum spent two and a half years deeply involved in research, analyses, meetings, outreach, trialling, review, exchanging views, negotiating content and finding solutions to divergent views. Many had reference groups that were very active in following the Forum process and informing the views of Forum members. The Forum was funded by substantial donations from the governments of Norway, Iceland and Germany, supplemented by funding from the International Hydropower Association, The Nature Conservancy, The World Bank Group, and The World Wide Fund for Nature (WWF). In addition, the in-kind contributions of the Forum members and many supporting organisations were considerable.

The Protocol reflects the intellectual contributions of these many players, and the end product has been enabled because of a shared vision that it can make a significant contribution to advancing sustainable hydropower. The members of the Forum and those reference groups and organisations that have worked with these individuals are gratefully acknowledged:

Developing Countries

Dr Yu Xuezhong, Research Professor, **China Institute of Water Resources and Hydropower Research**, PR China

Mr Zhou Shichun, Senior Engineer, **China Hydropower Engineering Consulting Group Co.,** PR China

Mr Israel Phiri, Manager PPI, **Ministry of Energy and Water Development**, Zambia

Developed Countries

Mr Geir Hermansen, Senior Advisor, Department of Energy, **Norad**, Norway

Prof Gudni A Johannesson, Director General, **National Energy Authority**, Iceland

Ms Kirsten Nyman, Policy Advisor for Sustainable Hydropower, **GTZ**, Germany (observer)

Finance Sector - Economic Aspects

Ms Courtney Lowrance, Director, Environmental and Social Risk Management, Citigroup Global Markets Inc, member of the **Equator Principles Financial Institutions**

Ms Daryl Fields, Senior Water Resources Specialist, **The World Bank** (observer)

Hydropower Sector

Dr Refaat Abdel-Malek, President, **International Hydropower Association**

Mr Andrew Scanlon, Manager Business Sustainability, **Hydro Tasmania**

NGOs - Environmental Aspects

Mr David Harrison, Senior Advisor, Global Freshwater Team, **The Nature Conservancy**

Dr Joerg Hartmann, WWF Dams Initiative Leader, **World Wide Fund for Nature (WWF)**

NGOs - Social Aspects

Mr Michael Simon, Lead, People, Infrastructure and Environment Program, **Oxfam**

Dr Donal O'Leary, Senior Advisor, **Transparency International**

Forum Chair

Mr André Abadie, Director, **Sustainable Finance Ltd**

Forum Coordinator

Dr Helen Locher, Sustainability Forum Coordinator, **International Hydropower Association**

Contents

The Hydropower Sustainability Assessment Protocol

The Hydropower Sustainability Assessment Protocol (the "Protocol") is a sustainability assessment framework for hydropower projects and operations. It outlines the important sustainability considerations for a hydropower project, and enables production of a sustainability profile for that project. The four Protocol assessment tools – Early Stage, Preparation, Implementation, and Operation – are designed to be stand-alone assessments applied at particular stages of the project life cycle. An assessment with one tool does not depend on earlier stage assessments to have been undertaken. The assessment tools are designed to be applicable up to major decision points in the project life cycle, and are most effective where there are repeat applications to help guide continuous improvement measures. The assessment tools and associated decision points are shown in Figure 1.

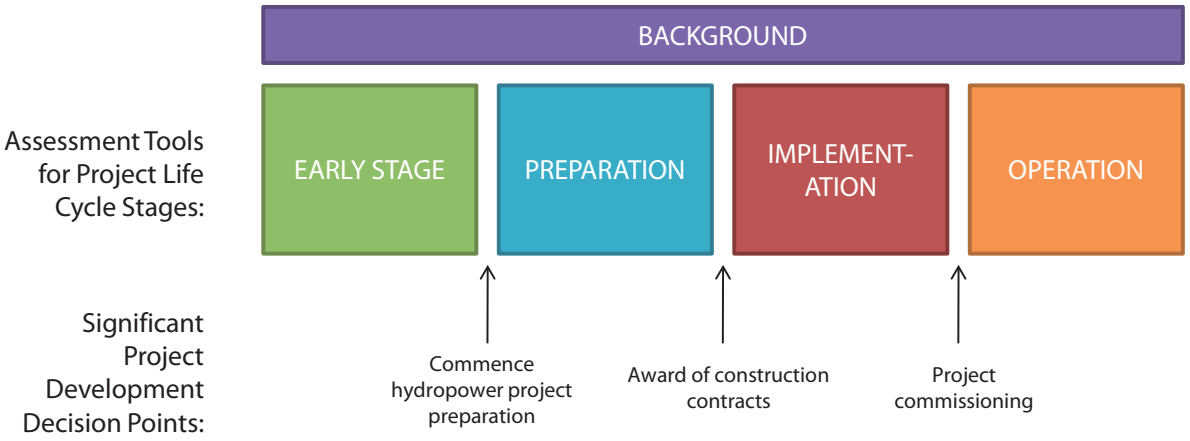

Figure 1 - Protocol Assessment Tools and Major Decision Points

Overview of the Implementation Assessment Tool

This document provides the Implementation assessment tool, and assumes that the user has already made him or herself familiar with the Protocol Background which describes the overall approach and use of the Protocol assessment tools. The Implementation assessment tool assesses the implementation stage of a hydropower project, during which construction, resettlement, environmental and other management plans and commitments are implemented. Commissioning of the power station enables the project to start to earn money, and in fact often some units (i.e. turbines) of a multiple unit power station are commissioned while others are still being installed to assist in meeting the financial commitments of the project. An assessment made prior to the decision to commission any units would assess whether all commitments have been met, and can inform the timing and conditions of project commissioning.

Implementation Topic Relevance Guide

Not all topics in Implementation assessment tool will be relevant for every project assessment, and their relevance must be considered on a project-by-project basis. The project representative would make a case

for a topic to be not relevant and present evidence to support this. The assessor reviews the evidence and draws a conclusion, documenting the evidence cited, the quality of the evidence, and the basis for this conclusion.

Some examples of circumstances that might make topics not relevant, subject to presentation of credible evidence, could be:

- No cultural heritage identified in the project affected area ➔ Cultural Heritage topic is not relevant
- No Indigenous Peoples in the project affected area ➔ Indigenous Peoples topic is not relevant
- No resettlement required by the project ➔ Resettlement topic is not relevant

I-1 Communications and Consultation

This topic addresses ongoing engagement with project stakeholders, both within the company as well as between the company and external stakeholders (e.g. affected communities, governments, key institutions, partners, contractors, catchment residents, etc). The intent is that stakeholders are identified and engaged in the issues of interest to them, and communication and consultation processes maintain good stakeholder relations throughout the project life.

Scoring:

1	*There are significant gaps relative to basic good practice.*
2	*Most relevant elements of basic good practice have been undertaken, but there is one significant gap.*
3	**Assessment:** Communications and consultation requirements and approaches have been identified through an assessment process involving stakeholder mapping, supported by ongoing monitoring. **Management:** Communications and consultation plans and processes, including an appropriate grievance mechanism, are in place to manage communications and engagement with stakeholders; these outline communication and consultation needs and approaches for various stakeholder groups and topics. **Stakeholder Engagement:** The project implementation stage involves appropriately timed and scoped, and often two-way, engagement with directly affected stakeholders; engagement is undertaken in good faith; ongoing processes are in place for stakeholders to raise issues and get feedback. **Conformance/Compliance:** Processes and objectives relating to communications and consultation have been and are on track to be met with no major non-compliances or non-conformances, and communications related commitments have been or are on track to be met.
4	*All relevant elements of basic good practice have been undertaken and in one or more cases exceeded, but there is one significant gap in the requirements for proven best practice.*
5	**Assessment:** In addition, the stakeholder mapping takes broad considerations into account. **Management:** In addition, communication and consultation plans and processes show a high level of sensitivity to communication and consultation needs and approaches for various stakeholder groups and topics; and processes are in place to anticipate and respond to emerging risks and opportunities. **Stakeholder Engagement:** In addition, engagement is inclusive and participatory; negotiations are undertaken in good faith; and feedback on how issues raised have been taken into consideration has been thorough and timely. **Conformance/Compliance:** In addition, there are no non-compliances or non-conformances.

Assessment Guidance:

Stakeholders are those who are interested in, involved in or affected by the hydropower project and associated activities.

Stakeholder mapping refers to identification and grouping of stakeholders in a meaningful way, for example based on stakeholder rights, risks and responsibilities. An example of "rights" would be land rights.

Directly Affected Stakeholders are those stakeholders with substantial rights, risks and responsibilities in relation to the issue. These may be inside the project affected area (e.g. project affected communities) or outside the project-affected area (e.g. government regulators, finance institution representatives, or investment partners).

Grievance mechanisms refer to the processes by which stakeholders are able to raise concerns, grievances and legitimate complaints, as well as the project procedures to track and respond to any grievances.

Needs and approaches for stakeholder groups could include consideration of: cultural norms, gender, literacy level, vulnerable social groups, disabilities, logistical constraints, etc.

Good faith engagement is engagement that is undertaken with an honest intent to reach a mutually satisfactory understanding on the issues of concern.

Broad considerations within stakeholder mapping could be with respect to, for example: the geographic or compositional extent of stakeholder groups identified and considered, the interrelationships amongst stakeholder groups, the level of vulnerability to adverse project impacts and risks; and level of consideration of rights, risks and responsibilities, etc.

Good faith negotiation involves (i) willingness to engage in a process; (ii) provision of information necessary for informed negotiation; (iii) exploration of key areas of importance; (iv) mutually acceptable procedures for negotiation; (v) willingness to modify position; (vi) provision of sufficient time to both parties for decision-making; (vii) agreements on proposed compensation framework, mitigation measures, and development interventions.

Potential interviewees: project communications staff; project manager; stakeholder representatives; project affected communities representatives

Examples of evidence: project stakeholder mapping document; project communications and/or consultation plans; communications protocols; grievance mechanisms; monitoring reports

I-2 Governance

This topic addresses corporate and external governance considerations for the operating hydropower facility. The intent is that the owner/operator has sound corporate business structures, policies and practices; addresses transparency, integrity and accountability issues; can manage external governance issues (e.g. institutional capacity shortfalls, political risks including transboundary issues, public sector corruption risks); and can ensure compliance.

Scoring:

1 *There are significant gaps relative to basic good practice.*

2 *Most relevant elements of basic good practice have been undertaken, but there is one significant gap.*

3

Assessment: Processes are in place to identify any ongoing or emerging political and public sector governance issues, and corporate governance requirements and issues, and to monitor if corporate governance measures are effective.

Management: Processes are in place to manage corporate, political and public sector risks, compliance, social and environmental responsibility, procurement of goods and services, grievance mechanisms, ethical business practices, and transparency; policies and processes are communicated internally and externally as appropriate; and independent review mechanisms are utilised to address sustainability issues in cases of project capacity shortfalls, high sensitivity of particular issues, or the need for enhanced credibility.

Stakeholder Engagement: The business interacts with a range of directly affected stakeholders to understand issues of interest to them; and the business makes significant project reports publicly available, and publicly reports on project performance, in some sustainability areas.

Outcomes: There are no significant unresolved corporate and external governance issues identified.

Conformance/Compliance: The project has no major non-compliances.

4 *All relevant elements of basic good practice have been undertaken and in one or more cases exceeded, but there is one significant gap in the requirements for proven best practice.*

5

Assessment: In addition, there are no significant opportunities for improvement in the assessment of political and public sector governance issues and corporate governance requirements and issues.

Management: In addition, contractors are required to meet or have consistent policies as the developer; procurement processes include anti-corruption measures as well as sustainability and anti-corruption criteria specified in pre-qualification screening; and processes are in place to anticipate and respond to emerging risks and opportunities.

Stakeholder Engagement: In addition, the business makes significant project reports publicly available and publicly reports on project performance in sustainability areas of high interest to its stakeholders.

Outcomes: In addition, there are no unresolved corporate and external governance issues identified.

Conformance/Compliance: The project has no non-compliances.

Assessment Guidance:

Governance broadly refers to the combination of processes and structures that inform, direct, manage and monitor the activities of the project toward the achievement of its objectives.

Corporate governance is a term that refers broadly to the rules, processes, or laws by which businesses are operated, regulated, and controlled

Corporate governance requirements may include, for example: business administration, policies and processes, risk management, corporate social responsibility, ethical business practices, accountability and stakeholder relations, compliance, etc.

Corporate governance issues may relate to, for example: lack of capacity in key external institutional structures, policies and processes important to the project; public sector corruption risks; political risks; internal corruption risks; compliance; management of project risks; etc.

External governance considerations include legal, judicial, and institutional structures, processes and policies relevant to the project. Examples include: the executive, the legislature, political parties, anticorruption organisations, judiciary, grievance addressing mechanisms (e.g. the Ombudsman), specific civil service/public sector agencies, law enforcement agencies, Freedom of Information, media, local and national government, civil society, private sector, international institutions (e.g. some provide peer review of anti-corruption efforts), audit/oversight institutions, public contracting system, etc.

Political risk is a risk of financial loss or inability to conduct business faced by investors, corporations, and governments due to government policy changes, government action preventing entry of goods, expropriation or confiscation, currency inconvertibility, politically-motivated interference, government instability, or war.

Transboundary issues would take into account institutional arrangements that could address the management of upstream and downstream impacts of the project and basin-wide sharing of resources.

Corruption risks may be within the business such as with how finances are managed, or within the public sector such as not addressing licence or permit violations. Public sector corruption risks during project preparation may include, for example, limited options considered, short-cutting of assessment / preparation requirements, or non-transparent approvals; and at the project implementation and operation may include, for example, a blind eye to licence and permit violations.

Processes to ensure ethical business practices could include, for example: a business Code of Ethics, an employee Code of Conduct, a business Integrity Pact, anti-bribery or anti-corruption policies and procedures for reporting and investigation, (such as Transparency International's Business Principles for Countering Bribery (BPCB), a whistle-blowing arrangement, etc.

Procurement plans and processes should address provision of a procurement policy, pre-qualification screening, bidding, awarding of contracts, anti-corruption measures, and mechanisms to respond to bidder complaints. Screening could be for, by way of example, quality, reputation, cost, contractor prior performance on meeting contractual obligations (time, cost, specifications), etc.

Compliance is with respect to all relevant laws, policies, permits, agreements, codes of practice and publicly stated commitments.

Independent review refers to expert review by someone not employed by the project and with no financial interest in profits made by the project. An expert is a person with a high degree of skill in or knowledge of a certain subject, as a result of a high degree of experience or training in that subject. Forms of independent review may vary from contracting an expert consultant to provide a written review of a particular assessment, plan or report, to a panel of experts comprising a mix of expertise appropriate to the project and providing periodic assessment and written reports on issues identified to be within its scope of review. Areas of particular sensitivity would be identified in the environmental and social impact assessment; one area is often resettlement arising from a hydropower project, and this may require independent review of the Resettlement Action Plan.

Anti-corruption measures examples include: open bidding contracting processes to be above a low threshold, contracting authority and its employees commit to an anti-corruption policy, project integrity pacts, mechanisms to report corruption and protect whistleblowers, confidentiality limited to legally protected information, etc.

Screening based on sustainability criteria might encompass additional criteria which could include, by way of example, social, environmental, ethics, human rights, health and safety performance, preference and support to local suppliers where they meet other criteria, etc.

Screening to address anti-corruption might specify, by way of example, that companies tendering must have a code of conduct addressing anti-corruption.

Potential interviewees: a Board member; the project manager; business managers for corporate governance, compliance, internal audit, business risk; experts on public sector governance; other relevant third parties such as anti-corruption civil society organisations

Examples of evidence: business internal website and external website for vision, values, policies, structure, procedures, annual reports; assessment of public sector governance issues; internal audit reports; project compliance plan; reports to Board on ethical business practices and compliance; log of ethical business practices grievance; third party review reports; relevant documentation on public sector governance issues such as reports of Transparency International on National Integrity Systems (NIS) and the Corruption Perceptions Index (CPI)

I-3 Environmental and Social Issues Management

This topic addresses the plans and processes for environmental and social issues management. The intent is that negative environmental and social impacts associated with the hydropower facility are managed; avoidance, minimisation, mitigation, compensation and enhancement measures are implemented; and environmental and social commitments are fulfilled.

Scoring:

1 *There are significant gaps relative to basic good practice.*

2 *Most relevant elements of basic good practice have been undertaken, but there is one significant gap.*

3 **Assessment:** Environmental and social issues relevant to project implementation and operation have been identified through an assessment process, including evaluation of associated facilities, scoping of cumulative impacts, role and capacity of third parties, and impacts associated with primary suppliers, using appropriate expertise; and monitoring is being undertaken during the project implementation stage appropriate to the identified issues.

Management: Processes are in place to ensure management of identified environmental and social issues utilising appropriate expertise (internal and external), and to meet any environmental and social commitments, relevant to the project implementation stage; plans are in place for the operation stage for ongoing environmental and social issues management; and the environmental and social impact assessment and key associated management plans are publicly disclosed.

Stakeholder Engagement: Ongoing processes are in place for stakeholders to raise issues and get feedback.

Conformance/Compliance: Processes and objectives in the environmental and social management plans have been and are on track to be met with no major non-compliances or non-conformances, and environmental and social commitments have been or are on track to be met.

Outcomes: Negative environmental and social impacts of the project are avoided, minimised and mitigated with no significant gaps.

4 *All relevant elements of basic good practice have been undertaken and in one or more cases exceeded, but there is one significant gap in the requirements for proven best practice.*

5 **Assessment:** In addition, monitoring of environmental and social issues during project implementation takes into account inter-relationships amongst issues, and both risks and opportunities that become evident during implementation.

Management: In addition, processes are in place to anticipate and respond to emerging risks and opportunities; and plans and processes are embedded within an internationally recognised environmental management system which is third party verified, such as ISO 14001.

Stakeholder Engagement: In addition, feedback on how issues raised have been taken into consideration has been thorough and timely.

Conformance/Compliance: In addition, there are no non-compliances or non-conformances.

Outcomes: In addition, negative environmental and social impacts are avoided, minimised, mitigated and compensated with no identified gaps; and enhancements to pre-project environmental or social conditions or contributions to addressing issues beyond those impacts caused by the project are achieved or are on track to be achieved.

Assessment Guidance:

Environmental and social issues may include, for example: aquatic and terrestrial biodiversity, threatened species, critical habitats, ecosystem integrity and connectivity issues, water quality, erosion and sedimentation, project-affected communities, Indigenous Peoples, ethnic minorities, resettlement, cultural heritage (both physical and non-physical), and public health. During the project implementation stage, there is a particular need to monitor and manage waste, noise, dust, air quality, water quality, and hazardous materials directly arising from construction activities; secondary effects of construction and implementation activities on biodiversity, land stability, livelihoods, etc; as well as the implementation of particular environmental and social programs such as resettlement, cultural heritage, public health etc. Environmental and social issues associated with the project that extend beyond the jurisdictional boundaries in which the project is located would need to have been assessed and included in management plans.

Associated facilities are defined as those facilities that would not be constructed if the project did not exist, and where the project would not be viable without the other facility. These facilities may be funded, owned, constructed, and/or operated separately from the project, and in some cases, by third parties. Examples pertinent to a hydropower project could include roads, transmission lines, buildings, etc.

Cumulative impacts are those that result from the incremental impact of the project when added to other past, present, and reasonably foreseeable future actions. Effects should be assessed in terms of the capacity of the water resource, ecosystem, and/or affected communities to accommodate such impacts. Analyses need to be defined within realistic boundaries.

Third parties are local and national governments, contractors, and suppliers; an effective assessment should identify the different entities involved and the roles they play, and the corresponding risks they present to the client in order to help achieve environmental and social outcomes.

Primary suppliers are those first-tier suppliers who are providing goods or materials essential for the project, which may incur environmental and social impacts in this supply activity. An example pertinent to a hydropower project could be a quarry supplying construction materials.

Appropriate expertise refers to specialists with experience in the key identifiable topical areas of the assessment and management plans, giving particular attention to the differences between environmental areas and social impact areas. These specialists could be internal or external to the project developer; internal expertise in managing environmental and social issues is of particular importance with respect to this topic.

Avoid, minimise, mitigate and compensate is a sequential process. Measures to avoid or prevent negative or adverse impacts are always prioritised, and where avoidance is not practicable, then minimisation of adverse impacts is sought. Where avoidance and minimisation are not practicable, then mitigation and compensation measures are identified and undertaken commensurate with the project's risks and impacts.

Inter-relationships amongst issues refers to close attention to how monitoring findings from one stream of investigation may have implications for programs being implemented in other parts of the overall implementation program; an example could be that adverse water quality arising from construction works affects drinking water quality which affects public health and livelihoods.

Potential interviewees: project managers responsible for environmental and social issues assessment and management; government representatives responsible for environmental and social issues; stakeholder representatives; project affected communities representatives; external experts

Examples of evidence: regulatory requirements for EIA / SIA; EIA / SIA and associated reports; environmental and social management plans;

hazardous material register listing type, quantities and storage locations HSE internal audits schedule, forms for reporting and non-compliances identification; waste generation and disposal register or equivalent document (including sources and volumes); records of consultation and stakeholder involvement; records of response to stakeholder issues; third party review report; qualifications of experts utilised;	evidence of appropriate separate expertise used for environmental and social issues recognising that in many cases single experts may not have sufficient breadth of expertise to cover both aspects

I-4 Integrated Project Management

This topic addresses the developer's capacity to coordinate and manage all project components, taking into account project construction and future operation activities at all project-affected areas. The intent is that the project meets milestones across all components, delays in any component can be managed, and one component does not progress at the expense of another.

Scoring:

1	*There are significant gaps relative to basic good practice.*
2	*Most relevant elements of basic good practice have been undertaken, but there is one significant gap.*
3	**Assessment:** Monitoring of project progress, milestones, budget and interface issues, and of the effectiveness of management of implementation stage plans including construction management, is being undertaken on a regular basis during project implementation. **Management:** An integrated project management plan and processes are in place that take into account all project components and activities with no significant gaps; and a construction management plan is in place that describes processes that contractors and others are required to follow to manage construction related activities and risks. **Conformance/Compliance:** Processes and objectives in the integrated project management plan and the construction management plan have been and are on track to be met with no major non-compliances or non-conformances. **Outcomes:** The project is meeting overall budget and timing objectives and targets; interface issues are managed effectively; and construction risks are avoided, minimised and mitigated with no significant gaps.
4	*All relevant elements of basic good practice have been undertaken and in one or more cases exceeded, but there is one significant gap in the requirements for proven best practice.*
5	**Assessment:** In addition, monitoring of the overall project implementation takes into account inter-relationships amongst issues, and both risks and opportunities that become evident during implementation. **Management:** In addition, the plan identifies a range of potential interface issues and sets out measures to manage interface and delay issues without impinging on overall project timetables and budgets; processes are in place to anticipate and respond to emerging risks and opportunities; and construction management plans ensure that land disturbance and waste generation activities will be managed so that later rehabilitation activities can be undertaken efficiently and effectively. **Conformance/Compliance:** In addition, there are no non-compliances or non-conformances. **Outcomes:** In addition, interface issues are anticipated, and avoided or minimised; and construction risks are avoided, minimised, mitigated and compensated with no identified gaps.

Assessment Guidance:

Project components refers to components of the overall hydropower development programme including design, construction, environmental, social, resettlement, finance, communications and procurement; examples include: design, construction, environmental, social, resettlement, finance, communications and procurement, etc.

Integrated project management plan examples of considerations include: scheduling, interface targets, significant path analysis, communications, cost control, etc.

Construction risks examples include: safety, air, noise and water pollution, land contamination, land disturbance, water management, introduced species, health, migratory workforce/local community conflicts, etc.

Construction management plan examples of considerations include: chemical and waste storage and handling, pollution, land disturbance, health, safety, community relations, and site zoning for special area protection. The plans may be developed by the project managers, or by the contractors themselves.

Interface issues examples include: that the reservoir is starting to fill before resettlement is fully implemented; that construction activities impinge on significant cultural heritage sites; that the construction workforce introduces public health problems; that social migration into the project-affected area causes social problems for project-affected communities that then require additional management measures; that noise and dust from construction directly impacts on the effectiveness of implementation of biodiversity management plans; etc.

Land disturbance and waste generation activities in the implementation stage can incorporate many measures which are mindful of the later requirements for construction site restoration and rehabilitation; example include: stockpiling of topsoil, seed collection, location of works areas, quarries, spoil heaps below the future minimum water level, etc.

Avoid, minimise, mitigate and compensate is a sequential process. Measures to avoid or prevent negative or adverse impacts are always prioritised, and where avoidance is not practicable, then minimisation of adverse impacts is sought. Where avoidance and minimisation are not practicable, then mitigation and compensation measures are identified and undertaken commensurate with the project's risks and impacts.

Potential interviewees: project manager; construction manager

Examples of evidence: organisational structure; management team qualifications; integrated programme management plans, analyses and reports; construction management plan; construction contracts; construction camp management plan; records of training for all contractors; contractors weekly monitoring reports

I-5 Infrastructure Safety

This topic addresses management of dam and other infrastructure safety during project implementation and operation. The intent is that life, property and community are protected from the consequences of dam failure and other infrastructure safety risks.

Scoring:

1	*There are significant gaps relative to basic good practice.*
2	*Most relevant elements of basic good practice have been undertaken, but there is one significant gap.*
3	**Assessment:** Dam and other infrastructure safety risks relevant to project implementation and operation have been identified through an assessment process; and safety monitoring is being undertaken during the project implementation stage appropriate to the identified issues. **Management:** Processes are in place to address identified dam and other infrastructure safety issues, and to meet any safety related commitments, relevant to the project implementation stage, including providing for communication of public safety measures; a formal quality control program is in place for construction; safety management plans for the operation stage have developed in conjunction with relevant regulatory and local authorities; and emergency response plans include awareness and training programs and emergency response simulations. **Conformance/Compliance:** Processes and objectives relating to safety have been and are on track to be met with no major non-compliances or non-conformances, and safety related commitments have been or are on track to be met. **Outcomes:** Safety risks have been avoided, minimised and mitigated with no significant gaps.
4	*All relevant elements of basic good practice have been undertaken and in one or more cases exceeded, but there is one significant gap in the requirements for proven best practice.*
5	**Assessment:** In addition, consideration of safety issues takes into account a broad range of scenarios and both risks and opportunities. **Management:** In addition, processes are in place to anticipate and respond to emerging risks and opportunities; and public safety measures are widely communicated in a timely and accessible manner. **Conformance/Compliance:** In addition, there are no non-compliances or non-conformances. **Outcomes:** Safety risks have been avoided, minimised and mitigated; and safety issues have been addressed beyond those risks caused by the project itself.

Assessment Guidance:

Safety risks examples include: seismic, geotechnical, dam or generation unit failure, electric shock, hydrological risk, drowning, road accidents, accidents arising from community interactions with project activities, etc. At the implementation stage, particular safety risks are those arising from construction activities such as use of heavy machinery, transport of goods and services, hazards due to adverse weather conditions, etc. Also at the implementation stage, poor quality of the actual construction is a major safety risk for the ongoing life of the project.

Safety management measures examples include: signage, exclusion zones, emergency preparedness, monitoring, inspections, training, incident response, communication, allocation of responsibilities, etc. One of the major safety measures for the project implementation period is a formal quality control program for the actual construction.

Communication of public safety measures could be, for example, through public signage, documentation appropriately lodged with local authorities, awareness raising through various types of community engagements, verbal communication by on-site patrolmen or other similar mechanisms, etc.

Emergency response simulations may be undertaken, for example, through training or workshop exercises for company staff, regional authorities, etc.

Avoid, minimise, mitigate and compensate is a sequential process. Measures to avoid or prevent negative or adverse impacts are always prioritised, and where avoidance is not practicable, then minimisation of adverse impacts is sought. Where avoidance and minimisation are not practicable, then mitigation and compensation measures are identified and undertaken commensurate with the project's risks and impacts.

Contributions to safety issues beyond project risks might include, for example, improving the safety of some existing roads or traffic infrastructure, signage in public places about speeding or drowning risks, etc.

Potential interviewees: project manager; project designers; project safety manager; local authorities; stakeholder representatives; project affected community representatives

Examples of evidence: safety risk assessments; safety management plans; emergency preparedness plans; monitoring reports; independent reviews

I-6 Financial Viability

This topic addresses project financial management, including funding of measures aimed at ensuring project sustainability, and the ability of the project to generate the required financial returns to meet project funding requirements. The intent is that the project is proceeding with a sound financial basis that covers all project funding requirements including social and environmental measures and commitments, financing for resettlement and livelihood enhancement, and delivery of project benefits to project affected communities.

Scoring:

1	*There are significant gaps relative to basic good practice.*
2	*Most relevant elements of basic good practice have been undertaken, but there is one significant gap.*
3	**Assessment:** An assessment has been undertaken of project financial viability, including project costs and revenue streams, using recognised models and including risk assessment, scenario testing and sensitivity analyses; and monitoring of the financial situation during project implementation is being undertaken on a regular basis. **Management:** Measures are in place for financial management of project implementation; plans are in place for financial management of the future operating hydropower facility. **Conformance/Compliance:** Processes and objectives relating to financial management have been and are on track to be met with no major non-compliances or non-conformances, and funding commitments have been or are on track to be met. **Outcomes:** The project or the corporate entity to which it belongs can manage financial issues under a range of scenarios, can service its debt, and can pay for all plans and commitments including social and environmental.
4	*All relevant elements of basic good practice have been undertaken and in one or more cases exceeded, but there is one significant gap in the requirements for proven best practice.*
5	**Assessment:** In addition, project costs and revenue streams are fully detailed; and financial viability of the project has been analysed and optimised including extensive scenario testing, risk assessment and sensitivity analyses. **Management:** In addition, financial management plans provide for well-considered contingency measures for all environmental and social mitigation plans and commitments; and processes are in place to anticipate and respond to emerging risks and opportunities. **Conformance/Compliance:** In addition, there are no non-compliances or non-conformances. **Outcomes:** The project can manage financial issues under a broad range of scenarios.

Assessment Guidance:

Financial viability is the ability of an entity to continue to achieve its operating objectives and fulfill its mission from a finanical perspective over the long term. Some projects may be multi-purpose in which hydropower is not the primary purpose, in which case the financial objective of the hydropower component may be to support delivery of the other purposes of the scheme (e.g. water supply, irrigation water, etc). For some projects the financial contribution is measured from the perspective of the system within which it operates; for example, some pump storage projects may run at a loss but enable a greater profit to be made from other power stations within the system because of the greater efficiencies gained.

Project costs examples include: costs for construction, operations and maintenance, and includes equipment, supplies, labour, tax, land/ water resource rights, and costs of environmental and social mitigation plans.

Revenue streams examples include: the electricity market, the Power Purchase Agreement, and revenue associated with investment drivers for new market entrants (e.g. access to carbon finance).

Financial models at a minimum have the project costs and revenue streams as inputs and financial returns as outputs; examples of uses include: examine implications of various market conditions, trends and risks on financial viability of the project through scenario testing, risk assessment, sensitivity analysis, etc.

Financial issues and risks examples include: very high project costs; inability to meet required costs; uncertainties with respect to revenue streams; currency exchange instability; difficulties in access to project finance; access to renewable incentive schemes; regional pricing; market stability; market access; likelihood of major inflation or depreciation; financial viability of the principal power off-takers etc.

Measures for financial management at the project implementation stage may include, for example: cash flow requirements; ensuring procurement of goods and services, and costs for implementation of construction, social and environmental management plans, stay within budget; ensuring adequate contingencies in budgets to cover emerging issues; handling claims and contingencies; liaison with investors and ensuring their information requirements and any conditions on the project are met; updating financial planning in light of any scheduling issues arising in relation to the date of commissioning; obtaining additional finance if required; etc.

Some **financial information** may have a high degree of commercial sensitivity, and evidence for this topic may need to be viewed under a confidentiality agreement.

Potential interviewees: project financial officers; corporate financial officers; principal financing institution representative; independent financial expert

Examples of evidence: analysis of financing options; financial modelling reports; financial risk analysis; financial plans; financial status reports; third party review reports; annual financial reports for company, project, and principal off-taker(s)

I-7 Project Benefits

This topic addresses the additional benefits that can arise from a hydropower project, and the sharing of benefits beyond one-time compensation payments or resettlement support for project affected communities. The intent is that opportunities for additional benefits and benefit sharing are evaluated and implemented, in dialogue with affected communities, so that benefits are delivered to communities affected by the project.

Scoring:

1	*There are significant gaps relative to basic good practice.*
2	*Most relevant elements of basic good practice have been undertaken, but there is one significant gap.*
3	**Assessment:** Opportunities to increase the development contribution of the project through additional benefits and/or benefit sharing have been assessed. In the case that commitments to additional benefits or benefit sharing have been made, monitoring is being undertaken on delivery of these commitments. **Management:** Measures are in place to deliver commitments by the project to additional benefits or benefit sharing; and commitments to project benefits are publicly disclosed. **Conformance/Compliance:** Processes and objectives relating to project benefits have been and are on track to be met with no major non-compliances or non-conformances, and any additional benefits or benefit sharing commitments have been or are on track to be met. **Outcomes:** Communities directly affected by the development of the hydropower project have received or are on track to receive benefits.
4	*All relevant elements of basic good practice have been undertaken and in one or more cases exceeded, but there is one significant gap in the requirements for proven best practice.*
5	**Assessment:** In addition, the assessment of delivery of project benefits takes into consideration both risks and opportunities. **Management:** In addition, processes are in place to anticipate and respond to emerging risks and opportunities. **Conformance/Compliance:** In addition, there are no non-compliances or non-conformances. **Outcomes:** In addition, benefits are significant and the project has delivered or is on track to deliver significant and sustained benefits for communities affected by the project

Assessment Guidance:

Topic relevance: This topic is always relevant. If no commitments have been made to project benefits, then the Assessment and Outcomes criteria apply. If commitments have been made to project benefits, then all criteria apply.

Benefits may take the form of additional benefits, or benefit-sharing strategies.

Additional benefits refers to benefits that can be leveraged from the project; examples include: capacity building, training and local employment; infrastructure such as bridges, access roads, boat ramps; improved services such as for health and education; support for other water usages such as irrigation, navigation, flood/drought control, aquaculture, leisure; increased water availability for industrial and municipal water supply.

Benefit sharing is distinct from one-time compensation payments or resettlement support; examples include:

- equitable access to electricity services – project affected communities are among the first to be able to access the benefits of electricity services from the project, subject to contextual constraints (e.g. power safety, preference);
- non-monetary entitlements to enhance resource access – project affected communities receive enhanced local access to natural resources;
- revenue sharing – project affected communities share the direct monetary benefits of hydropower according to a formula and approach defined in regulations; this goes beyond a one-time compensation payment or short-term resettlement support; and trust funds.

Commitments to additional benefits or benefit sharing may be the responsibility of other agencies and not the project developer.

Potential interviewees: project manager; government representative (e.g. department of economic development); stakeholder representatives; project affected communities representatives

Examples of evidence: analysis of relevant development indicators; analysis of potential project benefits; analysis of benefit sharing options and opportunities; meeting minutes or reports demonstrating stakeholder input and involvement; benefit sharing plan; monitoring

I-8 Procurement

This topic addresses all project-related procurement including works, goods and services. The intent is that procurement processes are equitable, transparent and accountable; support achievement of project timeline, quality and budgetary milestones; support developer and contractor environmental, social and ethical performance; and promote opportunities for local industries.

Scoring:

1	*There are significant gaps relative to basic good practice.*
2	*Most relevant elements of basic good practice have been undertaken, but there is one significant gap.*
3	**Assessment:** Major supply needs, supply sources, relevant legislation and guidelines, supply chain risks and corruption risks have been identified through an assessment process; ongoing monitoring is being undertaken to monitor effectiveness of procurement plans and processes. **Management:** Measures are in place to guide procurement of project goods, works and services and address identified issues or risks, and to meet procurement related commitments. **Conformance/Compliance:** Processes and objectives relating to procurement have been and are on track to be met with no major non-compliances or non-conformances, and any procurement related commitments have been or are on track to be met. **Outcomes:** Procurement of works, goods and services across major project components is equitable, efficient, transparent, accountable, ethical and timely, and contracts are progressing or have been concluded within budget or that changes on contracts are clearly justifiable.
4	*All relevant elements of basic good practice have been undertaken and in one or more cases exceeded, but there is one significant gap in the requirements for proven best practice.*
5	**Assessment:** In addition, the assessment includes opportunities for local suppliers and local capacity development. **Management:** In addition, processes are in place to anticipate and respond to emerging risks and opportunities; sustainability and anti-corruption criteria are specified in the pre-qualification screening; and anti-corruption measures are strongly emphasised in procurement planning processes. **Conformance/Compliance:** In addition, there are no non-compliances or non-conformances. **Outcomes:** In addition, opportunities for local suppliers including initiatives for local capacity development have been delivered or are on track to be delivered.

Assessment Guidance:

Major supply needs examples include: design, economic, financial, technical, environmental and social consultancies; contractors for project construction works; supply of major goods and complex control equipment for project construction, etc.

Supply chain risks relate to inability to meet the contract provisions (e.g. with respect to cost, time, quality, specifications), corruption, transport impediments, human rights (e.g. child labour, forced labour used by suppliers of suppliers), etc.

Corruption risks at the contracting / bid evaluation stage examples include: non-transparent prequalification, confusing tender documents, non-transparent or non-objective selection procedures, bid clarifications not shared with other bidders, award decisions not made public, or not justified, deception and collusion, unjustified agents' fees, conflicts of interest of officials and consultants, etc.

Procurement plans and processes should address provision of a procurement policy, pre-qualification screening, bidding, awarding of contracts, anti-corruption measures, and mechanisms to respond to bidder complaints.

Screening could be for, by way of example, quality, reputation, cost, contractor prior performance on meeting contractual obligations (time, cost, specifications), etc.

Contracts have already been awarded during the project preparation stage for investigations, design, environmental and social impact assessments, etc. If contracts have not been concluded within budget, evidence should be provided to show that the changes on contracts are clearly justifiable.

Screening based on sustainability criteria might encompass additional criteria which could include, by way of example, social, environmental, ethics, human rights, health and safety performance, preference and support to local suppliers where they meet other criteria, etc.

Procurement opportunities may relate to new suppliers, new technologies, capacity development opportunities through liaising with government economic development initiatives, grants, RandD initiatives, contractual arrangements, etc.

Local suppliers are those within the geographic proximity of the project-affected area who can or have the potential to meet the need to deliver required good and services; the definition of 'local' will be context specific (e.g. those in the project affected area or local government district).

Local capacity development refers to assistance that is provided to entities in the proximity of the project which have an identified need to develop a certain skill or competence or general upgrading of performance ability in order to meet or deliver a desired service.

Screening to address anti-corruption might specify, by way of example, that companies tendering must have a code of conduct addressing anti-corruption.

Anti-corruption measures examples include: open bidding contracting processes to be above a low threshold, contracting authority and its employees commit to an anti-corruption policy, project integrity pacts, mechanisms to report corruption and protect whistleblowers, confidentiality limited to legally protected information, etc.

Potential interviewees: project manager; project procurement officer; representative of an anti-corruption NGO

Examples of evidence: relevant purchasing policy and procedures; project procurement plan; analysis of local supply sources and capacities; tender requirements / specifications; bidding documents; supplier screening criteria; evaluation of supplier performance; bidder grievance log; record of compliance with relevant legislation and guidelines including those of financing agencies; monitoring or third party review reports

I-9 Project-Affected Communities and Livelihoods*

This topic addresses impacts of the project on project affected communities, in relation to economic displacement, impacts on livelihoods and living standards, and impacts to rights, risks and opportunities of those affected by the project. The intent is that livelihoods and living standards impacted by the project are improved relative to pre-project conditions for project affected communities with the aim of self-sufficiency in the long-term, and that commitments to project affected communities are fully delivered.

Topics I-10 'Resettlement' and I-11 'Indigenous Peoples' that follow specifically address two sub-sets of project affected communities.

Scoring:

1 *There are significant gaps relative to basic good practice.*

2 *Most relevant elements of basic good practice have been undertaken, but there is one significant gap.*

3 **Assessment:** Issues relating to project affected communities 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 affect project affected communities, and to meet commitments made to address these issues; and if there are any formal agreements with project affected communities these are publicly disclosed.

Stakeholder Engagement: Ongoing processes are in place for project affected communities to raise issues and get feedback.

Stakeholder Support: Affected communities generally support or have no major ongoing opposition to the plans for the issues that specifically affect their community.

Conformance/Compliance: Processes and objectives relating to project affected communities issues have been and are on track to be met with no major non-compliances or non-conformances, and commitments have been or are on track to be met.

Outcomes: Livelihoods and living standards impacted by the project have been or are on track to be improved, and economic displacement is fairly compensated, preferably through provision of comparable goods, property or services.

4 *All relevant elements of basic good practice have been undertaken and in one or more cases exceeded, but there is one significant gap in the requirements for proven best practice.*

5 **Assessment:** In addition, monitoring of project-affected communities issues during project implementation takes into account inter-relationships amongst issues, and both risks and opportunities that become evident during implementation.

Management: In addition, processes are in place to anticipate and respond to emerging risks and opportunities.

Stakeholder Engagement: In addition, feedback on how issues raised are taken into consideration is thorough and timely, and project affected communities have been involved in decision-making around relevant issues and options.

Stakeholder Support: In addition, formal agreements with nearly all the directly affected communities have been reached for the mitigation, management and compensation measures relating to their communities.

Conformance/Compliance: In addition, there are no non-compliances or non-conformances.

Outcomes: In addition, the measures put in place to improve livelihoods and living standards are on track to promote self-sufficiency in the long-term.

Assessment Guidance:

Project affected communities are the interacting population of various kinds of individuals in the area surrounding the hydropower project who are affected either positively or negatively by the hydropower project and its associated infrastructure.

Issues that affect project affected communities may include, for example: loss or constraints on livelihoods, lowering of living standards, or economic displacement brought about due to changes associated with the project such as changes to river management and flow regimes. Specific examples could include: impacts on health or safety; impacts on cultural practices; impacts on lands, forest and riverbanks; loss of paddy lands, of home gardens, of riverbank gardens; loss of access to sacred sites, to community forest etc. In cases the impacts may result in project affected communities needing to move, but they may not be considered part of the resettlement community because the physical resettlement was a secondary impact and not a primary impact of the project.

Livelihood refers to the capabilities, assets (stores, resources, claims and access) and activities required for a means of living. **Improvement of livelihoods** refers to compensatory measures taken to address impacts of the project on pre-project livelihoods so that those affected are able to move forward with viable livelihoods with improved capabilities or assets relative to the pre-project conditions; for example supporting farmers to continue to be able to farm or to pursue alternatives, accompanied by sufficient support mechanisms that not only enable any changes to livelihoods to be well-established but also so that they have increased capabilities or access to the necessary resources (including training, information, materials, access, supplies etc).

Living standards refer to the level of material comfort as measured by the goods, services, and luxuries available to an individual, group, or nation; indicators of household well-being examples include: consumption, income, savings, employment, health, education, nutrition, housing, and access to electricity, clean water, sanitation, health services, educational services, transport, etc. Improvement in living standards would be demonstrated by improvement in the indicators of the level of material comfort.

Economic displacement refers to the loss of assets, access to assets, or income sources or means of livelihoods as a result of (i) acquisition of land, (ii) changes in land use or access to land, (iii) restriction on land use or access to natural resources including water resources, legally designated parks, protected areas or restricted access areas such as reservoir catchments and (iv) changes in environment leading to health concerns or impacts on livelihoods. Economic displacement applies whether such losses and restrictions are full or partial, and permanent or temporary.

Measures to address project affected communities issues may include, for example: works to protect downstream riparian lands; downstream flow regime agreements to enable sustained livelihoods for downstream communities; access agreements to project lands to enable continued access to sacred sites, community forest, traditional medicinal plants; support for new industries; protection of sacred sites; etc.

Stakeholder support may be expressed through community members or their representatives, and may be evident through means such as surveys, signatures on plans, records of meetings, verbal advice, public hearing records, public statements, governmental license, court decisions, etc.

Opportunities for project-affected communities may include, for example: training and capacity building; education; health services; employment; transportation; contributions to provide for cultural traditions or events, etc.

Interrelationships amongst issues may include, for example: erosion of riverbanks downstream of the project causing incremental and long-term loss of land essential to sustain livelihoods, or safety concerns due to rapidly fluctuating river flows downstream of the project causing riparian communities to feel unsafe and eventually having to relocate.

Potential interviewees: representatives of project affected communities; project social issues manager; government expert; independent experts

Examples of evidence: assessment report on project affected communities and livelihoods; gender analysis; human rights issues analysis; records of consultation and project affected community involvement; records of response to project affected community issues; third party review report; report on compensation measures; agreements on compensation measures; assessments and agreements on cultural sensitive areas and customs

* This was a topic with an area of non-consensus in development of the Protocol, relating to the Stakeholder Support criterion. It is the belief of Oxfam that basic good practice (Level 3) should be "Affected communities generally support or have no major ongoing opposition to the project"

I-10 Resettlement*

This topic addresses physical displacement arising from a hydropower project development. The intent is that the dignity and human rights of those physically displaced are respected; that these matters are dealt with in a fair and equitable manner; that livelihoods and standards of living for resettlees and host communities are improved; and that commitments made to resettlees are fully delivered.

Scoring:

1	*There are significant gaps relative to basic good practice.*
2	*Most relevant elements of basic good practice have been undertaken, but there is one significant gap.*
3	**Assessment:** An assessment of the resettlement implications of the project has been undertaken that establishes the pre-project socio-economic baseline for resettlees and host communities; monitoring is being undertaken of implementation of the resettlement plans, and to see if commitments made to resettlees and host communities have been delivered and are effective and to identify any ongoing or emerging issues. **Management:** Measures to address resettlement are documented in a Resettlement Action Plan; measures are in place to deliver commitments to resettlees and host communities, and to manage any identified issues relating to resettlement, including provision of grievance mechanisms; and formal agreements with resettlees and host communities are publicly disclosed. **Stakeholder Engagement:** Ongoing processes are in place for resettlees and host communities to raise issues and get feedback. **Stakeholder Support:** Resettlees and host communities generally support or have no major on-going opposition to the Resettlement Action Plan. **Conformance/Compliance:** Processes and objectives in the Resettlement Action Plan have been and are on track to be met with no major non-compliances or non-conformances, and any resettlement related commitments have been or are on track to be met. **Outcomes:** Resettlement has been and is being treated in a fair and equitable manner, and resettlees and host communities have experienced or are on track to experience a timely improvement in livelihoods and living standards relative to the pre-project baseline.
4	*All relevant elements of basic good practice have been undertaken and in one or more cases exceeded, but there is one significant gap in the requirements for proven best practice.*
5	**Assessment:** In addition, the assessment of delivery of commitments to resettlees and host communities takes into consideration both risks and opportunities. **Management:** In addition, processes are in place to anticipate and respond to emerging risks and opportunities. **Stakeholder Engagement:** In addition, feedback on how issues raised have been taken into consideration has been thorough and timely, and resettlees and host communities have been involved in decision-making around relevant issues and options. **Stakeholder Support:** In addition, there is consent with legally binding agreements by the resettlees and host communities for the Resettlement Action Plan. **Conformance/Compliance:** In addition, there are no non-compliances or non-conformances. **Outcomes:** In addition, the measures put in place to improve livelihoods and living standards are on track to promote self-sufficiency in the long-term.

Assessment Guidance:

Topic relevance: This topic will not be relevant if there is no requirement for resettlement arising from the project activities.

Resettlement is the process of moving people to a different place to live, because due to the project they are no longer allowed to stay in the area where they used to live.

Livelihood refers to the capabilities, assets (stores, resources, claims and access) and activities required for a means of living. **Improvement of livelihoods** refers to compensatory measures taken to address impacts of the project on pre-project livelihoods so that those affected are able to move forward with viable livelihoods with improved capabilities or assets relative to the pre-project conditions; for example supporting farmers to continue to be able to farm or to pursue alternatives, accompanied by sufficient support mechanisms that not only enable any changes to livelihoods to be well-established but also so that they have increased capabilities or access to the necessary resources (including training, information, materials, access, supplies etc).

Living standards refer to the level of material comfort as measured by the goods, services, and luxuries available to an individual, group, or nation; indicators of household well-being examples include: consumption, income, savings, employment, health, education, nutrition, housing, and access to electricity, clean water, sanitation, health services, educational services, transport, etc.

Resettlees are those people who are required to be resettled, and including those who have formal legal rights, customary or traditional rights, as well as those who have no recognizable rights to the land.

Host communities refers to the communities to which resettlees are relocated.

The socio-economic baseline for resettlement would include analysis of community structures, gender, vulnerable social groups, living standards, and economic valuation of livelihoods and asset loss.

Resettlement Action Plan refers to a document or set of documents specifically developed to identify the actions that will be taken to address resettlement. It would typically include identification of those being resettled; the socio-economic baseline for the resettlees; the measures to be implemented as part of the resettlement process including those relating to resettlement assistance and livelihood support; the legal and compensation frameworks; organisational roles and responsibilities; budget allocation and financial management; the timeframe, objectives and targets; grievance redress mechanisms; monitoring, reporting and review provisions; and understandings around consultation, participation and information exchange. In cases where resettlees' livelihoods have been land-based, and where consistent with resettlees' preferences, strong consideration may be given to land-for-land compensation.

Grievance mechanisms refer to the processes by which stakeholders are able to raise concerns, grievances and legitimate complaints, as well as the project procedures to track and respond to any grievances.

Stakeholder support may be expressed through community members or their representatives, and may be evident through means such as surveys, signatures on plans, records of meetings, verbal advice, public hearing records, public statements, governmental license, court decisions, etc.

Consent means signed agreements with community leaders or representative bodies who have been authorised by the affected communities which they represent, through an independent and self-determined decision-making process undertaken with sufficient time and in accordance with cultural traditions, customs and practices.

Potential interviewees: community representatives affected by resettlement and land acquisition; representatives from resettlement host communities; project social issues manager; representative from the responsible governmental authority; independent reviewer

Examples of evidence: assessment report on resettlement and land acquisition; records of consultation and affected stakeholder involvement; records of response to resettlement and land acquisition issues; third party review report; resettlement action plans; land acquisition plans; compensation agreements; agreements on resettlement action plan; baseline social conditions report; livelihood analysis; impoverishment risk analysis; mitigation, resettlement and development action plans, including project benefit sharing mechanisms; NGO reports; monitoring reports

* This was a topic with two areas of non-consensus in development of the Protocol, both relating to the Stakeholder Support criterion. It is the belief of Oxfam that basic good practice (Level 3) should be "Resettlees and host communities generally support or have no major on-going opposition to the project", and that proven best practice (Level 5) should be "In addition, there is consent with legally binding agreements by the resettlees and host communities for the project", noting that those forced to resettle and host communities may choose to express that consent through their support for a Resettlement Action Plan.

I-11 Indigenous Peoples*

This topic addresses the rights at risks and opportunities of Indigenous Peoples with respect to the project, recognising that as social groups with identities distinct from dominant groups in national societies, they are often the most marginalized and vulnerable segments of the population. The intent is that the project respects the dignity, human rights, aspirations, culture, lands, knowledge, practices and natural resource-based livelihoods of Indigenous Peoples in an ongoing manner throughout the project life.

Scoring:

1	*There are significant gaps relative to basic good practice.*
2	*Most relevant elements of basic good practice have been undertaken, but there is one significant gap.*
3	**Assessment:** Issues that may affect Indigenous Peoples' rights in relation to the project have been identified through an assessment process utilising local knowledge and expertise; and monitoring of project impacts and effectiveness of management measures is being undertaken during project implementation appropriate to the identified rights at risk. **Management:** Measures are in place to address the Indigenous Peoples' rights at risk in relation to the project, and formal commitments are publicly disclosed. **Stakeholder Engagement:** Appropriately-timed, culturally appropriate and two-way channels of communication are maintained; ongoing processes are in place for Indigenous Peoples to raise issues and get feedback; and a mutually-agreed disputes procedure is in place. **Stakeholder Support:** Free, Prior and Informed Consent has been achieved with respect to the Indigenous Peoples' rights at risk following the principle of proportionality. **Conformance/Compliance:** Processes and objectives relating to Indigenous Peoples' rights at risk 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 negative impacts of the project on Indigenous Peoples' rights to be avoided, minimised, mitigated or compensated with no significant gaps, and some practicable opportunities for positive impacts to be achieved.
4	*All relevant elements of basic good practice have been undertaken and in one or more cases exceeded, but there is one significant gap in the requirements for proven best practice.*
5	**Assessment:** In addition, monitoring during project implementation takes into account inter-relationships amongst issues, and both risks and opportunities that become evident during implementation. **Management:** In addition, processes are in place to anticipate and respond to emerging risks and opportunities. **Stakeholder Engagement:** In addition, feedback on how issues raised have been taken into consideration has been thorough and timely. **Stakeholder Support:** In addition, Free, Prior and Informed Consent of directly affected indigenous groups has been achieved for the entire project. **Conformance/Compliance:** In addition, there are no non-compliances or non-conformances. **Outcomes:** In addition, opportunities for positive impacts have been thoroughly identified and maximised as far as practicable.

Assessment Guidance:

Topic relevance: This topic will not be relevant if credible evidence provided shows that there are no Indigenous Peoples in the project affected area.

Indigenous Peoples refers to a distinct social and cultural group possessing the following characteristics in varying degrees: self-identification as members of a distinct indigenous cultural group and recognition of this identity by others; collective attachment to geographically distinct habitats or ancestral territories in the project area and to the natural resources in these habitats and territories; customary cultural, economic, social or political institutions that are separate from those of the dominant society or culture; an indigenous language, often different from the official language of the country or part of the country within which they reside. In some countries, interactions with Indigenous Peoples may be required to be conducted through a specific government agency.

Issues that may affect Indigenous Peoples' rights are ideally self-identified, and may include, for example: impacts of project activities and infrastructure on cultural practices, direct or indirect impacts to traditional lands, impacts to community cohesion, public health risks, disturbance of customary practices, and impeded access to natural resource-based livelihoods.

Indigenous Peoples' rights are documented in places such as in the United Nations Declaration on the Rights of Indigenous Peoples (UNDRIP) and the International Labour Organisation Convention No. 169. They include right to self- determination, right to ownership and property, right to practise and revitalise cultural traditions and customs, right to manifest, practise, develop and teach their spiritual and religious traditions, customs and ceremonies, right to the conservation and protection of the environment and the productive capacity of their lands or territories and resources. Indigenous Peoples' rights are considered at risk when project activities or impacts prevent Indigenous Peoples from exercising their rights.

Measures to address issues that may affect Indigenous Peoples' rights are ideally self-identified, and may include, for example: avoidance measures, protection of cultural practices, land entitlement and protection, health assistance, scheduling of project activities to not disturb customary practices, support for festivals or traditions, improved or more secure access to natural resource-based livelihoods, etc.

Free, Prior and Informed Consent comprises a process and an outcome. The process involves (i) good-faith consultation; (ii) mutual and cross-cultural understanding with dialogue that is ongoing and open, and gender and inter-generationally inclusive whenever possible (with gender and age disaggregated data and analysis); (iii) inclusive and participatory engagement, including during the assessment of issues and the identification of mitigation measures, with clarity on the level of participation of Indigenous Peoples throughout the consultation process; (iv) provision of adequate resources to ensure that the Indigenous Peoples representatives can participate in the FPIC process equitably, including the services of independent technical or legal consultants (such as Indigenous Peoples Organization); (v) mutual agreement on the process and desired outcome from the outset of the consultation; and (vi) documentation that is evaluated on an ongoing basis, is verifiable by a mutually agreed methodology, and made publicly available. The outcome is the agreement and the evidence thereof (including thorough documentation of how the agreement was achieved). Types of evidence include surveys, signatures on plans, records of meetings, video/audio records, public hearing records, public statements, governmental license, court decisions, etc. Recollections of community elders cannot be accepted as evidence without supplementary forms acknowledged by and easily accessible to the counterparties to the agreements. FPIC does not require unanimity or consensus in the indigenous community and does not grant individuals or groups veto rights over a project. At the level of proven best practice, FPIC is to be achieved for the entire project, irrespective of the principle of proportionality.

Principle of proportionality stipulates that the extent of consultation and consent required is proportional to the nature and scope of the indigenous rights that are impacted by the project. Ordinarily, consent will not be required for impacts that are not significant to Indigenous Peoples. However, good-faith consultation is required for this determination. Two situations in which a project must obtain the consent of an indigenous community, are stated in the UN DRIP as follows: (i) when the project will result in the community's relocation from its traditional territories, and (ii) in cases involving the storage or disposal of toxic waste within indigenous lands.

Disputes procedure is a mutually-agreed two-way resolution mechanism allowing for both the Indigenous Peoples and the developer to raise disputes and seek resolution.

Avoid, minimise, mitigate and compensate is a sequential process. Measures to avoid or prevent negative or adverse impacts are always prioritised, and where avoidance is not practicable, then minimisation of adverse impacts is sought. Where avoidance and minimisation are not practicable, then mitigation and compensation measures are identified and undertaken commensurate with the project's risks and impacts.

Potential interviewees: representatives of project affected indigenous communities; project social issues manager; independent reviewer; representative from the responsible governmental authority

Examples of evidence: assessment report on Indigenous Peoples; records of consultation and project affected community involvement; records of response to issues that may affect Indigenous Peoples; third party review report; Indigenous Peoples management plans; agreements on measures for Indigenous Peoples; monitoring reports

*This was a topic of non-consensus among the HSAF in development of the Protocol, relating to the focus of support and consent given by Indigenous Peoples (whether for management plans or for the project itself). A review of the topic was conducted by the Hydropower Sustainability FPIC Working Group in 2019 and an update was approved by the HSGC in 2020. The update led to the inclusion of FPIC requirements in the scoring statements for basic good practice

I-12 Labour and Working Conditions

This topic addresses labour and working conditions, including employee and contractor opportunity, equity, diversity, health and safety. The intent is that workers are treated fairly and protected.

Scoring:

1	*There are significant gaps relative to basic good practice.*
2	*Most relevant elements of basic good practice have been undertaken, but there is one significant gap.*
3	**Assessment:** Human resources and labour management requirements have been identified through an assessment process, including occupational health and safety (OH&S) issues and risks; and processes are in place to identify any emerging or ongoing issues, and to monitor if management measures are effective. **Management:** Human resource and labour management policies, plans and processes are in place that address all labour management planning components, including those of contractors, subcontractors, and intermediaries, with no significant gaps. **Stakeholder Engagement:** Ongoing processes are in place for employees and contractors to raise human resources and labour management issues and get feedback. **Conformance/Compliance:** Processes and objectives relating to human resource and labour management have been and are on track to be met with no major non-compliances or non-conformances, and any labour related commitments have been or are on track to be met. **Outcomes:** There are no identified inconsistencies of labour management policies, plans and practices with internationally recognised labour rights.
4	*All relevant elements of basic good practice have been undertaken and in one or more cases exceeded, but there is one significant gap in the requirements for proven best practice.*
5	**Assessment:** In addition, the assessment takes broad considerations into account, and both risks and opportunities. **Management:** In addition, processes are in place to anticipate and respond to emerging risks and opportunities. **Stakeholder Engagement:** In addition, feedback on how issues raised have been taken into consideration has been thorough and timely. **Conformance/Compliance:** In addition, there are no non-compliances or non-conformances. **Outcomes:** In addition, labour management policies, plans and practices are demonstrated to be consistent with internationally recognised labour rights.

Assessment Guidance:

Labour management planning components include: human resources policies, staff and workforce planning, occupational health and safety, equal opportunity, staff development and training, grievance mechanisms, and (where appropriate) collective bargaining mechanisms

Occupational health and safety is about protecting the safety, health and welfare of people engaged in work or employment, for example through preventing disease or injury that might arise as a direct result of the workplace activities.

Intermediaries are workers engaged through third parties who are either performing work directly related to the functions essential for the project for a substantial duration, or who are geographically working at the project location.

Broad considerations might be exhibited by, for example: a broad view of relevant issues; a broad approach to types of data collection and important indicators; a focus on interrelationships amongst issues; a broad analysis of trends, approaches and existing and emerging standards relating to labour and working conditions; understanding of relevant human rights; etc.

Internationally recognised labour rights are documented in places such as the IFC Performance Standard 2, the International Labour Organisation standards, and the Human Rights Council 2008 Report of John Ruggie "Protect, Respect and Remedy: a Framework for Business and Human Rights". They include freedom of association, right to equal pay for equal work, right to organize and participate in collective bargaining, right to equality at work, right to non-discrimination, right to just and favourable remuneration, abolition of slavery and forced labour, right to a safe work environment, abolition of child labour, right to rest and leisure, right to work, right to family life. Evidence of no inconsistencies would be no policies, plans or practices that show workers are prevented from the ability to exercise these rights; evidence of consistency could be for example an analysis of alignment.

Potential interviewees: project human resources staff; company human resources staff; project manager, contracted workforce manager, project safety officer; staff or contractor representatives; external experts; unions and shop stewards; female workers

Examples of evidence: policies, plans and programs relating to human resources, employees, contractors, equity, occupational health and safety, workforce planning, and grievance mechanisms; national and international standards for labour and OH&S; HSE monitoring records, including accident and incident investigation reports and investigation procedures

I-13 Cultural Heritage

This topic addresses cultural heritage, with specific reference to physical cultural resources, associated with the hydropower facility. The intent is that physical cultural resources are identified, their importance is understood, and measures are in place to address those identified to be of high importance.

Scoring:

1	*There are significant gaps relative to basic good practice.*
2	*Most relevant elements of basic good practice have been undertaken, but there is one significant gap.*
3	**Assessment:** Cultural heritage issues, with respect to physical cultural resources, that are relevant to project implementation and operation have been identified through an assessment process utilising appropriate expertise; and monitoring is being undertaken during the project implementation stage appropriate to the identified issues. **Management:** Processes are in place to ensure management of identified cultural heritage issues, and to meet commitments, relevant to the project implementation stage; plans are in place for the operation stage for ongoing cultural heritage issues management. **Stakeholder Support:** There is general support or no major ongoing opposition amongst directly affected stakeholder groups for the cultural heritage assessment, planning or implementation measures. **Conformance/Compliance:** Processes and objectives in place to manage cultural heritage issues have been and are on track to be met with no major non-compliances or non-conformances, and cultural heritage related commitments have been or are on track to be met. **Outcomes:** Negative cultural heritage impacts arising from project implementation are avoided, minimised, mitigated and compensated with no significant gaps.
4	*All relevant elements of basic good practice have been undertaken and in one or more cases exceeded, but there is one significant gap in the requirements for proven best practice.*
5	**Assessment:** In addition, monitoring of cultural heritage issues during project implementation takes into account inter-relationships amongst issues, and both risks and opportunities that become evident during implementation. **Management:** In addition, processes are in place to anticipate and respond to emerging risks and opportunities. **Stakeholder Support:** In addition, formal agreements with the directly affected stakeholder groups have been reached for cultural heritage management measures. **Conformance/Compliance:** In addition, there are no non-compliances or non-conformances. **Outcomes:** In addition, negative cultural heritage impacts arising from project implementation are avoided, minimised, mitigated and compensated with no identified gaps; and contributions to addressing cultural heritage issues beyond those impacts caused by the project are achieved or are on track to be achieved.

Assessment Guidance:

Topic relevance: This topic will not be relevant if credible evidence provided shows that there were no physical cultural resources identified in the project-affected area, and that there are no physical cultural resources identified in the area affected by the operating hydropower facility.

Cultural heritage refers to the legacy of physical artefacts and intangible attributes of a group or society that are inherited from past generations, maintained in the present and bestowed for the benefit of future generations.

Physical cultural resources refer to movable or immovable objects, sites, structures, groups of structures, and natural features and landscapes that have archaeological, paleontological, historical, architectural, religious, aesthetic, or other cultural significance. Physical cultural resources may be located in urban or rural settings, and may be above or below ground, or under water. Their cultural interest may be at the local, provincial or national level, or within the international community.

Non-physical cultural heritage examples include: traditions, festivals, rituals, folklore, storytelling, drama, etc. If of relevance, these should be addressed under Topic I-3 Environmental and Social Issues Management in this Protocol assessment.

Cultural heritage issues may include, for example: inundation of important sites or artefacts under the new reservoir; damage or destruction to important sites or artefacts due to construction activities; loss of access to important sites due to changes to access routes (e.g. new canals or linear infrastructure with barrier fencing, major roads); disturbance of spirits associated with special sites; etc.

Processes to manage cultural heritage issues may include, for example: documentation and record-keeping; relocation; creation of protected areas; new access routes; appeasement ceremonies; etc.

Stakeholder support may be expressed through community members or their representatives, and may be evident through means such as surveys, signatures on plans, records of meetings, verbal advice, public hearing records, public statements, governmental license, court decisions, etc.

Avoid, minimise, mitigate and compensate is a sequential process. Measures to avoid or prevent negative or adverse impacts are always prioritised, and where avoidance is not practicable, then minimisation of adverse impacts is sought. Where avoidance and minimisation are not practicable, then mitigation and compensation measures are identified and undertaken commensurate with the project's risks and impacts.

Protection means to keep in safety and protect from harm, decay, loss, damage or destruction.

Interrelationships amongst issues could include, for example, erosion and sedimentation effects on important heritage locations, risks of vandalism or theft by contractors or the public, etc.

Cultural heritage opportunities may include, for example: partnerships with heritage organisations; establishment of initiatives recognising heritage values such as festivals, museums or visiting experts; programmes to preserve traditional activities; access to special grants for heritage protection works; exhibits; educational initiatives; etc.

Potential interviewees: project environmental and social issues manager, local cultural heritage expert, representative from relevant government department (e.g. heritage or environment); external experts; project affected community representatives

Examples of evidence: cultural heritage impact statements; conservation plans; records of consultation and response to stakeholder issues; heritage plans and agreements; national and international standards; monitoring and inspection reports; record of training of employees on chance find procedure

I-14 Public Health

This topic addresses public health issues associated with the hydropower project. The intent is that the project does not create or exacerbate any public health issues, that improvements in public health are achieved through the project in project-affected areas where there are significant pre-existing public health issues, and that commitments made by the project to implement public health measures are fulfilled.

Scoring:

1	*There are significant gaps relative to basic good practice.*
2	*Most relevant elements of basic good practice have been undertaken, but there is one significant gap.*
3	**Assessment:** Public health issues relevant to project implementation and operation have been identified through an assessment process utilising appropriate expertise; and monitoring is being undertaken during the project implementation stage appropriate to the identified issues. **Management:** Processes are in place to ensure management of identified public health issues, and to meet commitments, relevant to the project implementation stage; plans are in place for the operation stage for ongoing public health issues management including hand-over to local authorities as appropriate. **Conformance/Compliance:** Processes and objectives in place to manage public health issues have been and are on track to be met with no major non-compliances or non-conformances, and public health related commitments have been or are on track to be met. **Outcomes:** Negative public health impacts arising from project activities are avoided, minimised and mitigated with no significant gaps.
4	*All relevant elements of basic good practice have been undertaken and in one or more cases exceeded, but there is one significant gap in the requirements for proven best practice.*
5	**Assessment:** In addition, monitoring of public health issues during project implementation takes into account inter-relationships amongst issues, and both risks and opportunities for different community groups that become evident during implementation. **Management:** In addition, processes are in place to anticipate and respond to emerging risks and opportunities. **Conformance/Compliance:** In addition, there are no non-compliances or non-conformances. **Outcomes:** In addition, negative public health impacts arising from project implementation are avoided, minimised, mitigated and compensated with no identified gaps; and enhancements to pre-project public health conditions or contributions to addressing public health issues beyond those impacts caused by the project are achieved or are on track to be achieved.

Assessment Guidance:

Topic relevance: This topic will always be relevant, because even in with the case in which there are no individuals or communities living in the project affected area, there will be residents in the area due to the new project and issues, risks and opportunities should be identified and planned for

Public health issues examples include: disease introduced by construction workforce (e.g. HIV, Aids); vector borne diseases (e.g. malaria, schistosomiasis); communicable and non-communicable diseases, malnutrition, psychological disorders, social well-being; loss or contamination of traditional resources; mercury or heavy metal bio-accumulation; etc.

Risks and opportunities for different community groups could be with respect to, for example: gender, age, ethnicity, use of and access to traditional medicines, etc.

Avoid, minimise, mitigate and compensate is a sequential process. Measures to avoid or prevent negative or adverse impacts are always prioritised, and where avoidance is not practicable, then minimisation of adverse impacts is sought. Where avoidance and minimisation are not practicable, then mitigation and compensation measures are identified and undertaken commensurate with the project's risks and impacts.

Public health opportunities examples include: improved access to electricity, clean water and sanitation; development or upgrading of public health facilities; provision of equipment, training, health education, immunisations; increased access to low-cost, high-quality protein diet through increased availability of fish, etc.

Health needs, issues and risks for different community groups would be with respect to, for example: gender, age, ethnicity, use of and access to traditional medicines, etc.

Public health management measures examples include: measures to reduce mosquito-borne disease risks; storing of medical supplies and immunisations; educational, awareness and disease prevention training; water quality testing; etc.

Potential interviewees: project social issues manager, independent public health expert, representative from government health department, project affected community representatives

Examples of evidence: public health issues and opportunities assessment; public health management plans; national and international standards; regional statistics

I-15 Biodiversity and Invasive Species

This topic addresses ecosystem values, habitat and specific issues such as threatened species and fish passage in the catchment, reservoir and downstream areas, as well as potential impacts arising from pest and invasive species associated with the project. The intent is that there are healthy, functional and viable aquatic and terrestrial ecosystems in the project-affected area that are sustainable over the long-term; that biodiversity impacts arising from project activities are managed responsibly; and that commitments to implement biodiversity and invasive species measures are fulfilled.

Scoring:

1	*There are significant gaps relative to basic good practice.*
2	*Most relevant elements of basic good practice have been undertaken, but there is one significant gap.*
3	**Assessment:** Biodiversity issues relevant to project implementation and operation have been identified through an assessment process utilising appropriate expertise; and monitoring is being undertaken during the project implementation stage appropriate to the identified issues. **Management:** Processes are in place to ensure management of identified biodiversity issues, and to meet commitments, relevant to the project implementation stage; and plans are in place for the operation stage for ongoing biodiversity issues management. **Conformance/Compliance:** Processes and objectives in place to manage biodiversity issues have been and are on track to be met with no major non-compliances or non-conformances, and biodiversity related commitments have been or are on track to be met. **Outcomes:** Negative biodiversity impacts arising from project activities are avoided, minimised, mitigated, and compensated with no significant gaps.
4	*All relevant elements of basic good practice have been undertaken and in one or more cases exceeded, but there is one significant gap in the requirements for proven best practice.*
5	**Assessment:** In addition, monitoring of biodiversity issues during project implementation takes into account inter-relationships amongst issues, and both risks and opportunities that become evident during implementation. **Management:** In addition, processes are in place to anticipate and respond to emerging risks and opportunities. **Conformance/Compliance:** In addition, there are no non-compliances or non-conformances. **Outcomes:** In addition, negative biodiversity impacts arising from project implementation are avoided, minimised, mitigated and compensated with no identified gaps; and enhancements to pre-project biodiversity conditions or contribution to addressing biodiversity issues beyond those impacts caused by the project are achieved or are on track to be achieved.

Assessment Guidance:

Biodiversity issues may include, for example: loss of habitat; fish migration barriers; loss of spawning grounds; loss of habitat connectivity; loss or declines in important food chain species; loss of wetlands; poaching, hunting or over-exploitation of significant species; introduction of weed or pest species; etc.

Measures to address biodiversity may include, for example: catchment protection, creation of reserves, habitat conservation and improvement, species management plans, translocations, habitat rehabilitation, new habitat creation, managed flow releases, etc. Measures to address passage of aquatic species may include, for example: fish ladders, fish elevators, catch and release programs, fish hatcheries, re-stocking programs, mechanisms for diversion away from turbines for downstream passage, assisted cues (water chemistry, operational conditions), etc. Measures to address invasive species may include, for example: physical barriers to pest species passage, pollution control, physical removal or containment, chemical treatment, reservoir water residence times, managed flow releases, etc.

Avoid, minimise, mitigate and compensate is a sequential process. Measures to avoid or prevent negative or adverse impacts are always prioritised, and where avoidance is not practicable, then minimisation of adverse impacts is sought. Where avoidance and minimisation are not practicable, then mitigation and compensation measures are identified and undertaken commensurate with the project's risks and impacts.

Compensate in the context of biodiversity impacts in cases may be in the form of establishing or supporting offset programs. **Offsets** are measurable conservation outcomes resulting from actions designed to compensate for significant adverse biodiversity impacts arising from project development and persisting after appropriate avoidance, minimization, and restoration measures have been taken. Generally, these are not within the project site.

Biodiversity opportunities may include, for example, forming partnerships with wildlife protection groups; catchment management committees and projects; joint research ventures around fish passage or hatcheries; employing or working with local communities to act as wardens for protected areas; creation of business ventures from non-timber forest resources, capacity building and educational initiatives, eco-tourism ventures, creation of bird and waterfowl sanctuaries, fish protection zones, wetland protection, etc.

Potential interviewees: project environmental issues manager; aquatic and terrestrial ecologists; project design engineers (in relation to fish passage); representatives of relevant government departments (e.g. fisheries, wildlife, environment, forests); representatives of local communities; independent experts

Examples of evidence: assessment of terrestrial biodiversity; assessment of aquatic biodiversity; fish studies; fish passage technical feasibility assessments; third party review reports; biodiversity management plans; invasive species management plans; commitments and agreements; economic and livelihood valuation from fish catch and non-timber forest products baselines from local communities; monitoring reports

I-16 Erosion and Sedimentation

This topic addresses the management of erosion and sedimentation issues associated with the project. The intent is that erosion and sedimentation caused by the project is managed responsibly and does not present problems with respect to other social, environmental and economic objectives; that external erosion or sedimentation occurrences which may have impacts on the project are recognised and managed; and that commitments to implement measures to address erosion and sedimentation are fulfilled.

Scoring:

1	*There are significant gaps relative to basic good practice.*
2	*Most relevant elements of basic good practice have been undertaken, but there is one significant gap.*
3	**Assessment:** Erosion and sedimentation issues relevant to project implementation and operation have been identified through an assessment process utilising appropriate expertise; and monitoring is being undertaken during the project implementation stage appropriate to the identified issues. **Management:** Processes are in place to ensure management of identified erosion and sedimentation issues, and to meet commitments, relevant to the project implementation stage; plans are in place for the operation stage for ongoing erosion and sedimentation issues management. **Conformance/Compliance:** Processes and objectives in place to manage erosion and sedimentation issues have been and are on track to be met with no major non-compliances or non-conformances, and erosion and sedimentation related commitments have been or are on track to be met. **Outcomes:** Erosion and sedimentation issues during project implementation are avoided, minimised and mitigated with no significant gaps.
4	*All relevant elements of basic good practice have been undertaken and in one or more cases exceeded, but there is one significant gap in the requirements for proven best practice.*
5	**Assessment:** In addition, monitoring of erosion and sedimentation issues during project implementation takes into account inter-relationships amongst issues, and both risks and opportunities that become evident during implementation. **Management:** In addition, processes are in place to anticipate and respond to emerging risks and opportunities. **Conformance/Compliance:** In addition, there are no non-compliances or non-conformances. **Outcomes:** In addition, erosion and sedimentation issues during project implementation are avoided, minimised, mitigated and compensated with no identified gaps; and enhancements to pre-project erosion and sedimentation conditions or contribution to addressing erosion and sedimentation issues beyond those impacts caused by the project are achieved or are on track to be achieved.

Assessment Guidance:

Erosion and sedimentation issues include impacts that may be caused by project construction and other implementation activities, and issues that may impact on the project over its life. Impacts that may be caused by project implementation may include direct land disturbance due to construction activities, or indirect land disturbances such as landslips arising from blasting. Consideration of what is an issue needs to take into account that there will be landscape adjustments brought about by the hydropower project that continue for many years until a new equilibrium is reached, particularly in the downstream river channels; negative impacts would therefore be considered those erosion and sedimentation occurrences caused by the project that present problems with respect to other social, environmental and/or economic objectives, or externally caused occurrences of erosion or sedimentation that impact on the ability of the project to meet its own social, environmental or economic objectives.

Issues that may impact on the project over its life might, for example, be naturally high sediment loads which may impact on the reservoir life, wear and tear of turbines, increased maintenance needs for tunnels, canals and other water conduits; or landslips or land disturbances due to other catchment activities or natural events that could increase sediment loads into the reservoir or adversely affect transport routes, etc.

Measures to address erosion and sedimentation issues might include, for example: catchment treatment works such as sediment check structures; water management measures such as to avoid turbidity or shoreline erosion; reforestation and re-vegetation activities; measures to address land use practices; etc.

Avoid, minimise, mitigate and compensate is a sequential process. Measures to avoid or prevent negative or adverse impacts are always prioritised, and where avoidance is not practicable, then minimisation of adverse impacts is sought. Where avoidance and minimisation are not practicable, then mitigation and compensation measures are identified and undertaken commensurate with the project's risks and impacts.

Erosion and sedimentation opportunities may include, for example, forming partnerships with land-use protection or catchment management groups; joint research projects around erosion or sedimentation management; new technologies; carbon credits for reforestation with benefits of erosion and sedimentation risk reduction; etc.

Potential interviewees: project environmental manager; government representative (e.g. from environment department), independent expert

Examples of evidence: erosion and sedimentation assessment reports; erosion and sedimentation management plans for construction and operation; records of monitoring of surface waters

I-17 Water Quality

This topic addresses the management of water quality issues associated with the project. The intent is that water quality in the vicinity of the project is not adversely impacted by project activities; that water quality issues are monitored and addressed as required; and commitments to implement measures to address water quality are fulfilled.

Scoring:

1	*There are significant gaps relative to basic good practice.*
2	*Most relevant elements of basic good practice have been undertaken, but there is one significant gap.*
3	**Assessment:** Water quality issues relevant to project implementation and operation have been identified through an assessment process utilising appropriate expertise; and monitoring is being undertaken during the project implementation stage appropriate to the identified issues. **Management:** Processes are in place to ensure management of identified water quality issues, and to meet commitments, relevant to the project implementation stage; and plans are in place for the operation stage for ongoing water quality issues management. **Conformance/Compliance:** Processes and objectives in place to manage water quality issues have been and are on track to be met with no major non-compliances or non-conformances, and water quality related commitments have been or are on track to be met. **Outcomes:** Negative water quality impacts arising from project activities are avoided, minimised and mitigated with no significant gaps.
4	*All relevant elements of basic good practice have been undertaken and in one or more cases exceeded, but there is one significant gap in the requirements for proven best practice.*
5	**Assessment:** In addition, monitoring of water quality issues during project implementation takes into account inter-relationships amongst issues, and both risks and opportunities that become evident during implementation. **Management:** In addition, processes are in place to anticipate and respond to emerging risks and opportunities. **Conformance/Compliance:** In addition, there are no non-compliances or non-conformances. **Outcomes:** In addition, negative water quality impacts arising from project implementation are avoided, minimised, mitigated and compensated with no identified gaps; and enhancements to pre-project water quality conditions or contribution to addressing water quality issues beyond those impacts caused by the project are achieved or are on track to be achieved.

Assessment Guidance:

Water quality issues examples at the construction stage include: turbidity, elevated nutrients, pollutants from construction activity such as oil, chemical or lubricant spills, etc. River pollution during construction is generically addressed by this topic and is often detected by water quality monitoring. A water quality issue during construction could be elevated turbidity levels caused by erosion or soil disturbance issues, in which case there is overlap with Topic I-16 and it may be best addressed by erosion plans. It could be elevated nutrient levels caused by sewage problems, in which case there is overlap with Topic I-18 and it is best addressed in waste management plans. This topic also covers planning for water quality issues at the operation stage, which could include for example: reduced oxygenation, aseasonal temperatures, stratification potential, pollutant inflow, nutrient capture, algal bloom potential, release of toxicants from inundated sediments, etc.

Measures to address water quality at the construction stage are often oriented around avoidance or mitigation of spot issues e.g. oil bunding, sediment traps, etc. At the operation stage the measures are often longer-term and may be built into design features; they may include, for example: design features such as a multi-level off-take; water management measures such as to ensure adequate water circulation and through-flow; vegetation management to address organic decomposition; addressing pollutants from non-project activities such as sewage, wastes, contaminated sites, etc.

Monitoring for water quality may be built into other plans and processes, e.g. visual inspections undertaken for operational purposes.

Avoid, minimise, mitigate and compensate is a sequential process. Measures to avoid or prevent negative or adverse impacts are always prioritised, and where avoidance is not practicable, then minimisation of adverse impacts is sought. Where avoidance and minimisation are not practicable, then mitigation and compensation measures are identified and undertaken commensurate with the project's risks and impacts.

Water quality opportunities may include, for example: addressing pollutants from non-project activities such as sewage, wastes, contaminated sites; groundwater stabilisation, improved water quality through oxygenation or temperature dispersion; new technologies; new service providers; partnerships with community waterway health monitoring groups; participating in or forming catchment management groups to address water quality issues at the catchment level; etc.

Potential interviewees: project environmental manager; government representative (e.g. from environment department), independent expert

Examples of evidence: water quality monitoring reports; water quality management plans for construction and operation

I-18 Waste, Noise and Air Quality

This topic addresses the management of waste, noise and air quality issues associated with the project. The intent is that noise and air quality in the vicinity of the project are of a high quality and not adversely impacted by project activities, and that project wastes are responsibly managed.

Scoring:

1	*There are significant gaps relative to basic good practice.*
2	*Most relevant elements of basic good practice have been undertaken, but there is one significant gap.*
3	**Assessment:** Waste, noise and air quality issues relevant to project implementation and operation have been identified through an assessment process utilising appropriate expertise; and monitoring is being undertaken during the project implementation stage appropriate to the identified issues. **Management:** Processes are in place to ensure management of identified waste, noise and air quality issues, and to meet commitments, relevant to the project implementation stage; and plans are in place for the operation stage for ongoing waste management. **Conformance/Compliance:** Processes and objectives relating to waste, noise and air quality have been and are on track to be met with no major non-compliances or non-conformances, and any related commitments have been or are on track to be met. **Outcomes:** Negative noise and air quality impacts arising from project activities are avoided, minimised and mitigated with no significant gaps, and project wastes managed responsibly
4	*All relevant elements of basic good practice have been undertaken and in one or more cases exceeded, but there is one significant gap in the requirements for proven best practice.*
5	**Assessment:** In addition, monitoring of waste, noise and air quality issues during project implementation takes into account inter-relationships amongst issues, and both risks and opportunities that become evident during implementation. **Management:** In addition, processes are in place to anticipate and respond to emerging risks and opportunities. **Conformance/Compliance:** In addition, there are no non-compliances or non-conformances. **Outcomes:** In addition, negative noise and air quality impacts arising from project activities are avoided, minimised, mitigated and compensated with no identified gaps; project wastes are managed responsibly; and the project contributes to addressing waste management issues beyond those impacts caused by the project.

IMPLEMENTATION

Assessment Guidance:

Avoid, minimise, mitigate and compensate is a sequential process. Measures to avoid or prevent negative or adverse impacts are always prioritised, and where avoidance is not practicable, then minimisation of adverse impacts is sought. Where avoidance and minimisation are not practicable, then mitigation and compensation measures are identified and undertaken commensurate with the project's risks and impacts.

Potential interviewees: project environmental manager; government representative (e.g. from environment department), independent expert

Examples of evidence: waste, noise and air quality monitoring reports; waste, noise and air quality management plans for construction and operation

I-19 Reservoir Preparation and Filling

This topic addresses management of environmental, social and economic issues within the reservoir area during project implementation, and planning for reservoir management for the operating hydropower facility. The intent is that reservoir preparation and filling is well managed, taking into account construction, environmental and social management requirements, and future power generation operation, maintenance and multi-purpose uses where relevant.

Scoring:

1	*There are significant gaps relative to basic good practice.*
2	*Most relevant elements of basic good practice have been undertaken, but there is one significant gap.*
3	**Assessment:** The important considerations prior to and during reservoir filling and during operations have been identified through an assessment process; and monitoring of implementation activities is being undertaken appropriate to any identified issues. **Management:** Measures are in place to address identified needs during reservoir preparation and filling; and plans are in place to manage the reservoir and any associated issues for the operating hydropower facility. **Conformance/Compliance:** Processes and objectives in place for reservoir management have been and are on track to be met with no major non-compliances or non-conformances, and reservoir management related commitments have been or are on track to be met.
4	*All relevant elements of basic good practice have been undertaken and in one or more cases exceeded, but there is one significant gap in the requirements for proven best practice.*
5	**Assessment:** In addition, monitoring of reservoir preparation and filling activities takes into account inter-relationships amongst issues, and both risks and opportunities that become evident during implementation. **Management:** In addition, processes are in place to anticipate and respond to emerging risks and opportunities. **Conformance/Compliance:** In addition, there are no non-compliances or non-conformances

Assessment Guidance:

Topic relevance: This topic is relevant if there is any storage of water.

Reservoir refers to any artificial pondage or lake used by the project for the storage and regulation of water.

Reservoir area refers to the area that is inundated when the reservoir is at its maximum expected level and the dry buffer zone above this level.

Considerations prior to reservoir filling refers to preparations for any significant timing elements of construction, social or environmental management plans which might have bearing on the reservoir area; examples include: clearing of vegetation, management of contaminated or cultural heritage sites that would be inundated, construction of boat ramps, preparation of areas to receive relocated wildlife, etc.

Considerations during reservoir filling examples include: safety, wildlife management, land or slope stability, timing of reservoir filling in relation to resettlement or other management activities, etc.

Considerations for reservoir operations examples include: optimising power generation, maintenance requirements, debris management (particularly an issue in monsoon prone parts of the world),

multiple uses (e.g. commercial, recreational), safety, flood management, shoreline erosion, reservoir sedimentation, public access, water quality, biodiversity, invasive species, water-borne diseases, monitoring, etc.

Potential interviewees: project manager; construction manager; project environmental and social issues managers; local government representative

Examples of evidence: integrated project management plans; construction management plans; reservoir design documents; model output for reservoir operations; relevant excerpts of environmental and social impact assessments and management plans; reservoir operating rules

I-20 Downstream Flow Regimes

This topic addresses the flow regimes downstream of project infrastructure during the project implementation stage. The intent is that flow regimes downstream of project infrastructure are planned and delivered with an awareness of and measures incorporated to address environmental, social and economic objectives affected by those flows.

Scoring:

1 *There are significant gaps relative to basic good practice.*

2 *Most relevant elements of basic good practice have been undertaken, but there is one significant gap.*

3 **Assessment:** Issues in relation to flow regimes downstream of project infrastructure during the project implementation stage have been identified and assessed; and monitoring is undertaken to assess effectiveness of flow management measures or any emerging issues during project implementation.

Management: In the case that a need to address downstream flow regimes has been identified, measures are in place to manage identified downstream flow issues; and where formal commitments have been made, these are publicly disclosed.

Conformance/Compliance: In the case that a need to address downstream flow regimes has been identified, processes and objectives in place to manage downstream flows have been and are on track to be met with no major non-compliances or non-conformances, and downstream flow related commitments have been or are on track to be met.

Outcomes: In the case that a need to address downstream flow regimes has been identified and commitments to downstream flow regimes have been made, these take into account environmental, social and economic objectives, and where relevant, agreed transboundary objectives.

4 *All relevant elements of basic good practice have been undertaken and in one or more cases exceeded, but there is one significant gap in the requirements for proven best practice.*

5 **Assessment:** In addition, monitoring of downstream flow issues takes into account inter-relationships amongst issues, and both risks and opportunities that become evident during implementation.

Management: In addition, processes are in place to anticipate and respond to emerging risks and opportunities.

Conformance/Compliance: In addition, there are no non-compliances or non-conformances.

Outcomes: In the case that a need to address downstream flow regimes has been identified and commitments to downstream flow regimes have been made, in addition these represent an optimal fit amongst environmental, social and economic objectives within practical constraints of the present circumstances.

Assessment Guidance:

Topic relevance: This topic will always be relevant, because processes should be in place to identify any ongoing or emerging issues relating to downstream flow regimes during project implementation. If there are no issues identified, then the topic is scored on the Level 3 statement for the Assessment criterion, and the Level 5 statements for the Assessment, Management and Conformance/ Compliance criteria. If issues are identified, then all other statements are relevant.

Flow regimes is with reference to the fact that there may be multiple sites at which flows are affected by project infrastructure, e.g. downstream of a diversion dam as well as downstream of the main dam or the turbines.

Downstream flow regimes might be specified for different components and stages of projects in a manner such as, for example: minimum flows in part of certain seasons, maximum flows in part of certain seasons. Individual countries may have laws specifying downstream flow requirements; in such circumstances it will be necessary to see how social, economic and environmental considerations can still be taken into account. In cases where the downstream impact of the project on flow regimes extends beyond the jurisdiction in which the project is found, any implications of this would need to be taken into consideration.

Optimal in this context means best fit once all identified environmental, social and economic considerations have been factored in, based on the outcomes of a consultative process; the best fit may in fact be no flow at all in a particular river reach because another river reach has objectives that are considered of higher priority.

Potential interviewees: project manager; hydrologist; project environmental and social issues managers; aquatic ecologist; independent environmental flows expert; stakeholder representatives; project affected community representatives; downstream riparian community representatives; representative from the responsible governmental authority; downstream transboundary community representatives if relevant

Examples of evidence: assessment of downstream flows in relation to flow-related objectives; downstream flow regime plans specifying range, variability and verification location; system operations plans; design documents in relation to release mechanisms; records of consultation and stakeholder involvement; records of response to stakeholder issues; third party review report; commitments and agreements; monitoring reports

I-21 Climate Change Mitigation and Resilience

This topic addresses the estimation and management of the project's greenhouse gas (GHG) emissions, analysis and management of the risks of climate change for the project, and the project's role in climate change adaptation. The intent is that the project's GHG emissions are consistent with low carbon power generation, the project is resilient to the effects of climate change, and the project contributes to wider adaptation to climate change.

Scoring:

1 *There are significant gaps relative to basic good practice.*

2 *Most relevant elements of basic good practice have been undertaken, but there is one significant gap.*

3

Assessment:

For climate mitigation: power density has been calculated; if power density is below 5 W/m^2, net GHG emissions (gCO_2e) of electricity generation have been estimated and independently-verified; if power density is below 5 W/m^2 and estimated emissions are above 100 gCO_2e/kWh, a site-specific assessment of GHG emissions has been undertaken.

For climate resilience: an assessment of the project's resilience to climate change has been undertaken, which incorporates an assessment of plausible climate change at the project site, identifies a range of resulting climatological and hydrological conditions at the project site, and applies these conditions in a documented risk assessment or stress test that encompasses dam safety, other infrastructural resilience, environmental and social risks, and power generation availability.

Management:

If GHG emissions estimates assume design and management measures relevant to the implementation stage, these measures are in place; measures relevant to the implementation stage are in place to avoid or reduce the identified climate risks.

Stakeholder Engagement:

For climate mitigation: power density calculations, estimated GHG emissions, and / or the results of a site-specific assessment have been publicly disclosed.

For climate resilience: ongoing processes are in place for stakeholders to raise issues and get feedback on the management of climate risks.

Conformance/Compliance:

Processes and objectives relating to climate change mitigation and resilience have been and are on track to be met with no major non-compliances or non-conformances, and any mitigation-related and resilience-related commitments have been or are on track to be met.

Outcomes:

For climate mitigation: the project's GHG emissions are demonstrated to be consistent with low carbon power generation.

For climate resilience: plans will deliver a project that is resilient to climate change under a range of scenarios.

4 *All relevant elements of basic good practice have been undertaken and in one or more cases exceeded, but there is one significant gap in the requirements for proven best practice.*

5

Assessment:

For climate mitigation: in addition, if a site-specific assessment is required, it incorporates a broad range of scenarios, uncertainties and risks.

For climate resilience: in addition, assessment of resilience incorporates sensitivity analysis, and project-specific hydrological modelling using recognized climate models; and an assessment of the project's potential adaptation services has been undertaken.

Management:

For climate mitigation: in addition, design and management measures relevant to the implementation stage are in place to respond to risks and opportunities including offsetting emissions; plans are in place to monitor parameters used in GHG emissions estimates or to monitor GHG stocks.

For climate resilience: in addition, resilience measures relevant to the implementation stage take account of a broad range of risks and inter-relationships; and plans are in place to provide adaptation services if necessary.

Stakeholder Engagement:

In addition, the assessment of project resilience has been publicly disclosed.

Conformance/Compliance:

In addition, there are no non-compliances or non-conformances.

Outcomes:

For climate mitigation: in addition, project net emissions are minimised or project operations facilitate system emissions reductions.

For climate resilience: in addition, the project is resilient under a broad range of scenarios; and the project will contribute to climate change adaptation at local, regional or national levels.

Assessment Guidance:

Climate change mitigation is defined, by the Inter-governmental Panel on Climate Change (IPCC, Fifth Assessment Report, glossary), as a human intervention to reduce the sources or enhance the sinks of GHG and other substances which may contribute directly or indirectly to climate change.

Resilience is the capacity of social, economic and environmental systems to cope with a hazardous event or trend or disturbance, responding or reorganizing in ways that maintain their essential function, identity and structure, while also maintaining the capacity for adaptation, learning and transformation (IPCC, Fifth Assessment Report, glossary).

Climate Change adaptation is defined by the Inter-governmental Panel on Climate Change (IPCC, Fifth Assessment Report, glossary) as the process of adjustment to actual or expected climate and its effects. In human systems, adaptation seeks to moderate or avoid harm or exploit beneficial opportunities. In some natural systems, human intervention may facilitate adjustment to expected climate and its effects. Hydropower-specific examples include flood control and drought management.

Power density is calculated using the average reservoir area (the area of flooded land, net of the pre-impoundment water body) and the capacity of the power facilities in the project fed by this water body. A number of facilities may be included where they are part of one project or scheme being developed and assessed (for example, a scheme of two facilities in a cascade, or a project with main and ecological power plants). Existing or separately planned facilities that will form a cascade with the

project being assessed are not included in this calculation.

Net GHG emissions estimates should deliver an estimate of emissions in gCO^2e per kWh, using a recognized tool such as the G-res tool or site-specific calculations. Recognised tools or site-specific calculations should take into account pre-impoundment GHG emissions from the catchment, post-impoundment GHG emissions from the catchment, unrelated anthropogenic sources, emissions from construction and ongoing operational activities, the life cycle of the water body of at least 100 years, and the allocation of emissions between electricity generation and other services provided by multipurpose projects. Estimates made using a tool such as the G-res Tool should have been independently verified.

The estimation of GHG emissions may be an **iterative process** during design and preparation. For projects with emissions estimated at more than 100 gCO^2e per kWh, design, construction and operational measures would be identified to lower emissions below this figure.

A broad range of scenarios, uncertainties and risks in emissions assessment would encompass potential changes in the catchment, trends and risks related to anthropogenic sources of carbon inflows, inter-relationships between issues such as project construction and in-migration, the influence of climate change-induced temperature increases and altered inflows.

Estimates of pre-impoundment emissions should be based on measurements of sufficient spatial and temporal extent and resolution, whether as part of site-specific assessments, or the establishment of a pre-impoundment baseline.

Design and management measures relevant to the implementation stage that influence GHG emissions include the construction of the project as designed (the reservoir area, retention time, the off-take level and multi-level off-takes etc), and other measures such as clearance of biomass in the reservoir area, vehicle fleet management and transport planning, and the selection of cement supplier.

Measures that can be taken during implementation that may reduce emissions include clearance of biomass in the reservoir area, vehicle fleet management and transport planning, and the selection of cement supplier.

Measures to respond to risks of higher emissions than anticipated may include design features or operational measures that can be instigated in response to emissions measurements. Active involvement in the development of the catchment to minimise carbon inflows would also minimise risks.

Opportunities concerning emissions reductions include opportunities to add additional renewables facilities, such as floating solar, or take opportunities to increase power density with further expansion.

Consistency with low carbon power generation may be demonstrated by alignment with national plans for mitigation, and: a power density greater than or equal to 5 W/m^2; or net emissions intensity that is less than internationally-recognised thresholds at the time of the assessment (such as less than 100 gCO^2e/kWh); or emissions reductions at the system level.

For the purposes of the assessment, **system emissions** shall mean greenhouse gas emissions associated with the local, regional or national grid to which the project is connected.

An assessment of **plausible climate change** would use all available secondary information, and follow a sequential approach such as: a. obtain all relevant historical climatological and hydrological data for the project area, and identify observed climatological and hydrological trends, including extreme events at a river basin scale; b. obtain data from global, regional or basin-scale climate models relevant to the project area, for a range of scenarios, and assess the degree of consistency between them; c. based on a and b, establish plausible climatological and hydrological conditions for the

project site.

Climatological conditions at the project site refers to annual averages, seasonal averages, and ranges of temperatures and precipitation, changes in the type and seasonal distribution of precipitation, and extreme weather events. Changes in these conditions will have effects on **hydrological and other conditions** including, for example, run-off, altered seasonal patterns of run-off, glacial melt or altered timing of glacial melt, intensity of floods and droughts, presence of ice (resulting in ice jams or affecting infrastructure such as power lines), frequency or magnitude of landslides, and sediment transport.

A **risk assessment or stress test** would be documented, for example in a risk register or matrix. This would set out the range of potential risks and hazards, assess the probability and magnitude of the impacts of each. It would identify and prioritise measures to avoid, minimise and mitigate the risks and impacts, and promote an approach of decision-making under uncertainty.

Measures relevant to the implementation stage for project resilience include the construction of design features, climate resilient temporary structures (coffer dams, diversion tunnels, workers' camps etc), and non-engineering measures such as risk monitoring and risk management plans, disaster risk reduction and management plans, or other climate risk management plans.

Sensitivity analysis in the assessment of resilience refers to analysis of the increased probability and severity of impacts in relation to ranges of conditions.

Risks and inter-relationships in resilience refers to lower probability risks, and inter-relationships between issues, for example an increase in temperatures resulting in increased peak electricity demand which results in increased downstream flow variations for communities.

Environmental and social risks refers to the increased risk for the local environment and communities that result from the project within a context of a changing climate. For example downstream environmental flows may not be feasible with decreased flows resulting from climate change. This risk needs to be assessed and suitable mitigation developed.

Conversely, the project may have opportunities to provide **adaptation services** to the local environment and communities, above and beyond the risks created by the project. For example, these may include the provision of water for irrigation, drought preparedness programmes, flood preparedness programmes and early warning systems, and community infrastructure such as water supplies.

Public disclosure of emissions calculations is important for credibility. Public disclosure of power density refers to the disclosure of the details of the calculation, demonstrating how the calculation conforms to the definition of power density above and public information on the project design.

In stakeholder engagement, it is important that plans for the management of increased dam safety and environmental and social risks have been discussed with stakeholders, for example in the development of plans for emergency preparedness.

National or regional policies and plans relevant to mitigation may include NDCs (nationally-determined contributions), NAMAs (nationally-appropriate mitigation actions), national climate change mitigation plans, etc. A project would fit with national or regional policies and plans if, for example, generation with similar emissions are cited in policies and plans, or the project is below baseline power sector emissions. In some jurisdictions there may be more stringent requirements for emissions than values in the scoring statements, and the project should fit with the requirements applying currently. There are also likely to be national policies plans and commitments on adaptation (for example national adaptation plans).

Potential interviewees: GHG emissions assessment

researchers; verifier of GHG emissions assessment; design engineers; hydrologists; environmental manager; social experts; ESIA consultants; dam safety engineers; regional and national climate scientists; designated national authorities (DNAs); disaster preparedness authorities; emergency response services.

Examples of evidence: power density calculation; results of G-res Tool application or other tool; verification report on G-res Tool application; climate change studies in the region; analysis of plausible climate change, and conditions at the project site; risk assessment or stress tests; national and regional policies and plans on mitigation and adaptation; feasibility study; operational plans; environmental and social management plans; disaster preparedness and response plans; minutes of meetings with stakeholders; evidence of public disclosure, etc.

Glossary of Terms

Additional Benefits: Benefits for the region that can be leveraged from the project.

Accountability: Obligation of an individual, firm, or institution to account for its activities, accept responsibility for them, and to disclose the results in a transparent manner.

Accountable: Responsible to or liable to account for someone or for some activity.

Adequate: Sufficient or enough to satisfy a requirement or meet a need.

Agreement: A recorded understanding between individuals, groups or entities to follow a specific course of conduct or action. It may be incorporated into, for example, a memorandum of understanding, minutes of a meeting, a letter of intent, a joint statement of principles, a contract, an operating licence, etc.

Appropriate: Suitable for a particular person, condition, occasion, or place; fitting; meeting identified needs or requirements.

Baseline: A set of measurements, statistics, or conditions used as a basis for later comparison. The baseline refers to the pre-project conditions, prior to the initiation of the project, against which post-project changes can be compared. For operating hydropower facilities, if a pre-project baseline does not exist then the present condition is taken as the baseline.

Commitment: A binding pledge or promise to do, give, or refrain from doing something.

Community Groups: Groups of people with common characteristics or interests living together within the larger society. There are many different ways to view these groups, and these will need to be defined in meaningful ways for the project. These may include, by way of example, urban dwellers, rural dwellers, Indigenous Peoples, ethnic minorities, people of a common profession or religion, disabled, elderly, illiterate, women, men, children, etc.

Compliance: Adherence to legal requirements, policies and public commitments.

Comprehensive: All relevant components have been considered and addressed.

Conformance: Addresses the level of conformance of implementation measures with most up-to-date project-related plans.

Consent: Signed agreements with community leaders or representative bodies who have been authorised by the affected communities which they represent, through an independent and self-determined decision-making process undertaken with sufficient time and in accordance with cultural traditions, customs and practices.

Corruption: Lack of integrity or honesty (especially susceptibility to bribery); use of a position of trust for dishonest gain.

Credible: Capable of being believed; plausible; worthy of confidence; reliable.

Cultural Heritage: The legacy of physical artefacts and intangible attributes of a group or society that are inherited from past generations, maintained in the present and bestowed for the benefit of future generations.

Cumulative Impacts: Cumulative impacts are those that result from the incremental impact of the project when added to other past, present, and reasonably foreseeable future actions. Effects should be assessed in terms of the capacity of the water resource, ecosystem, and/or affected communities to accommodate such impacts. Analyses need to be defined within realistic boundaries.

Deception: The fact or state of being deceived; to be given cause to believe what is not true; to be mislead.

Developer: The lead entity or consortium of entities investing in the development of a hydropower project.

Directly Affected Stakeholder: Those stakeholders with substantial rights, risks and responsibilities in relation to the issue. These may be inside the project affected area (e.g. project affected communities) or outside the project-affected area (e.g. government regulators, finance institution representatives, or investment partners).

Disclosure: Made publicly available (see also "Publicly disclosed").

Economic Displacement: Loss of assets, access to assets, or income sources or means of livelihoods as a result of (i) acquisition of land, (ii) changes in land use or access to land, (iii) restriction on land use or access to natural resources including water resources, legally designated parks, protected areas or restricted access areas such as reservoir catchments and (iv) changes in environment leading to health concerns or impacts on livelihoods. Economic displacement applies whether such losses and restrictions are full or partial, and permanent or temporary.

Effective: Producing or capable of producing an intended, expected and/or desired effect.

Engaged: Interacted with, often through consultation processes.

Equitable: Fair, just or impartial

Evidence: Evidence provided by an auditee and used by an assessor to verify whether and to what degree a criterion has been met. Evidence can be qualitative or quantitative information, records or statements of fact, either verbal or documented. It is retrievable or reproducible; not influenced by emotion or prejudice; based on facts obtained through observation, measurements, documentation, tests or other means; factual; reproducible; objective and verifiable.

Expert: A person with a high degree of skill in or knowledge of a certain subject, as a result of a high degree of experience or training in that subject.

Gender Analysis: The process of assessing the impact that an activity may have on females and males, and on gender relations. It can be used to ensure that men and women are not disadvantaged by development activities, to enhance the sustainability and effectiveness of activities, or to assess and build capacity and commitment to gender sensitive planning.

Governance: The combination of processes and structures that inform, direct, manage and monitor the activities of the project toward the achievement of its objectives.

Grievance Mechanisms: The processes by which stakeholders are able to raise concerns, grievances and legitimate complaints, as well as the project procedures to track and respond to any grievances.

Human Rights: The basic rights and freedoms to which all humans are entitled, encompassing civil, political, economic, social, and cultural rights, and enshrined in international declarations such as the Universal Declaration on Human Rights 1948.

Hydrological Resource: Water inflows to the project.

Impact: Effect or consequence of an action or event; the degree to which an impact is interpreted as negative or positive depends on context and perspective.

Independent Review: Expert review by someone not employed by the project and with no financial interest in profits made by the project.

Indigenous Peoples: A distinct social and cultural group possessing the following characteristics in varying degrees: self-identification as members of a distinct indigenous cultural group and recognition of this identity by others; collective attachment to geographically distinct habitats or ancestral territories in the project area and to the natural resources in these habitats and territories; customary cultural, economic, social or political institutions that are separate from those of the dominant society or culture; an indigenous language, often different from the official language of the country or region.

Integrated: Merged, interspersed, embedded into something.

Integrated Water Resources Management (IWRM): A process which promotes the coordinated development and management of water, land and related resources, in order to maximize the resultant economic and social welfare in an equitable manner without compromising the sustainability of vital ecosystems.

Intermediaries: Workers engaged through third parties who are either performing work directly related to the functions essential for the project for a substantial duration, or who are geographically working at the project location.

Invasive Species: A species that does not naturally occur in a specific area and whose introduction does or is likely to cause economic or environmental harm or harm to human health.

Land Rehabilitation: The process of returning the land to some degree of its former state after disturbance or damage associated with project implementation.

Legacy Issues: Impacts of previous projects that are unmitigated or not compensated with a similar good or service, or long-standing issues with a present (existing) project, or pre-existing issues in the present location of a new project.

Livelihood: The capabilities, assets (stores, resources, claims and access) and activities required for a means of living.

Living Standards: The level of material comfort as measured by the goods, services, and luxuries available to an individual, group, or nation; indicators of household well-being; examples include: consumption, income, savings, employment, health, education, nutrition, housing, and access to electricity, clean water, sanitation, health services, educational services, transport, etc.

Local: Administrative subdivisions of a national territory (e.g. with reference to local land use plans)

Long-Term: The planned life of the hydropower project.

Maintenance: The work of keeping something in proper condition; upkeep.

Management Plan: A management plan is a tool used as a reference for managing a particular project issue, and establishes the why, what, how, who, how much, and when for that issue.

Management System: The framework of processes and procedures used to ensure that an organisation can fulfil all tasks required to achieve its objectives.

Maximised: Achieved to as great an extent practicable, taking into account all constraints.

Minimised: Achieved to as little an extent practicable, taking into account all constraints.

Mitigation: Moderation, alleviation, and/or relief of a negative impact

Non-Compliance: Not meeting legal, licence, contractual or permit obligations

Non-Conformance: Not meeting targets and objectives in the management plans; these may or may not be publicly stated commitments, but they are not legally binding and violation can not incur legal action.

Non-Critical: Not essential for something to be suitable, adequate and/or effective

Occupational Health and Safety: Protecting the safety, health and welfare of people engaged in work or employment, for example through preventing disease or injury that might arise as a direct result of the workplace activities.

Offset: Measurable conservation outcomes resulting from actions designed to compensate for significant adverse biodiversity impacts arising from project development and persisting after appropriate avoidance, minimization, and restoration measures have been taken. Generally, these are not within the project site.

Optimal: Best fit, once all considerations have been factored in, based on the outcomes of a consultative process

Optimisation Process: The process by which alternatives have been considered towards determining the best fit

Outstanding: Not settled or resolved.

Plans: Management measures to address an identified issue, that may or may not be formalised into business management plans. Plans can include documented planned arrangements, for example based on agreements for forward actions made at meetings. Plans may also be those of the developer, owner or operator, or plans of the relevant government agency or other institution which has the primary responsibility for that sustainability topic. Plans can also be those developed by the contractor responsible for implementation.

Political Risk: A risk of financial loss or inability to conduct business faced by investors, corporations, and governments due to government policy changes, government action preventing entry of goods, expropriation or confiscation, currency inconvertibility, politically-motivated interference, government instability, or war.

Practicable: Capable of being done with means at hand and circumstances as they are.

Process: A series of actions, changes, or functions bringing about a result.

Procurement: The acquisition of goods and/or services at the best possible cost, in the right quality and quantity, at the right time, in the right place and from the right source for the direct benefit or use of the hydropower project or operating facility, generally via a contract.

Programme: Relates to the hydropower development programme, which encompasses all project components (construction, environmental, social, resettlement, finance and procurement, and communications, etc.).

Project-Affected Area: The catchment, reservoir, and downstream of the project site and associated dams, and the area affected by any associated developments (e.g. roads, transmissions lines, quarries, construction villages, relocation areas, etc).

Project Affected Communities: The interacting population of various kinds of individuals in the project affected area who are affected either positively or negatively by the hydropower project preparation, implementation and/or operation.

Project Catchment: The portion of the river basin that drains into the project reservoirs, either to pass ultimately through the generation turbines or to spill over the dams into the downstream rivers.

Project Components: Components of the overall hydropower development programme, including design, construction, environmental, social, resettlement, finance, communications and procurement.

Project Lands: The land that is owned, utilised and/or affected by the project.

Protection: To keep in safety and protect from harm, decay, loss, damage or destruction.

Publicly Disclosed: The public is informed that the agreement, commitment, assessment, management plan or significant report has been made or completed, and it is made publicly available either voluntarily (e.g. posted on a website) or on request in a timely manner.

Refurbishment: The state of being restored to its former good condition.

Regional: Refers to a supranational entity in an international context. To refer to administrative subdivisions of a national territory (e.g. with reference to local land use plans) this protocol uses the designation of local.

Relevant: Directly related, connected, applicable, current or pertinent to a topic. In the Protocol, relevance will be determined based on project-specific considerations and analyses. Project representatives make a case for what is relevant and provide evidence to support this, e.g. support of regulatory authorities; the assessor views and seeks evidence to affirm relevance.

Reservoir: Any artificial pondage or lake used by the project for the storage and regulation of water.

Reservoir Area: The area that is inundated when the reservoir is at its maximum expected level and the dry buffer zone above this level.

Resettlement: The process of moving people to a different place to live, because due to the project they are no longer allowed to stay in the area where they used to live.

Resettlees: Those people who are required to be resettled, including those who have formal legal rights, customary or traditional rights, as well as those who have no recognizable rights to the land.

River Basin: The area drained by a river and all its tributaries

Resettlement Action Plan: A document or set of documents specifically developed to identify the actions that will be taken to address resettlement. It would typically include identification of those being resettled; the socio-economic baseline for the resettlees; the measures to be implemented as part of the resettlement process including those relating to resettlement assistance and livelihood support; the legal and compensation frameworks; organisational roles and responsibilities; budget allocation and financial management; the timeframe, objectives and targets; grievance redress mechanisms; monitoring, reporting and review provisions; and understandings around consultation, participation and information exchange.

Sensitivity Analysis: Investigation into how projected performance varies along with changes in the key assumptions on which the projections are based

Short-Term: Covers day-to-day operations.

Significant: Important in effect or consequence, or relatively large.

Stakeholder: One who is interested in, involved in or affected by the hydropower project and associated activities.

Stakeholder Group: A set of stakeholders with common characteristics or interests.

Strategic Fit: The compatibility of the project with local, national and regional needs identified through the priorities and objectives put forth in options assessments and other relevant local, national and regional and multi-national policies and plans.

Suitable: Appropriate for the desired purpose, condition or occasion.

Timely: Occurring at a suitable or opportune time

Transboundary Agreements: Agreements made amongst riparian states about how shared water resources will be utilised by the parties involved, and the processes that will be followed to sustain these understandings.

Transparent / Transparency: Open to public scrutiny, publicly available, and/or able to be viewed or disclosed to the public on request.

Upgrade: To improve to a higher grade or standard.

Vulnerable Social Groups: Social groups who are marginalised or impoverished with very low capacity and means to absorb change.

Understanding the Protocol's Gradational Approach

The gradational approach undertaken in the Preparation, Implementation and Operation assessments tools can be understood by examination of Table 1. This table provides general guidance on characteristics that are likely to be exhibited for these different criteria at the five different scoring levels. The scoring statements found in the Preparation, Implementation and Operation assessment tools have been guided by the approach shown in Table 1. This table is not intended to be the basis for assigning of scores, as sufficient information should be provided on the topic pages. However, this table can be referred to during an assessment if there is insufficient information in the topic scoring statements and in the topic-specific assessment guidance to help the assessor to determine a score. If there are questions in the assessment process about whether the assessment, management and stakeholder engagement approaches are sufficient for basic good practice, Table 1 may be of assistance.

Table 1 - Understanding the Protocol's Gradational Approach

This table captures characteristics that are likely to be exhibited at different scoring levels for each of the criteria used in the Hydropower Sustainability Assessment Protocol.

Level	Assessment	Management
5	Suitable, adequate and effective assessment with no significant opportunities for improvement. In addition to basic good practice (Level 3), the assessment is likely to take a relatively broad, external or regional view or perspective; emphasise opportunities; and show a high level examination of interrelationships amongst relevant sustainability issues.	Suitable, adequate and effective management processes with no significant opportunities for improvement. In addition to basic good practice (Level 3), management plans and processes are likely to show excellent anticipation of, and response to, emerging issues or opportunities; senior management and/or executive decisions are likely to be timely, efficient and effective in response to monitoring data, investigations and issues arising; and, in cases, commitments in plans are public, formal and legally enforceable.
4	Suitable, adequate and effective assessment with only a few minor gaps. In addition to basic good practice (Level 3), the assessment is likely to exhibit some recognition of broader, external or regional issues; opportunities; and interrelationships amongst relevant sustainability issues.	Suitable, adequate and effective management processes with only a few minor gaps. In addition to basic good practice (Level 3), management plans and processes are likely to exhibit good anticipation of, and response to, emerging issues or opportunities; and, in cases, commitments in plans are public and formal.
3	Suitable adequate and effective assessment with no significant gaps. This would typically encompass (as appropriate to the topic and life cycle stage) identification of the baseline condition including relevant issues, appropriate geographic coverage, and appropriate data collection and analytical methodologies; identification of relevant organisational roles and responsibilities, and legal, policy and other requirements; appropriate utilisation of expertise and local knowledge; and appropriate budget and time span. At level 3 the assessment encompasses the considerations most relevant to that topic, but tends to have a predominantly project-focussed view or perspective and to give stronger emphasis to impacts and risks than it does to opportunities.	Suitable, adequate and effective management processes with no significant gaps. These would typically encompass (as appropriate to the topic and life cycle stage) development and implementation of plans that: integrate relevant assessment or monitoring findings; are underpinned by policies; describe measures that will be taken to address the considerations most relevant to that topic; establish objectives and targets; assign roles, responsibilities and accountabilities; utilise expertise appropriate to that topic; allocate finances to cover implementation requirements with some contingency; outline processes for monitoring, review and reporting; and are periodically reviewed and improved as required.
2	A significant gap in assessment processes relative to basic good practice (Level 3).	A significant gap in management processes relative to basic good practice (Level 3).
1	Significant gaps in assessment processes relative to basic good practice (Level 3)	There are significant gaps in management processes relative to basic good practice (Level 3)

Stakeholder Engagement	Stakeholder Support	Outcomes	Conformance/ Compliance
Suitable, adequate and effective stakeholder engagement processes with no significant opportunities for improvement. In addition to basic good practice (Level 3), the engagement is likely to be inclusive and participatory with the directly affected stakeholders; thorough feedback is likely to be available on how directly affected stakeholder issues are taken in to consideration; in cases, there is likely to be directly affected stakeholder involvement in decision-making; and information identified through engagement processes to be of high interest to stakeholders is released publicly in a timely and easily accessible manner.	There is support of nearly all directly affected stakeholder groups for the assessment, planning or implementation measures for that topic, or no opposition by these stakeholders. In cases formal agreements or consent with the directly affected stakeholder groups have been reached for management measures for that topic.	In addition to basic good practice (Level 3), there may be exhibited enhancements to pre-project conditions; contributions to addressing issues beyond those impacts caused by the project; leveraging of opportunities; or significant contribution to capacity building.	No non-compliances or non-conformances.
Suitable, adequate and effective stakeholder engagement processes with only a few minor gaps. In addition to basic good practice (Level 3), there is likely to be good feedback on how directly affected stakeholder issues have taken into consideration; and information on sustainability topics understood to be of high interest to stakeholders is voluntarily released publicly.	There is support of a large majority of directly affected stakeholder groups for the assessment, planning or implementation measures for that topic, or only very low level opposition by these stakeholders.	In addition to basic good practice (Level 3), there may be exhibited full compensation of negative impacts; some positive enhancements; or evidence of capacity building associated with the project.	Very few minor non-compliances and non-conformances that can be readily remedied.
Suitable, adequate and effective stakeholder engagement processes with no significant gaps. These would typically encompass (as appropriate to the topic and life cycle stage): Identification of directly affected stakeholders; Appropriate forms, timing, frequency and locations of stakeholder engagement, often two-way; Freedom for affected stakeholders to participate; Attention to special stakeholder engagement considerations relating to gender, minorities, cultural sensitivities, level of literacy, and those who might require particular assistance; Mechanisms by which stakeholders can see that their issues are recognised and acknowledged, and how they have been or are being responded to; and disclosure of information on significant sustainability topics (in cases, this may be on request).	There is general support amongst directly affected stakeholder groups for the assessment, planning or implementation measures for that topic, or no significant ongoing opposition by these stakeholders.	As appropriate to the topic and the life cycle stage, there may be exhibited avoidance of harm, minimisation and mitigation of negative impacts; fair and just compensation; fulfilment of obligations; or effectiveness of implementation plans.	No major non-compliances and non-conformances.
A significant gap in stakeholder engagement processes relative to basic good practice (Level 3).	There is support amongst some directly affected stakeholder groups for the assessment, planning or implementation measures for that topic, with some opposition.	A significant gap relative to basic good practice (Level 3), for example, some deterioration in baseline condition.	A major non-compliance or non-conformance.
There are significant gaps in stakeholder engagement processes relative to basic good practice (Level 3).	There is low support amongst directly affected stakeholder groups for the assessment, planning or implementation measures for that topic, or a majority oppose.	Significant gaps relative to basic good practice (Level 3), for example deterioration in baseline conditions with delay or difficulties in addressing negative impacts.	major non-compliances and non-conformances.

Hydropower Sustainability Assessment Protocol

Operation
Assessment Tool

May 2020

Published by:

iha
international hydropower association

Acknowledgements

The Hydropower Sustainability Assessment Protocol is the product of the considerable effort of many parties. The members of the Hydropower Sustainability Assessment Forum spent two and a half years deeply involved in research, analyses, meetings, outreach, trialling, review, exchanging views, negotiating content and finding solutions to divergent views. Many had reference groups that were very active in following the Forum process and informing the views of Forum members. The Forum was funded by substantial donations from the governments of Norway, Iceland and Germany, supplemented by funding from the International Hydropower Association, The Nature Conservancy, The World Bank Group, and The World Wide Fund for Nature (WWF). In addition, the in-kind contributions of the Forum members and many supporting organisations were considerable.

The Protocol reflects the intellectual contributions of these many players, and the end product has been enabled because of a shared vision that it can make a significant contribution to advancing sustainable hydropower. The members of the Forum and those reference groups and organisations that have worked with these individuals are gratefully acknowledged:

Developing Countries

Dr Yu Xuezhong, Research Professor, **China Institute of Water Resources and Hydropower Research**, PR China

Mr Zhou Shichun, Senior Engineer, **China Hydropower Engineering Consulting Group Co.,** PR China

Mr Israel Phiri, Manager PPI, **Ministry of Energy and Water Development**, Zambia

Developed Countries

Mr Geir Hermansen, Senior Advisor, Department of Energy, **Norad**, Norway

Prof Gudni A Johannesson, Director General, **National Energy Authority**, Iceland

Ms Kirsten Nyman, Policy Advisor for Sustainable Hydropower, **GTZ**, Germany (observer)

Finance Sector - Economic Aspects

Ms Courtney Lowrance, Director, Environmental and Social Risk Management, Citigroup Global Markets Inc, member of the **Equator Principles Financial Institutions**

Ms Daryl Fields, Senior Water Resources Specialist, **The World Bank** (observer)

Hydropower Sector

Dr Refaat Abdel-Malek, President, **International Hydropower Association**

Mr Andrew Scanlon, Manager Business Sustainability, **Hydro Tasmania**

NGOs - Environmental Aspects

Mr David Harrison, Senior Advisor, Global Freshwater Team, **The Nature Conservancy**

Dr Joerg Hartmann, WWF Dams Initiative Leader, **World Wide Fund for Nature (WWF)**

NGOs - Social Aspects

Mr Michael Simon, Lead, People, Infrastructure and Environment Program, **Oxfam**

Dr Donal O'Leary, Senior Advisor, **Transparency International**

Forum Chair

Mr André Abadie, Director, **Sustainable Finance Ltd**

Forum Coordinator

Dr Helen Locher, Sustainability Forum Coordinator, **International Hydropower Association**

Contents

The Hydropower Sustainability Assessment Protocol

The Hydropower Sustainability Assessment Protocol (the "Protocol") is a sustainability assessment framework for hydropower projects and operations. It outlines the important sustainability considerations for a hydropower project, and enables production of a sustainability profile for that project. The four Protocol assessment tools – Early Stage, Preparation, Implementation, and Operation – are designed to be stand-alone assessments applied at particular stages of the project life cycle. An assessment with one tool does not depend on earlier stage assessments to have been undertaken. The assessment tools are designed to be applicable up to major decision points in the project life cycle, and are most effective where there are repeat applications to help guide continuous improvement measures. The assessment tools and associated decision points are shown in Figure 1.

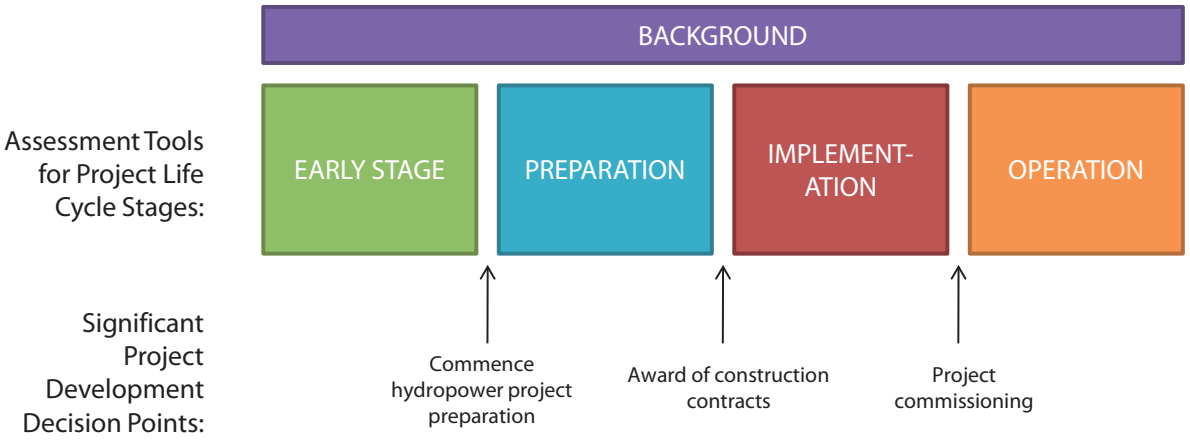

Figure 1 - Protocol Assessment Tools and Major Decision Points

Overview of the Operation Assessment Tool

This document provides the Operation assessment tool, and assumes that the user has already made him or herself familiar with the Protocol Background which describes the overall approach and use of the Protocol assessment tools. The Operation assessment tool assesses the operation of a hydropower facility. This Protocol assessment tool can be used to inform the view that the facility is operating on a sustainable basis with active measures in place towards monitoring, compliance and continuous improvement.

Recognising that hydropower facilities can be in operation for a period as long as a century, this section addresses quite a broad set of circumstances, ranging from newly commissioned projects to those that have been in operation for many decades. Many operational projects may have been prepared and commissioned prior to any legislative requirements for environmental impact assessments, and the systems they have in place are oriented around the conditions of their licence to operate. First and foremost, an operating hydropower facility is expected to comply with the laws and concessions/permits of the government. The Protocol offers a complementary tool, on a voluntary basis and in the spirit of continuous improvement, that identifies opportunities for improvement with respect to sustainability criteria relevant to an international context.

The approach of the Operations assessment tool is similar to that of ISO 14001, in that the existing condition is taken as the baseline, and risks are assessed against that condition. The Assessment criterion looks in many cases to see if any ongoing or emerging issues have been identified. Identification processes could take many forms, for example through field inspections, review of data collected in-house or by other agencies, national and international policy scans, mechanisms to be aware of stakeholder issues and concerns, etc. The processes in place to identify issues may not be specific to that issue (e.g. not necessarily dedicated monitoring programs for water quality, cultural heritage, etc) but may be general processes that enable issues to be identified (e.g. policy scans, visual inspections, meetings with regulators, and stakeholder issue raising mechanisms could all be processes which enable any specific type of issue to be identified). Ongoing issues refer to unresolved issues associated with the operation of the hydropower facility that have been of concern for a period of time. They could be legacy issues. Emerging issues could be those arising from changes to policies, legislation, standards, stakeholder expectations, or physical changes to the environment in which the facility operates.

If issues are identified, the Management criterion looks to see if measures have been put in place to manage these issues. Measures could take many forms; for example continued monitoring, more intensive monitoring, a risk assessment or scenario analyses, improvement to communications, negotiations, commissioning studies, implementation of management responses, development of plans for future implementation if the risks continue to emerge, etc.

The Operations assessment tool also refers to commitments, which would be with respect to those made by the present owner/operator or predecessor entity where those commitments are transferred to the new owner, or made by another agency with the primary responsibility for delivery. If there are no relevant commitments with respect to that topic, then references to commitments can be ignored. If there are disputes about the currency of historical commitments (i.e. legacy issues), these should be treated as an ongoing issue. In many cases changes incurred due to project development may not be able to be remediated, so measures to address legacy issues may need to take the form of new initiatives that recognise the importance of the changes that occurred in the past and make some other form of contribution or recognition of this.

Given the potential for a very long life for operating hydropower facilities, there is likely to be some completion, hand-over or other closure of management of issues at some point in time. At some point, delivery of commitments or management programs should be considered complete, ideally at a point at which the management measures are seen to be effective and self-sustaining. This would need to be understood in the assessment process. For example, in many cases a project may make commitments to public health issues around the time and for a period after project development and commissioning, but at some point responsibility for these issues would go to the appropriate government agency. The assessment is focussed on current issues and risks in relation to the operations of the hydropower facility, and how these are being addressed.

Monitoring to assess if management measures are effective could also take many forms, and must take into account that over the life of a project it cannot be assumed that issues will be monitored forever. If a condition such as water quality is shown by evidence to be in a sustainable good quality condition, then processes in place to identify any emerging issues may not need to be met by water quality monitoring conducted by the operating facility, but rather could be through visual inspections, data collected by other agencies, good stakeholder relations with community water watch groups, etc. Involvement of the facility in a catchment management committee or other such community groups can be a good way to keep abreast of any concerns or emerging issues.

Operation Topic Relevance Guide

Not all topics in the Operation assessment tool will be relevant for every operating hydropower facility. The representative of the hydropower facility would make a case for a topic to be not relevant and present evidence to support this. The assessor reviews the evidence and draws a conclusion, documenting the evidence cited, the quality of the evidence, and the basis for this conclusion. Some examples could be:

- No cultural heritage issues associated with the operating facility ➔ Cultural Heritage topic is not relevant
- No Indigenous Peoples in the area affected by the operating facility ➔ Indigenous Peoples topic is not relevant

Three topics are included that have particular relevance only in the case that there were well-documented commitments made at the time of project approval, and data on the pre-project baseline against which to compare post-project. These are O-8 Project Benefits, O-9 Project-Affected Communities and Livelihoods, and O-10 Resettlement. In the case that there are issues for these topics but do not meet the relevance requirements under the Assessment Guidance for that topic, the issues are assessed in Topic O-3 Environmental and Social Issues Management.

O-1 Communications and Consultation

This topic addresses ongoing engagement with project stakeholders, both within the company as well as between the company and external stakeholders (e.g. affected communities, governments, key institutions, partners, contractors, catchment residents, etc). The intent is that stakeholders are identified and engaged in the issues of interest to them, and communication and consultation processes maintain good stakeholder relations throughout the project life.

Scoring:

1	*There are significant gaps relative to basic good practice.*
2	*Most relevant elements of basic good practice have been undertaken, but there is one significant gap.*
3	**Assessment:** Ongoing or emerging issues relating to hydropower facility communications and consultation have been identified; requirements and approaches are determined through a periodically updated assessment process involving stakeholder mapping; and effectiveness is monitored. **Management:** Communications and consultation plans and processes, including an appropriate grievance mechanism, are in place to manage communications and engagement with stakeholders; these outline communication and consultation needs and approaches for various stakeholder groups and topics. **Stakeholder Engagement:** The operation stage involves appropriately timed and scoped, and often two-way, engagement with directly affected stakeholders; engagement is undertaken in good faith; ongoing processes are in place for stakeholders to raise issues and get feedback. **Conformance/Compliance:** Processes and objectives relating to communications and consultation have been and are on track to be met with no major non-compliances or non-conformances, and communications related commitments have been or are on track to be met.
4	*All relevant elements of basic good practice have been undertaken and in one or more cases exceeded, but there is one significant gap in the requirements for proven best practice.*
5	**Assessment:** In addition, the stakeholder mapping takes broad considerations into account. **Management:** In addition, communication and consultation plans and processes show a high level of sensitivity to communication and consultation needs and approaches for various stakeholder groups and topics; and processes are in place to anticipate and respond to emerging risks and opportunities. **Stakeholder Engagement:** In addition, engagement is inclusive and participatory; negotiations are undertaken in good faith; and feedback on how issues raised have been taken into consideration has been thorough and timely. **Conformance/Compliance:** In addition, there are no non-compliances or non-conformances.

Assessment Guidance:

Stakeholders are those who are interested in, involved in or affected by the hydropower project and associated activities.

Stakeholder mapping refers to identification and grouping of stakeholders in a meaningful way, for example based on stakeholder rights, risks and responsibilities. An example of "rights" would be land rights.

Directly Affected Stakeholders are those stakeholders with substantial rights, risks and responsibilities in relation to the issue. These may be inside the project affected area (e.g. project affected communities) or outside the project-affected area (e.g. government regulators, finance institution representatives, or investment partners).

Grievance mechanisms refer to the processes by which stakeholders are able to raise concerns, grievances and legitimate complaints, as well as the project procedures to track and respond to any grievances.

Needs and approaches for stakeholder groups could be with respect to, for example: cultural norms, gender, literacy level, vulnerable social groups, disabilities, logistical constraints, etc.

Good faith engagement is engagement that is undertaken with an honest intent to reach a mutually satisfactory understanding on the issues of concern.

Processes in place for stakeholders to raise issues could include, for example: a contact person on the company website, public meetings, periodic public briefings or question/answer opportunities, participation of company staff on stakeholder or catchment committees, etc.

Feedback on stakeholder issues could be demonstrated by means such as, for example: emails, records of telephone conversations, written correspondence, meeting minutes, media releases, provision of responses to frequently asked questions on company website, etc.

Broad considerations could be with respect to, for example: the geographic or compositional extent of stakeholder groups identified and considered, the interrelationships amongst stakeholder groups, the level of consideration of rights, risks and responsibilities, etc.

Processes to anticipate emerging risks and opportunities could include, for example, participation of project representatives in a catchment management committee.

Good faith negotiation involves (i) willingness to engage in a process; (ii) provision of information necessary for informed negotiation; (iii) exploration of key areas of importance; (iv) mutually acceptable procedures for negotiation; (v) willingness to modify position; (vi) provision of sufficient time to both parties for decision-making; (vii) agreements on proposed compensation framework, mitigation measures, and development interventions.

Potential interviewees: power station or company communications or public relations staff; stakeholder representatives; project affected communities representatives

Examples of evidence: project stakeholder mapping document; project communications and/or consultation plans; communications protocols; grievance mechanisms; monitoring reports

O-2 Governance

This topic addresses corporate and external governance considerations for the operating hydropower facility. The intent is that the owner/operator has sound corporate business structures, policies and practices; addresses transparency, integrity and accountability issues; can manage external governance issues (e.g. institutional capacity shortfalls, political risks including transboundary issues, public sector corruption risks); and can ensure compliance.

Scoring:

1 *There are significant gaps relative to basic good practice.*

2 *Most relevant elements of basic good practice have been undertaken, but there is one significant gap.*

3 **Assessment:** Ongoing or emerging political and public sector governance issues, and corporate governance requirements and issues have been identified, and monitoring is being undertaken to assess if corporate governance measures are effective.

Management: Processes are in place to manage corporate, political and public sector risks, compliance, social and environmental responsibility, procurement of goods and services, grievance mechanisms, ethical business practices, and transparency; policies and processes are communicated internally and externally as appropriate; in case of capacity shortfalls, appropriate external expertise is contracted for additional support.

Stakeholder Engagement: The business interacts with a range of directly affected stakeholders to understand issues of interest to them; and the business makes significant project reports publicly available, and publicly reports on project performance, in some sustainability areas.

Conformance/Compliance: The project has no major non-compliances.

Outcomes: There are no significant unresolved corporate and external governance issues identified.

4 *All relevant elements of basic good practice have been undertaken and in one or more cases exceeded, but there is one significant gap in the requirements for proven best practice.*

5 **Assessment:** In addition, there are no significant opportunities for improvement in the assessment of political and public sector governance issues and corporate governance requirements and issues.

Management: In addition, contractors are required to meet or have consistent policies as the developer; procurement processes include anti-corruption measures as well as sustainability and anti-corruption criteria specified in pre-qualification screening; and processes are in place to anticipate and respond to emerging risks and opportunities.

Stakeholder Engagement: In addition, the business makes significant project reports publicly available and publicly reports on project performance in sustainability areas of high interest to its stakeholders.

Conformance/Compliance: The project has no non-compliances.

Outcomes: In addition, there are no unresolved corporate and external governance issues identified.

Assessment Guidance:

Governance broadly refers to the combination of processes and structures that inform, direct, manage and monitor the activities of the project toward the achievement of its objectives.

Corporate governance is a term that refers broadly to the rules, processes, or laws by which businesses are operated, regulated, and controlled

Corporate governance requirements may include, for example: business administration, policies and processes, risk management, corporate social responsibility, ethical business practices, accountability and stakeholder relations, compliance, etc.

Corporate governance issues may relate to, for example: lack of capacity in key external institutional structures, policies and processes important to the project; public sector corruption risks; political risks; internal corruption risks; compliance; management of project risks; etc.

External governance considerations include legal, judicial, and institutional structures, processes and policies relevant to the project. Examples include: the executive, the legislature, political parties, anticorruption organisations, judiciary, grievance addressing mechanisms (e.g. the Ombudsman), specific civil service/public sector agencies, law enforcement agencies, Freedom of Information, media, local and national government, civil society, private sector, international institutions (e.g. some provide peer review of anti-corruption efforts), audit/oversight institutions, public contracting system, etc.

Political risk is a risk of financial loss or inability to conduct business faced by investors, corporations, and governments due to government policy changes, government action preventing entry of goods, expropriation or confiscation, currency inconvertibility, politically-motivated interference, government instability, or war.

Transboundary issues would take into account institutional arrangements that could address the management of upstream and downstream impacts of the project and basin-wide sharing of resources.

Corruption risks may be within the business such as with how finances are managed, or within the public sector such as not addressing licence or permit violations. **Public sector corruption risks** during project preparation may include, for example, limited options considered, short-cutting of assessment / preparation requirements, or non-transparent approvals; and at the project implementation and operation may include, for example, a blind eye to licence and permit violations.

Processes to ensure ethical business practices could include, for example: a business Code of Ethics, an employee Code of Conduct, a business Integrity Pact, anti-bribery or anti-corruption policies and procedures for reporting and investigation, (such as Transparency International's Business Principles for Countering Bribery (BPCB), a whistle-blowing arrangement, etc.

Procurement plans and processes should address provision of a procurement policy, pre-qualification screening, bidding, awarding of contracts, anti-corruption measures, and mechanisms to respond to bidder complaints. Screening could be for, by way of example, quality, reputation, cost, contractor prior performance on meeting contractual obligations (time, cost, specifications), etc.

Compliance is with respect to all relevant laws, policies, permits, agreements, codes of practice and publicly stated commitments.

Anti-corruption measures examples include: open bidding contracting processes to be above a low threshold, contracting authority and its employees commit to an anti-corruption policy, project integrity pacts, mechanisms to report corruption and protect whistleblowers, confidentiality limited to legally protected information, etc.

Screening based on sustainability criteria might encompass additional criteria which could include, by way of example, social, environmental, ethics, human rights, health and safety performance, preference and support to local suppliers where they meet other criteria, etc.

Screening to address anti-corruption might specify, by way of example, that companies tendering must have a code of conduct addressing anti-corruption.

Potential interviewees: a Board member; the operating facility manager; business managers for corporate governance, compliance, internal audit, business risk; experts on public sector governance; other relevant third parties such as anti-corruption civil society organisations

Examples of evidence: business internal website and external website for vision, values, policies, structure, procedures, annual reports; assessment of public sector governance issues; internal audit reports; project compliance plan; reports to Board on ethical business practices and compliance; log of ethical business practices grievance; third party review reports; relevant documentation on public sector governance issues such as reports of Transparency International on National Integrity Systems (NIS) and the Corruption Perceptions Index (CPI)

O-3 Environmental and Social Issues Management

This topic addresses the plans and processes for environmental and social issues management. The intent is that negative environmental and social impacts associated with the hydropower facility are managed; avoidance, minimisation, mitigation, compensation and enhancement measures are implemented; and environmental and social commitments are fulfilled.

Scoring:

1 *There are significant gaps relative to basic good practice.*

2 *Most relevant elements of basic good practice have been undertaken, but there is one significant gap.*

3

Assessment: Systematic processes are in place to identify any ongoing or emerging environmental and social issues associated with the operating hydropower facility, utilising appropriate expertise; and monitoring programs are in place for identified issues.

Management: An environmental and social management system is in place to manage measures to address identified environmental and social issues, and is implemented utilising appropriate expertise (internal and external).

Stakeholder Engagement: Ongoing processes are in place for stakeholders to raise issues and get feedback.

Conformance/Compliance: Processes and objectives in environmental and social management plans have been and are on track to be met with no major non-compliances or non-conformances, and environmental and social commitments have been or are on track to be met.

Outcomes: Negative environmental and social impacts associated with hydropower facility operations are avoided, minimised and mitigated with no significant gaps; and land disturbance associated with development of the hydropower project is rehabilitated or mitigated.

4 *All relevant elements of basic good practice have been undertaken and in one or more cases exceeded, but there is one significant gap in the requirements for proven best practice.*

5

Assessment: In addition, processes to identify ongoing and emerging environmental and social issues take broad considerations into account, and both risks and opportunities.

Management: In addition, processes are in place to anticipate and respond to emerging risks and opportunities; and plans and processes are embedded within an internationally recognised environmental management system which is third party verified, such as ISO 14001.

Stakeholder Engagement: In addition, feedback on how issues raised have been taken into consideration has been thorough and timely.

Conformance/Compliance: In addition, there are no non-compliances or non-conformances.

Outcomes: In addition, negative environmental and social impacts associated with hydropower facility operations are avoided, minimised, mitigated and compensated with no identified gaps.

Assessment Guidance:

Environmental and social issues may include, for example: aquatic and terrestrial biodiversity, threatened species, critical habitats, ecosystem integrity and connectivity issues, water quality, erosion and sedimentation, project-affected communities, Indigenous Peoples, ethnic minorities, resettlement, cultural heritage (both physical and non-physical), and public health. For operating hydropower facilities, the baseline is understood to be the existing condition and risks are assessed against this condition; exceptions may be for topics where there was very good documentation of the pre-project condition and commitments were made for changes that would be measured against this pre-project baseline (e.g. resettlees experiencing improved living standards). Environmental and social issues associated with the operating hydropower facility that extend beyond the jurisdictional boundaries in which the facility is located would need to have been identified and included in management plans.

Ongoing issues are issues that have been of concern repeatedly for a given area over a longer period of time, and may relate to legacy issues.

Legacy issue refers to impacts of previous projects that are unmitigated or not compensated with a similar good or service, or long-standing issues with a present (existing) project, or pre-existing issues in the present location of a new project.

Emerging issues may relate to on-site changes (e.g. riverbank erosion exposing cultural heritage artefacts or impacting on land-use or livelihood activities) or to broader circumstances (e.g. policy changes, changes in relevant legislation or standards, trends in emerging practice, changing community expectations, etc).

Processes in place for stakeholders to raise issues could include, for example: a contact person on the company website, public meetings, periodic public briefings or question/answer opportunities, participation of company staff on stakeholder or catchment committees, etc.

Feedback on stakeholder issues could be demonstrated by means such as, for example: emails, records of telephone conversations, written correspondence, meeting minutes, media releases, provision of responses to frequently asked questions on company website, etc. Where identified or ongoing issues have been resolved through a mediation, legal, approval or licensing process, facility owner/operators would need to have some clear communication on the issue and the resolution so stakeholders understand the issue was recognised, evaluated and resolved.

Land rehabilitation is the process of returning project-affected land to some degree of its former state after disturbance or damage associated with project implementation.

Appropriate expertise refers to specialists with experience in the key identifiable topical areas of the assessment and management plans, giving particular attention to the differences between environmental areas and social impact areas. These specialists could be internal or external to the project developer; internal expertise in managing environmental and social issues is of particular importance with respect to this topic.

Avoid, minimise, mitigate and compensate is a sequential process. Measures to avoid or prevent negative or adverse impacts are always prioritised, and where avoidance is not practicable, then

minimisation of adverse impacts is sought. Where avoidance and minimisation are not practicable, then mitigation and compensation measures are identified and undertaken commensurate with the project's risks and impacts.

Broad considerations might be exhibited by, for example: a broad view of the project affected area; a broad view of relevant issues; a broad interpretation of important concepts such as livelihoods or living standards; a broad range of approaches considered; a broad view of stakeholder perspectives on the various issues; a focus on interrelationships amongst issues; sustainable river basin development considerations; integrated water resources management considerations; legacy issues; cumulative impacts; etc.

Commitments would be those of the present owner/operator (or predecessor entity where those commitments are transferred to the new owner), or other agency with the primary responsibility for delivery. If there are disputes about the currency of historical commitments, these should be treated as an ongoing issue and measures put in place to address the issue. In many cases changes incurred due to project development may not be able to be remediated, so measures may need to take the form of new initiatives that recognise the importance of the changes that occurred in the past and make some other form of contribution or recognition of this.

Potential interviewees: power station or company managers responsible for environmental and social issues assessment and management; government representatives responsible for environmental and social issues; stakeholder representatives; project affected communities representatives; external experts

Examples of evidence: regulatory requirements for EIA / SIA; EIA / SIA and associated reports; environmental and social management plans; records of consultation and stakeholder involvement; records of response to stakeholder issues; third party review report; qualifications of experts utilised; evidence of appropriate separate expertise used for environmental and social issues recognising that in many cases single experts may not have sufficient breadth of expertise to cover both aspects

O-4 Hydrological Resource

This topic addresses the level of understanding of the hydrological resource availability and reliability to the operating hydropower facility. The intent is that power generation planning and operations take into account a good understanding of the hydrological resource availability and reliability in the short- and long-term, taking into account other needs, issues or requirements for the inflows and outflows as well as likely future trends that could affect the facility.

Scoring:

1	*There are significant gaps relative to basic good practice.*
2	*Most relevant elements of basic good practice have been undertaken, but there is one significant gap.*
3	**Assessment:** Monitoring is being undertaken of hydrological resource availability and reliability, and ongoing or emerging issues have been identified; inputs include field measurements, appropriate statistical indicators, issues which may impact on water availability or reliability, and a hydrological model. **Management:** Measures are in place to guide generation operations that are based on analysis of the hydrological resource availability, a range of technical considerations, an understanding of power system opportunities and constraints, and social, environmental and economic considerations.
4	*All relevant elements of basic good practice have been undertaken and in one or more cases exceeded, but there is one significant gap in the requirements for proven best practice.*
5	**Assessment:** In addition, issues that may impact on water availability or reliability have been comprehensively identified; and scenarios, uncertainties and risks are routinely and extensively evaluated over the short- and long-term. **Management:** In addition, generation operations planning has a long-term perspective; fully optimises and maximises efficiency of water use; and has the flexibility to adapt to anticipate and adapt to future changes.

Assessment Guidance:

Hydrological resource means water inflows to the project.

Issues which may impact on water availability and reliability examples include: upstream hydro operators, future water resource use developments, future development of water-reliant land uses (e.g. agriculture, industry, population growth), catchment condition, negotiations over water allocation, etc. If the operating hydropower facility is reliant on water resources that extend beyond the jurisdictional boundaries in which the facility is located, the implications of this would need to be fully considered. Climate change impacts on hydrology are addressed under topic O-20 Climate Change Mitigation and Resilience.

Technical considerations for generation operations examples include: water inflow patterns; reservoir characteristics; gate and spillway design, turbine type, number and characteristics, safety issues etc

Power system opportunities and constraints examples include: patterns of demand for energy (e.g. base vs peak load), power prices, other generators and their capacities and constraints, transmission issues, etc.

Fully optimise and maximise efficiency of water use means the plan is the best use of the hydrological resource given the opportunities and constraints relating to technical, social, economic,

environmental, financial considerations and is based on an iterative and consultative process.

Potential interviewees: company, government and/or independent hydrologists; power system planners; river basin authority representative; stakeholder representatives; project affected communities representatives; wetland, fisheries and ecosystem specialists; downstream authorities in a transboundary context.

Examples of evidence: inflow data; monitoring program and data sources; hydrological analyses; analyses of water resource demands affecting the project; analyses of power system and market opportunities; simulation and optimisation model scenarios and outputs; systems operations plan for the project; generation data

O-5 Asset Reliability and Efficiency

This topic addresses the reliability and efficiency of the hydropower facility and associated network assets. The intent is that assets are maintained to deliver optimal performance in the short- and long-term in accordance with the overall electricity generation and supply strategy of the owner/operator.

Scoring:

1	*There are significant gaps relative to basic good practice.*
2	*Most relevant elements of basic good practice have been undertaken, but there is one significant gap.*
3	**Assessment:** Routine monitoring of asset condition, availability and reliability is being undertaken to identify risks and assess the effectiveness of management measures; and ongoing or emerging asset maintenance and management issues have been identified. **Management:** Measures are in place to address routine monitoring and maintenance requirements of the operating facility in accordance with the overall electricity generation and supply strategy of the owner/operator. **Conformance/Compliance:** Processes and objectives relating to asset maintenance and management have been and are on track to be met with no major non-compliances or non-conformances, and any asset related commitments have been or are on track to be met. **Outcomes:** Asset reliability and efficiency performance is in line with the objectives of the owner/operator and any asset performance guarantees with only minor gaps.
4	*All relevant elements of basic good practice have been undertaken and in one or more cases exceeded, but there is one significant gap in the requirements for proven best practice.*
5	**Assessment:** In addition, identification of ongoing or emerging asset maintenance and management issues takes into account both risks and opportunities. **Management:** In addition, processes are in place to anticipate and respond to emerging risks and opportunities; and asset maintenance management plans include a long-term program for efficiency improvements and asset upgrades. **Conformance/Compliance:** In addition, there are no non-compliances or non-conformances. **Outcomes:** Asset reliability and efficiency performance is fully in line with the objectives of the owner/operator and any asset performance guarantees.

Assessment Guidance:

Asset refers to the infrastructure, plant and equipment on which the hydropower station generation operations are reliant

Asset maintenance requirements could include, for example: changing of lubricants or filters, replacement of parts, painting, cleaning, debris removal, etc.

Asset reliability and efficiency issues could include, for example: normal wear and tear, pitting or abrasion of parts, changes to machinery configuration over time which reduces efficiency, difficulties with valves due to lack of use, rust, corrosion, etc.

Asset related opportunities could include, for example: new technologies, market opportunities for replacement parts, RandD opportunities, partnerships with universities or research institutions for tests of trials, etc.

Potential interviewees: power station station manager; power station operator; generation manager; asset maintenance program manager

Examples of evidence: maintenance programs; record of asset performance; power station asset management strategies and program; asset performance guarantees; asset reliability assessment and monitoring program; program of asset upgrades; information on asset efficiency; information on comparative equipment and system performance; information on practicability of constraint removal; information on the operational efficiency of the individual power station or groups of power stations in the context of the broader system and relevant market arrangements; power station revenues for generation and for availability; operational efficiency identification, measurement and assessment process; machine specifications; monitoring data.

O-6 Infrastructure Safety

This topic addresses management of dam and other infrastructure safety. The intent is that life, property and community are protected from the consequences of dam failure and other infrastructure safety risks.

Scoring:

1 *There are significant gaps relative to basic good practice.*

2 *Most relevant elements of basic good practice have been undertaken, but there is one significant gap.*

3 **Assessment:** Routine monitoring of dam and infrastructure safety is being undertaken to identify risks and assess the effectiveness of management measures; and ongoing or emerging dam and other infrastructure safety issues have been identified.

Management: Dam and other infrastructure safety management plans and processes have been developed in conjunction with relevant regulatory and local authorities with no significant gaps, and provide for communication of public safety measures; emergency response plans and processes include awareness and training programs and emergency response simulations.

Conformance/Compliance: Processes and objectives relating to safety have been and are on track to be met with no major non-compliances or non-conformances, and safety related commitments have been or are on track to be met.

Outcomes: Safety risks have been avoided, minimised and mitigated with no significant gaps.

4 *All relevant elements of basic good practice have been undertaken and in one or more cases exceeded, but there is one significant gap in the requirements for proven best practice.*

5 **Assessment:** In addition, identification of ongoing or emerging safety issues takes into account consideration of a broad range of scenarios and both risks and opportunities.

Management: In addition, processes are in place to anticipate and respond to emerging risks and opportunities; and public safety measures are widely communicated in a timely and accessible manner.

Conformance/Compliance: In addition, there are no non-compliances or non-conformances.

Outcomes: In addition, safety risks have been avoided, minimised and mitigated with no identified gaps; and safety issues have been addressed beyond those risks caused by the operating facility itself.

Assessment Guidance:

Safety risks examples include: seismic, geotechnical, dam or generation unit failure, electric shock, hydrological risk, drowning, road accidents, accidents arising from community interactions with project activities, etc.

Safety management measures examples include: signage, exclusion zones, emergency preparedness, monitoring, inspections, training, incident response, communication, allocation of responsibilities, etc.

Communication of public safety measures could be, for example, through public signage, documentation appropriately lodged with local authorities, awareness raising through various types of community engagements, verbal communication by on-site patrolmen or other similar mechanisms, etc.

Emergency response simulations may be undertaken, for example, through training or workshop exercises for company staff, regional authorities, etc.

Avoid, minimise, mitigate and compensate is a sequential process. Measures to avoid or prevent negative or adverse impacts are always prioritised, and where avoidance is not practicable, then minimisation of adverse impacts is sought. Where avoidance and minimisation are not practicable, then mitigation and compensation measures are identified and undertaken commensurate with the project's risks and impacts.

Contributions to safety issues beyond project risks might include, for example, improving the safety of some existing roads or traffic infrastructure, signage in public places about speeding or drowning risks, etc.

Potential interviewees: power station or company safety manager; local authorities; stakeholder representatives; project affected community representatives

Examples of evidence: safety risk assessments; safety management plans; emergency preparedness plans; monitoring reports; independent reviews

O-7 Financial Viability

This topic addresses financial management of the operating hydropower facility, including funding of measures aimed at ensuring project sustainability, and the ability of the project to generate the required financial returns to meet funding requirements as well as to optimise its financial opportunities. The intent is that the operations of the hydropower facility are proceeding on a sound financial basis that covers all funding requirements including social and environmental measures and commitments, and that it is aware of and responding to market trends which may influence its long-term viability.

Scoring:

1	*There are significant gaps relative to basic good practice.*
2	*Most relevant elements of basic good practice have been undertaken, but there is one significant gap.*
3	**Assessment:** Routine monitoring of the operating hydropower facility's finances is being undertaken to identify risks and assess the effectiveness of management measures; and ongoing or emerging financial management issues have been identified. **Management:** Measures are in place for financial management of the operating hydropower facility. **Conformance/Compliance:** Processes and objectives relating to financial management have been and are on track to be met with no major non-compliances or non-conformances, and funding commitments have been or are on track to be met. **Outcomes:** The operating hydropower facility or the corporate entity to which it belongs can manage financial issues under a range of scenarios, can service its debt, and can pay for all plans and commitments including social and environmental.
4	*All relevant elements of basic good practice have been undertaken and in one or more cases exceeded, but there is one significant gap in the requirements for proven best practice.*
5	**Assessment:** In addition, identification of ongoing or emerging financial management issues takes into account both risks and opportunities including factors and trends that might influence future demand for electricity, water and ancillary services. **Management:** In addition, processes are in place to anticipate and respond to emerging risks and opportunities; and financial contingency measures can be implemented for environmental and social management plans if required. **Conformance/Compliance:** In addition, there are no non-compliances or non-conformances. **Outcomes:** In addition, the operating hydropower facility or the corporate entity to which it belongs can manage financial issues under a range of scenarios, and has optimised or is on track to optimise its market position with respect to supply and demand for electricity, water and ancillary services.

Assessment Guidance:

Financial viability is the ability of an entity to continue to achieve its operating objectives and fulfill its mission from a finanical perspective over the long term. Some operating facilities may be multi-purpose in which hydropower is not the primary purpose, in which case the financial objective of the hydropower component may be to support delivery of the other purposes of the scheme (e.g. water supply, irrigation water, etc). For some operating facilities the financial contribution is measured from the perspective of the system within which it operates; for example, some pump storage facilities may run at a loss but enable a greater profit to be made from other power stations within the system because of the greater efficiencies gained.

Financial issues and risks examples include: very high operating costs; inability to meet required costs; uncertainties with respect to revenue streams; currency exchange instability; difficulties in access to finance; access to renewable incentive schemes; regional pricing; market stability; market access; likelihood of major inflation or depreciation; financial viability of the principal power off-takers etc.

Market refers to the situation of supply and demand for electricity, water and ancillary services in which the hydropower project operates.

Ancillary services refers to operations provided by hydroelectric plants that ensure stable electricity delivery and optimize transmission system efficiency, including the provision of reactive power, frequency control and load following.

Opportunities may include, for example: development or upgrade of transmission lines to enter new markets; changing customer, pricing and contract strategies; refurbishments and upgrades; changing operational patterns to meet higher priced electricity demand, renewable developments in synergy with hydropower to provide grid stability and attract renewable energy certificates; enhancement of social and environmental benefit linked to corporate reputation and brand linked to customer attraction strategies; etc.

Optimises in this context means best market position that the facility is able to achieve, once all considerations have been factored in.

Some **financial information** may have a high degree of commercial sensitivity, and evidence for this topic may need to be viewed under a confidentiality agreement.

Potential interviewees: power station or company financial officers; principal financing institution representative; independent financial expert; company representative from business development, marketing, consulting, trading, strategy, policy; company generation manager

Examples of evidence: analysis of financing options; financial modelling reports; financial risk analysis; financial plans; financial status reports; third party review reports; annual financial reports for company, project, and principal off-taker(s); market research; research and development program; evidence of application of new solutions; awards and external recognition for innovation and/or research and development program; examples of new products; examples of expansion into new markets; examples of response to market demands.

O-8 Project Benefits

This topic addresses the benefits that were committed to alongside development of the hydropower facility, in cases where these commitments are well-documented against a pre-project baseline. The intent is that commitments to additional benefits and benefit sharing strategies made during development of the hydropower facility are fulfilled, and that communities affected by the hydropower development have benefitted. In the case of older projects where there is an absence of well-documented commitments to project benefits made at the time of project approval or an absence of data on the pre-project baseline against which to compare post-project, this topic is not relevant; in this case, issues in relation to project benefits should be taken into consideration under topic O-3 Environmental and Social Issues Management.

Scoring:

1	*There are significant gaps relative to basic good practice.*
2	*Most relevant elements of basic good practice have been undertaken, but there is one significant gap.*
3	**Assessment:** Monitoring is being undertaken to assess if commitments to project benefits have been delivered and if management measures are effective; and ongoing or emerging issues relating to delivery of project benefits have been identified. **Management:** Measures are in place to deliver commitments to project benefits, and to manage any identified issues relating to these commitments; and commitments to project benefits are publicly disclosed. **Conformance/Compliance:** Processes and objectives in place to manage project benefits have been and are on track to be met with no major non-compliances or non-conformances, and commitments have been or are on track to be met. **Outcomes:** Communities directly affected by the development of the hydropower facility and any other identified beneficiary of the facility have received or are on track to receive benefits.
4	*All relevant elements of basic good practice have been undertaken and in one or more cases exceeded, but there is one significant gap in the requirements for proven best practice.*
5	**Assessment:** In addition, identification of ongoing or emerging issues relating to project benefits takes into account both risks and opportunities. **Management:** In addition, processes are in place to anticipate and respond to risks and opportunities. **Conformance/Compliance:** In addition, there are no non-compliances or non-conformances. **Outcomes:** In addition, benefits are significant and sustained for communities affected by the project.

Assessment Guidance:

Topic relevance: This topic is not relevant for operating hydropower facilities that do not have well-documented commitments to delivery of project benefits made at the time of project approval, or data on the pre-project baseline against which to compare delivery of benefits. In the case of older projects where there are issues in relation to project benefits but this topic is not relevant, this should be taken into consideration under topic O-3 Environmental and Social Issues Management.

Benefits may take the form of additional benefits, or benefit-sharing strategies.

Additional benefits refers to benefits that can be leveraged from the project; examples include: capacity building, training and local employment; infrastructure such as bridges, access roads, boat ramps; improved services such as for health and education; support for other water usages such as irrigation, navigation, flood/drought control, aquaculture, leisure; increased water availability for industrial and municipal water supply; etc.

Benefit sharing is distinct from one-time compensation payments or resettlement support; examples include:

- equitable access to electricity services – project affected communities are among the first to be able to access the benefits of electricity services from the project, subject to contextual constraints (e.g. power safety, preference);
- non-monetary entitlements to enhance resource access – project affected communities receive enhanced local access to natural resources;
- revenue sharing – project affected communities share the direct monetary benefits of hydropower according to a formula and approach defined in regulations; this goes beyond a one-time compensation payment or short-term resettlement support; and trust funds.

Commitments to additional benefits or benefit sharing may be the responsibility of other agencies and not the owner/operator.

Potential interviewees: relevant power station or company manager; government representative (e.g. department of economic development); stakeholder representatives; project affected communities representatives

Examples of evidence: pre-project analysis of relevant development indicators; pre-project analysis of potential project benefits; pre-project analysis of benefit sharing options and opportunities; pre-project meeting minutes or reports demonstrating stakeholder input and involvement; benefit sharing plan; commitments to project benefits; monitoring reports on delivery and status of project benefits.

O-9 Project-Affected Communities and Livelihoods

This topic addresses how impacts of development of the hydropower facility on project affected communities have been addressed, in cases where these commitments are well-documented against a pre-project baseline. The intent is that livelihoods and living standards impacted by the project have been improved relative to pre-project conditions for project affected communities with the aim of self-sufficiency in the long-term, and that commitments to project affected communities have been fully fulfilled. In the case of older projects where there is an absence of well-documented commitments to project-affected communities made at the time of project approval or an absence of data on the pre-project baseline against which to compare post-project, this topic is not relevant; in this case, issues in relation to project affected communities should be taken into consideration under topic O-3 Environmental and Social Issues Management.

Scoring:

1	*There are significant gaps relative to basic good practice.*
2	*Most relevant elements of basic good practice have been undertaken, but there is one significant gap.*
3	**Assessment:** Monitoring is being undertaken to assess if commitments to project affected communities have been delivered and if management measures are effective; and ongoing or emerging issues that affect project affected communities have been identified. **Management:** Measures are in place to deliver commitments to project affected communities, and to manage any identified issues relating to these commitments; and if there are any formal agreements with project affected communities these are publicly disclosed. **Stakeholder Engagement:** Ongoing processes are in place for project affected communities to raise issues and get feedback. **Conformance/Compliance:** Processes and objectives in place to manage delivery of commitments to project affected communities have been and are on track to be met with no major non-compliances or non-conformances, and commitments have been or are on track to be met. **Outcomes:** Livelihoods and living standards impacted by the project have been or are on track to be improved; and economic displacement has been fairly compensated, preferably through provision of comparable goods, property or services.
4	*All relevant elements of basic good practice have been undertaken and in one or more cases exceeded, but there is one significant gap in the requirements for proven best practice.*
5	**Assessment:** In addition, identification of ongoing or emerging issues for project affected communities takes into consideration both risks and opportunities, and interrelationships amongst issues. **Management:** In addition, processes are in place to anticipate and respond to risks and opportunities. **Stakeholder Engagement:** In addition, feedback on how issues raised are taken into consideration is thorough and timely, and project affected communities have been involved in decision-making around relevant issues and options. **Conformance/Compliance:** In addition, there are no non-compliances or non-conformances. **Outcomes:** In addition, the measures put in place to improve livelihoods and living standards are on track to become self sustaining in the long-term.

Assessment Guidance:

Topic relevance: This topic is not relevant for operating hydropower facilities that do not have well-documented commitments to project-affected communities made at the time of project approval, or data on the pre-project baseline against which to compare post-project. In the case of older projects where there are issues in relation to project affected communities but this topic is not relevant, this should be taken into consideration under topic O-3 Environmental and Social Issues Management.

Project affected communities are the interacting population of various kinds of individuals in the area surrounding the hydropower project who have been affected either positively or negatively by the hydropower facility development and its associated infrastructure.

Issues that affect project affected communities may include, for example: loss or constraints on livelihoods, lowering of living standards, or economic displacement brought about due to changes associated with the project such as changes to river management and flow regimes. Specific examples could include: impacts on health or safety; impacts on cultural practices; impacts on lands, forest and riverbanks; loss of paddy lands, of home gardens, of riverbank gardens; loss of access to sacred sites, to community forest etc. In cases the impacts may result in project affected communities needing to move, but they may not be considered part of the resettlement community because the physical resettlement was a secondary impact and not a primary impact of the project.

Livelihood refers to the capabilities, assets (stores, resources, claims and access) and activities required for a means of living. **Improvement of livelihoods** refers to compensatory measures taken to address impacts of the project on pre-project livelihoods so that those affected are able to move forward with viable livelihoods with improved capabilities or assets relative to the pre-project conditions; for example supporting farmers to continue to be able to farm or to pursue alternatives, accompanied by sufficient support mechanisms that not only enable any changes to livelihoods to be well-established but also so that they have increased capabilities or access to the necessary resources (including training, information, materials, access, supplies etc).

Living standards refer to the level of material comfort as measured by the goods, services, and luxuries available to an individual, group, or nation; indicators of household well-being examples include: consumption, income, savings, employment, health, education, nutrition, housing, and access to electricity, clean water, sanitation, health services, educational services, transport, etc. Improvement in living standards would be demonstrated by improvement in the indicators of the level of material comfort.

Economic displacement refers to the loss of assets, access to assets, or income sources or means of livelihoods as a result of (i) acquisition of land, (ii) changes in land use or access to land, (iii) restriction on land use or access to natural resources including water resources, legally designated parks, protected areas or restricted access areas such as reservoir catchments and (iv) changes in environment leading to health concerns or impacts on livelihoods. Economic displacement applies whether such losses and restrictions are full or partial, and permanent or temporary.

Measures to address project affected communities issues may include, for example: works to protect downstream riparian lands; downstream flow regime agreements to enable sustained livelihoods for downstream communities; access agreements to project lands to enable continued access to sacred sites, community forest, traditional medicinal plants; support for new industries; protection of sacred sites; etc.

Opportunities for project-affected communities may include, for example: training and capacity building; education; health services; employment; transportation; contributions to provide for cultural traditions or events, etc.

Interrelationships amongst issues may include, for example: erosion of riverbanks downstream of the project causing incremental and long-term loss of land essential to sustain livelihoods, or safety concerns due to rapidly fluctuating river flows downstream of the project causing riparian communities to feel unsafe and eventually having to relocate.

Potential interviewees: representatives of project affected communities; power station or company social issues manager; government expert; independent experts

Examples of evidence: assessment report on project affected communities and livelihoods; gender analysis; human rights issues analysis; records of consultation and project affected community involvement; records of response to project affected community issues; third party review report; report on compensation measures; agreements on compensation measures; assessments and agreements on cultural sensitive areas and customs

O-10 Resettlement

This topic addresses how the physical displacement arising from development of the hydropower facility has been addressed, in cases where resettlement occurred and commitments are well-documented against a pre-project baseline. The intent is that the dignity and human rights of those physically displaced have been respected; that these matters have been dealt with in a fair and equitable manner; that livelihoods and standards of living for resettlees and host communities have been improved; and that commitments made to resettlees and host communities have been fully fulfilled. In the case of older projects where there is an absence of well-documented commitments in relation to resettlement made at the time of project approval or an absence of data on the pre-project baseline against which to compare post-project, this topic is not relevant; in this case, issues in relation to resettlement should be taken into consideration under topic O-3 Environmental and Social Issues Management.

Scoring:

1	*There are significant gaps relative to basic good practice.*
2	*Most relevant elements of basic good practice have been undertaken, but there is one significant gap.*
3	**Assessment:** Monitoring is being undertaken to assess if commitments made to resettlees and host communities have been delivered and if management measures are effective; and ongoing or emerging issues relating to resettlement have been identified. **Management:** Measures to address resettlement are documented in a Resettlement Action Plan; measures are in place to deliver commitments to resettlees and host communities, and to manage any issues relating to resettlement, including provision of grievance mechanisms; and formal agreements with resettlees and host communities are publicly disclosed. **Stakeholder Engagement:** Ongoing processes are in place for resettlees and host communities to raise issues and get feedback. **Conformance/Compliance:** Processes and objectives in the Resettlement Action Plan have been and are on track to be met with no major non-compliances or non-conformances, and any resettlement related commitments have been or are on track to be met. **Outcomes:** Resettlement has been and is being treated in a fair and equitable manner, and resettlees and host communities have experienced or are on track to experience a timely improvement in livelihoods and living standards relative to the pre-project baseline.
4	*All relevant elements of basic good practice have been undertaken and in one or more cases exceeded, but there is one significant gap in the requirements for proven best practice.*
5	**Assessment:** In addition, identification of ongoing or emerging resettlement issues takes into account both risks and opportunities. **Management:** In addition, processes are in place to anticipate and respond to emerging risks and opportunities. **Stakeholder Engagement:** In addition, feedback on how issues raised have been taken into consideration has been thorough and timely, and resettlees and host communities have been involved in decision-making around relevant issues and options. **Conformance/Compliance:** In addition, there are no non-compliances or non-conformances. **Outcomes:** In addition, the measures put in place to improve livelihoods and living standards are on track to become self-sustaining in the long-term.

Assessment Guidance:

Topic relevance: This topic will not be relevant if there was no requirement for resettlement arising from the project development, or for operating hydropower facilities that do not have well-documented commitments to resettlement made at the time of project approval, or for operating hydropower facilities that do not have data on the pre-project baseline against which to compare post-project. In the case of older projects where there are issues in relation to resettlement but this topic is not relevant, this should be taken into consideration under topic O-3 Environmental and Social Issues Management.

Resettlement is the process of moving people to a different place to live, because due to the project they are no longer allowed to stay in the area where they used to live.

Livelihood refers to the capabilities, assets (stores, resources, claims and access) and activities required for a means of living. **Improvement of livelihoods** refers to compensatory measures taken to address impacts of the project on pre-project livelihoods so that those affected are able to move forward with viable livelihoods with improved capabilities or assets relative to the pre-project conditions; for example supporting farmers to continue to be able to farm or to pursue alternatives, accompanied by sufficient support mechanisms that not only enable any changes to livelihoods to be well-established but also so that they have increased capabilities or access to the necessary resources (including training, information, materials, access, supplies etc).

Living standards refer to the level of material comfort as measured by the goods, services, and luxuries available to an individual, group, or nation; indicators of household well-being examples include: consumption, income, savings, employment, health, education, nutrition, housing, and access to electricity, clean water, sanitation, health services, educational services, transport, etc.

Resettlees are those people who are required to be resettled, and including those who have formal legal rights, customary or traditional rights, as well as those who have no recognizable rights to the land.

Host communities refers to the communities to which resettlees are relocated.

Resettlement Action Plan refers to a document or set of documents specifically developed to identify the actions that will be taken to address resettlement. It would typically include identification of those being resettled; the socio-economic baseline for the resettlees; the measures to be implemented as part of the resettlement process including those relating to resettlement assistance and livelihood support; the legal and compensation frameworks; organisational roles and responsibilities; budget allocation and financial management; the timeframe, objectives and targets; grievance redress mechanisms; monitoring, reporting and review provisions; and understandings around consultation, participation and information exchange. In cases where resettlees' livelihoods have been land-based, and where consistent with resettlees' preferences, strong consideration may be given to land-for-land compensation.

Grievance mechanisms refer to the processes by which stakeholders are able to raise concerns, grievances and legitimate complaints, as well as the project procedures to track and respond to any grievances.

Potential interviewees: community representatives affected by resettlement and land acquisition; representatives from resettlement host communities; power station or company social issues manager; representative from the responsible governmental authority, independent reviewer.

Examples of evidence: assessment report on resettlement and land acquisition; records of consultation and affected stakeholder involvement; records of response to resettlement and land acquisition issues; third party review report; resettlement action plans; land acquisition plans; compensation agreements; agreements on resettlement action plan; baseline social conditions report; livelihood analysis; impoverishment risk analysis; mitigation, resettlement and development action plans, including project benefit sharing mechanisms; NGO reports; monitoring reports.

O-11 Indigenous Peoples

This topic addresses the rights at risk and opportunities of Indigenous Peoples with respect to the hydropower facility, recognising that as social groups with identities distinct from dominant groups in national societies, they are often the most marginalized and vulnerable segments of the population. The intent is that the operating facility respects the dignity, human rights, aspirations, culture, lands, knowledge, practices and natural resource-based livelihoods of Indigenous Peoples in an ongoing manner throughout the project life.

Scoring:

1	*There are significant gaps relative to basic good practice.*
2	*Most relevant elements of basic good practice have been undertaken, but there is one significant gap.*
3	**Assessment:** Ongoing or emerging issues relating to the operating hydropower facility that may affect Indigenous Peoples' rights have been identified, and if management measures are required then monitoring is being undertaken to assess if management measures are effective. **Management:** Measures are in place to address the Indigenous Peoples' rights at risk relating to the operating hydropower facility; and formal agreements are publicly disclosed. **Stakeholder Engagement:** Appropriately-timed, culturally appropriate and two-way channels of communication are maintained; ongoing processes are in place for Indigenous Peoples to raise issues and get feedback; and a mutually-agreed disputes procedure is in place. **Conformance/Compliance:** Processes and objectives relating to Indigenous Peoples' rights at risk have been and are on track to be met with no major non-compliances or non-conformances, and commitments made to Indigenous Peoples have been or are on track to be met. **Outcomes:** Processes provide for negative impacts of the project on Indigenous Peoples' rights to be avoided, minimised, mitigated or compensated with no significant gaps, and some practicable opportunities for positive impacts to be achieved.
4	*All relevant elements of basic good practice have been undertaken and in one or more cases exceeded, but there is one significant gap in the requirements for proven best practice.*
5	**Assessment:** In addition, identification of issues that may affect Indigenous Peoples' rights is undertaken with the free, prior and informed participation of Indigenous Peoples; and takes into account both risks and opportunities. **Management:** In addition, measures to address ongoing or emerging issues that may affect Indigenous Peoples' rights at risk have been developed with the free, prior and informed participation of Indigenous Peoples; and processes are in place to anticipate and respond to emerging risks and opportunities. **Stakeholder Engagement:** In addition, feedback on how issues raised have been taken into consideration has been thorough and timely; and directly affected Indigenous Peoples have been involved in decision-making around relevant issues and options. **Conformance/Compliance:** In addition, there are no non-compliances or non-conformances. **Outcomes:** In addition, opportunities for positive impacts have been identified and maximised as far as practicable, and have been or are on track to be achieved.

Assessment Guidance:

Topic relevance: This topic will not be relevant if credible evidence provided shows that there are no Indigenous Peoples in the area affected by the operating hydropower facility.

Indigenous Peoples refers to a distinct social and cultural group possessing the following characteristics in varying degrees: self-identification as members of a distinct indigenous cultural group and recognition of this identity by others; collective attachment to geographically distinct habitats or ancestral territories in the project area and to the natural resources in these habitats and territories; customary cultural, economic, social or political institutions that are separate from those of the dominant society or culture; an indigenous language, often different from the official language of the country or part of the country in which they reside. In some countries, interactions with Indigenous Peoples may be required to be conducted through a specific government agency.

Issues that may affect Indigenous Peoples' rights are ideally self-identified, and may include, for example: impacts of the operating hydropower facility activities and infrastructure on cultural practices, direct or indirect impacts to traditional lands, impacts to community cohesion, public health risks, disturbance of customary practices, and impeded access to natural resource-based livelihoods, potential land use conflicts.

Indigenous Peoples' rights are documented in places such as in the United Nations Declaration on the Rights of Indigenous Peoples (UNDRIP) and the International Labour Organisation Convention No. 169. They include right to self- determination, right to ownership and property, right to practise and revitalise cultural traditions and customs, right to manifest, practise, develop and teach their spiritual and religious traditions, customs and ceremonies, right to the conservation and protection of the environment and the productive capacity of their lands or territories and resources. Indigenous Peoples' rights are considered at risk when project activities or impacts prevent Indigenous Peoples from exercising their rights.

Measures to address issues that may affect Indigenous Peoples' rights are ideally self-identified, and may include, for example: avoidance measures, protection of cultural practices, land entitlement and protection, health assistance, scheduling of activities of the operating hydropower facility to not disturb customary practices, support for festivals or traditions, improved or more secure access to natural resource-based livelihoods, etc.

Disputes procedure is a mutually-agreed two-way resolution mechanism allowing for both the Indigenous Peoples and the developer to raise disputes and seek resolution.

Avoid, minimise, mitigate and compensate is a sequential process. Measures to avoid or prevent negative or adverse impacts are always prioritised, and where avoidance is not practicable, then minimisation of adverse impacts is sought. Where avoidance and minimisation are not practicable, then mitigation and compensation measures are identified and undertaken commensurate with the project's risks and impacts.

Opportunities for Indigenous Peoples are ideally self-identified, and may include, for example: better access to education, health facilities, fresh water, new land or resource access, new housing or better access to materials for housing, new livelihood opportunities, development of treaties or formal agreements that give greater security over the long term, etc.

Potential interviewees: representatives of project affected indigenous communities; power station or company social issues manager; representative from the responsible governmental authority, independent reviewer

Examples of evidence: assessment report on Indigenous Peoples; records of consultation and project affected community involvement; records of response to issues that may affect Indigenous Peoples; third party review report; Indigenous Peoples management plans; agreements on measures for Indigenous Peoples; monitoring reports

O-12 Labour and Working Conditions

This topic addresses labour and working conditions, including employee and contractor opportunity, equity, diversity, health and safety. The intent is that workers are treated fairly and protected.

Scoring:

1

There are significant gaps relative to basic good practice.

2

Most relevant elements of basic good practice have been undertaken, but there is one significant gap.

3

Assessment: A periodically updated assessment has been undertaken of human resource and labour management requirements for the operating facility, including occupational health and safety (OH&S) issues, risks, and management measures, with no significant gaps; monitoring is being undertaken to assess if management measures are effective; and ongoing or emerging labour management issues have been identified.

Management: Human resource and labour management policies, plans and processes are in place to address all labour management planning components, including those of contractors, subcontractors, and intermediaries, with no significant gaps.

Stakeholder Engagement: Ongoing processes are in place for employees and contractors to raise human resources and labour management issues and get feedback.

Conformance/Compliance: Processes and objectives relating to human resource and labour management have been and are on track to be met with no major non-compliances or non-conformances, and any labour related commitments have been or are on track to be met.

Outcomes: There are no identified inconsistencies of labour management policies, plans and practices with internationally recognised labour rights.

4

All relevant elements of basic good practice have been undertaken and in one or more cases exceeded, but there is one significant gap in the requirements for proven best practice.

5

Assessment: In addition, identification of ongoing or emerging labour management issues takes broad considerations into account, and both risks and opportunities.

Management: In addition, processes are in place to anticipate and respond to emerging risks and opportunities.

Stakeholder Engagement: In addition, feedback on how issues raised have been taken into consideration has been thorough and timely.

Conformance/Compliance: In addition, there are no non-compliances or non-conformances.

Outcomes: In addition, labour management policies, plans and practices are demonstrated to be consistent with internationally recognised labour rights.

Assessment Guidance:

Labour management planning components include: human resources policies, staff and workforce planning, occupational health and safety, equal opportunity, staff development and training, grievance mechanisms, and (where appropriate) collective bargaining mechanisms

Occupational health and safety is about protecting the safety, health and welfare of people engaged in work or employment, for example through preventing disease or injury that might arise as a direct result of the workplace activities.

Intermediaries are workers engaged through third parties who are either performing work directly related to the functions essential for the project for a substantial duration, or who are geographically working at the project location.

Broad considerations might be exhibited by, for example: a broad view of relevant issues; a broad approach to types of data collection and important indicators; a focus on interrelationships amongst issues; a broad analysis of trends, approaches and existing and emerging standards relating to labour and working conditions; understanding of relevant human rights; etc.

Internationally recognised labour rights are documented in places such as the IFC Performance Standard 2, the International Labour Organisation standards, and the Human Rights Council 2008 Report of John Ruggie "Protect, Respect and Remedy: a Framework for Business and Human Rights". They include freedom of association, right to equal pay for equal work, right to organize and participate in collective bargaining, right to equality at work, right to non-discrimination, right to just and favourable remuneration, abolition of slavery and forced labour, right to a safe work environment, abolition of child labour, right to rest and leisure, right to work, right to family life. Evidence of no inconsistencies would be no policies, plans or practices that show workers are prevented from the ability to exercise these rights; evidence of consistency could be for example an analysis of alignment.

Potential interviewees: power station or company human resources staff; contracted workforce manager, power station or company safety officer; staff or contractor representatives; external experts; unions and shop stewards; female workers

Examples of evidence: policies, plans and programs relating to human resources, employees, contractors, equity, occupational health and safety, workforce planning, and grievance mechanisms; national and international standards for labour and OH&S

O-13 Cultural Heritage

This topic addresses cultural heritage, with specific reference to physical cultural resources, associated with the hydropower facility. The intent is that physical cultural resources are identified, their importance is understood, and measures are in place to address those identified to be of high importance.

Scoring:

1	*There are significant gaps relative to basic good practice.*
2	*Most relevant elements of basic good practice have been undertaken, but there is one significant gap.*
3	**Assessment:** Ongoing or emerging cultural heritage issues with respect to physical cultural resources have been identified, and if management measures are required then monitoring is being undertaken to assess if management measures are effective. **Management:** Measures are in place to manage identified cultural heritage issues. **Conformance/Compliance:** Processes and objectives in place to manage cultural heritage issues have been and are on track to be met with no major non-compliances or non-conformances, and cultural heritage related commitments have been or are on track to be met. **Outcomes:** Negative cultural heritage impacts arising from activities of the operating hydropower facility are avoided, minimised, mitigated and compensated with no significant gaps.
4	*All relevant elements of basic good practice have been undertaken and in one or more cases exceeded, but there is one significant gap in the requirements for proven best practice.*
5	**Assessment:** In addition, identification of ongoing or emerging cultural heritage issues takes broad considerations into account, and both risks and opportunities. **Management:** In addition, processes are in place to anticipate and respond to emerging risks and opportunities. **Conformance/Compliance:** In addition, there are no non-compliances or non-conformances. **Outcomes:** In addition, where opportunities have been identified, measures to address cultural heritage issues beyond those impacts caused by the facility have been or are on track to be achieved.

Assessment Guidance:

Topic relevance: This topic will not be relevant if credible evidence provided shows that there were no physical cultural resources identified in the project-affected area, and that there are no physical cultural resources identified in the area affected by the operating hydropower facility.

Cultural heritage refers to the legacy of physical artefacts and intangible attributes of a group or society that are inherited from past generations, maintained in the present and bestowed for the benefit of future generations.

Physical cultural resources refer to movable or immovable objects, sites, structures, groups of structures, and natural features and landscapes that have archaeological, paleontological, historical, architectural, religious, aesthetic, or other cultural significance. Physical cultural resources may be located in urban or rural settings, and may be above or below ground, or under water. Their cultural interest may be at the local, provincial or national level, or within the international community.

Non-physical cultural heritage examples include: traditions, festivals, rituals, folklore, storytelling, drama, etc. If of relevance, these should be addressed under Topic O-3 Environmental and Social Issues Management in this Protocol assessment.

Cultural heritage issues may be ongoing issues that arose during project development and have not been resolved, such as for example: inundation of important sites or artefacts under the new reservoir; damage or destruction to important sites or artefacts due to construction activities; loss of access to important sites due to changes to access routes (e.g. new canals or linear infrastructure with barrier fencing, major roads); disturbance of spirits associated with special sites; etc; or they may be emerging issues such as erosion of riverbanks exposing new artefacts, or developments in policies, legislation or standards changing expectations on how cultural heritage issues will be addressed.

Measures to address cultural heritage issues may include, for example: documentation and record-keeping; relocation; creation of protected areas; new access routes; appeasement ceremonies; etc.

Avoid, minimise, mitigate and compensate is a sequential process. Measures to avoid or prevent negative or adverse impacts are always prioritised, and where avoidance is not practicable, then minimisation of adverse impacts is sought. Where avoidance and minimisation are not practicable, then mitigation and compensation measures are identified and undertaken commensurate with the project's risks and impacts.

Protection means to keep in safety and protect from harm, decay, loss, damage or destruction.

Broad considerations might be exhibited by, for example: a broad view of relevant issues; a broad approach to types of data collection; a focus on interrelationships amongst issues; a broad analysis of trends, approaches and existing and emerging standards relating to cultural heritage; a broad perspective with respect to the assessment of significance of heritage finds; etc.

Interrelationships amongst issues could include, for example, erosion and sedimentation effects on important heritage locations, risks of vandalism or theft by contractors or the public, etc.

Cultural heritage opportunities may include, for example: partnerships with heritage organisations; establishment of initiatives recognising heritage values such as festivals, museums or visiting experts; programmes to preserve traditional activities; access to special grants for heritage protection works; exhibits; educational initiatives; etc.

Potential interviewees: power station or company environmental and social issues manager, local cultural heritage expert, representative from relevant government department (e.g. heritage or environment); external experts; project affected community representatives

Examples of evidence: cultural heritage impact statements; conservation plans; records of consultation and response to stakeholder issues; heritage plans and agreements; national and international standards; monitoring and inspection reports

O-14 Public Health

This topic addresses public health issues associated with the operating hydropower facility. The intent is that the operating facility has not created or exacerbated any public health issues; that ongoing or emerging public health issues associated with the facility are identified and addressed as required; and commitments to implement measures to address public health are fulfilled.

Scoring:

1	*There are significant gaps relative to basic good practice.*
2	*Most relevant elements of basic good practice have been undertaken, but there is one significant gap.*
3	**Assessment:** Ongoing or emerging public health issues associated with the operating hydropower facility have been identified, and if management measures are required then monitoring is being undertaken to assess if management measures are effective. **Management:** Measures are in place to manage identified public health issues. **Conformance/Compliance:** Processes and objectives in place to manage public health issues have been and are on track to be met with no major non-compliances or non-conformances, and public health related commitments have been or are on track to be met. **Outcomes:** Negative public health impacts arising from activities of the operating hydropower facility are avoided, minimised and mitigated with no significant gaps.
4	*All relevant elements of basic good practice have been undertaken and in one or more cases exceeded, but there is one significant gap in the requirements for proven best practice.*
5	**Assessment:** In addition, identification of ongoing or emerging public health issues takes into account public health system capacities, access to health services, and health needs, risks and opportunities for different community groups. **Management:** In addition, processes are in place to anticipate and respond to emerging risks and opportunities. **Conformance/Compliance:** In addition, there are no non-compliances or non-conformances. **Outcomes:** In addition, where opportunities have been identified, measures to address public health issues beyond those impacts caused by the operating hydropower facility have been or are on track to be achieved.

Assessment Guidance:

Topic relevance: This topic will always be relevant, because it should be captured by processes in place to identify any ongoing or emerging public health issues associated with the operating hydropower facility.

Public health issues include, for example: vector borne diseases (e.g. malaria, schistosomiasis); communicable and non-communicable diseases, malnutrition, psychological disorders, social well-being; loss or contamination of traditional resources; mercury or heavy metal bio-accumulation; etc.

Measures to address public health issues could include, for example: measures to reduce mosquito-borne disease risks; storing of medical supplies and immunisations; educational, awareness and disease prevention training; water quality testing; etc.

Health needs, issues and risks for different community groups could be with respect to, for example: gender, age, ethnicity, use of and access to traditional medicines, etc.

Avoid, minimise, mitigate and compensate is a sequential process. Measures to avoid or prevent negative or adverse impacts are always prioritised, and where avoidance is not practicable, then minimisation of adverse impacts is sought. Where avoidance and minimisation are not practicable, then mitigation and compensation measures are identified and undertaken commensurate with the project's risks and impacts.

Public health opportunities could include, for example: improved access to electricity, clean water and sanitation; development or upgrading of public health facilities; provision of equipment, training, health education, immunisations; new service providers; new medical technologies; new vaccinations or approaches to public health issues; increased access to low-cost, high-quality protein diet through increased availability of fish, etc.

Potential interviewees: power station or company social issues manager, independent public health expert, representative from government health department, project affected community representatives

Examples of evidence: public health issues and opportunities assessment; public health management plans; national and international standards; monitoring reports; regional statistics before and after the project

O-15 Biodiversity and Invasive Species

This topic addresses ecosystem values, habitat and specific issues such as threatened species and fish passage in the catchment, reservoir and downstream areas, as well as potential impacts arising from pest and invasive species associated with the operating hydropower facility. The intent is that there are healthy, functional and viable aquatic and terrestrial ecosystems in the area that are sustainable over the long-term; that biodiversity impacts arising from the operating hydropower facility are managed responsibly; that ongoing or emerging biodiversity issues are identified and addressed as required; and that commitments to implement biodiversity and invasive species measures are fulfilled.

Scoring:

1	*There are significant gaps relative to basic good practice.*
2	*Most relevant elements of basic good practice have been undertaken, but there is one significant gap.*
3	**Assessment:** Ongoing or emerging biodiversity issues have been identified, and if management measures are required then monitoring is being undertaken to assess if management measures are effective. **Management:** Measures are in place to manage identified biodiversity issues. **Conformance/Compliance:** Processes and objectives in place to manage biodiversity issues have been and are on track to be met with no major non-compliances or non-conformances, and biodiversity related commitments have been or are on track to be met. **Outcomes:** Negative biodiversity impacts arising from activities of the operating facility are avoided, minimised, mitigated, and compensated with no significant gaps
4	*All relevant elements of basic good practice have been undertaken and in one or more cases exceeded, but there is one significant gap in the requirements for proven best practice.*
5	**Assessment:** In addition, identification of ongoing or emerging biodiversity issues takes into account both risks and opportunities. **Management:** In addition, processes are in place to anticipate and respond to emerging risks and opportunities. **Conformance/Compliance:** In addition, there are no non-compliances or non-conformances. **Outcomes:** In addition, there are healthy, functional and viable aquatic and terrestrial ecosystems in the area affected by the hydropower facility that are sustained over the long-term; or the facility has contributed or is on track to contribute to addressing biodiversity issues beyond those impacts caused by the operating hydropower facility.

Assessment Guidance:

Biodiversity issues may include, for example: loss of habitat; fish migration barriers; loss of spawning grounds; loss of habitat connectivity; loss or declines in important food chain species; loss of wetlands; poaching, hunting or over-exploitation of significant species; introduction of weed or pest species; etc.

Measures to address biodiversity may include, for example: catchment protection, creation of reserves, habitat conservation and improvement, species management plans, translocations, habitat rehabilitation, new habitat creation, managed flow releases, etc. Measures to address passage of aquatic species may include, for example: fish ladders, fish elevators, catch and release programs, fish hatcheries, re-stocking programs, mechanisms for diversion away from turbines for downstream passage, assisted cues (water chemistry, operational conditions), etc. Measures to address invasive species may include, for example: physical barriers to pest species passage, pollution control, physical removal or containment, chemical treatment, reservoir water residence times, managed flow releases, etc.

Avoid, minimise, mitigate and compensate is a sequential process. Measures to avoid or prevent negative or adverse impacts are always prioritised, and where avoidance is not practicable, then minimisation of adverse impacts is sought. Where avoidance and minimisation are not practicable, then mitigation and compensation measures are identified and undertaken commensurate with the project's risks and impacts.

Compensate in the context of biodiversity impacts in cases may be in the form of establishing or supporting offset programs. **Offsets** are measurable conservation outcomes resulting from actions designed to compensate for significant adverse biodiversity impacts arising from project development and persisting after appropriate avoidance, minimization, and restoration measures have been taken. Generally, these are not within the project site.

Biodiversity opportunities may include, for example, forming partnerships with wildlife protection groups; catchment management committees and projects; joint research ventures around fish passage or hatcheries; employing or working with local communities to act as wardens for protected areas; creation of business ventures from non-timber forest resources, capacity building and educational initiatives, eco-tourism ventures, creation of bird and waterfowl sanctuaries, fish protection zones, wetland protection, etc.

Potential interviewees: power station or company environmental manager; aquatic and terrestrial ecologists; design engineers (in relation to fish passage); representatives of relevant government departments (e.g. fisheries, wildlife, environment, forests); representatives of local communities; independent experts

Examples of evidence: assessment of terrestrial biodiversity; assessment of aquatic biodiversity; fish studies; fish passage technical feasibility assessments; third party review reports; biodiversity management plans; invasive species management plans; commitments and agreements; economic and livelihood valuation from fish catch and non-timber forest products baselines from local communities; monitoring reports

O-16 Erosion and Sedimentation

This topic addresses the management of erosion and sedimentation issues associated with the operating hydropower facility. The intent is that erosion and sedimentation caused by the operating hydropower facility is managed responsibly and does not present problems with respect to other social, environmental and economic objectives; that external erosion or sedimentation occurrences which may have impacts on the operating hydropower facility are recognised and managed; and that commitments to implement measures to address erosion and sedimentation are fulfilled.

Scoring:

1	*There are significant gaps relative to basic good practice.*
2	*Most relevant elements of basic good practice have been undertaken, but there is one significant gap.*
3	**Assessment:** Ongoing or emerging erosion and sedimentation issues have been identified, and if management measures are required then monitoring is being undertaken to assess if management measures are effective. **Management:** Measures are in place to manage identified erosion and sedimentation issues. **Conformance/Compliance:** Processes and objectives in place to manage erosion and sedimentation issues have been and are on track to be met with no major non-compliances or non-conformances, and erosion and sedimentation related commitments have been or are on track to be met. **Outcomes:** Erosion and sedimentation issues are avoided, minimised and mitigated with no significant gaps.
4	*All relevant elements of basic good practice have been undertaken and in one or more cases exceeded, but there is one significant gap in the requirements for proven best practice.*
5	**Assessment:** In addition, identification of ongoing or emerging erosion and sedimentation issues takes into account both risks and opportunities. **Management:** In addition, processes are in place to anticipate and respond to emerging risks and opportunities. **Conformance/Compliance:** In addition, there are no non-compliances or non-conformances. **Outcomes:** In addition, erosion and sedimentation associated with operating facility do not present ongoing problems for environmental, social and economic objectives of the facility or the project affected areas.

Assessment Guidance:

Erosion and sedimentation issues include impacts that may be caused by operation of the hydropower facility, and issues that may impact on the facility. Impacts that may be caused by project operation may include direct land disturbance due to maintenance works, or to reservoir shorelines due to fluctuating water levels; and indirect land disturbance due to changed river flows. Consideration of what is an issue needs to take into account that there will be landscape adjustments brought about by the hydropower project that continue for many years until a new equilibrium is reached, particularly in the downstream river channels; negative impacts would therefore be considered those erosion and sedimentation occurrences caused by the project that present problems with respect to other social, environmental and/or economic objectives, or externally caused occurrences of erosion or sedimentation that impact on the ability of the project to meet its own social, environmental or economic objectives.

Issues that may impact on the operating hydropower facility might, for example, be naturally high sediment loads which may impact on the reservoir life, wear and tear of turbines, increased maintenance needs for tunnels, canals and other water conduits; or landslips or land disturbances due to other catchment activities or natural events that could increase sediment loads into the reservoir or adversely affect transport routes, etc.

Assessment processes for **erosion and sedimentation** may be built into other plans and processes, e.g. visual inspections undertaken for operational purposes.

Measures to address erosion and sedimentation issues might include, for example: catchment treatment works such as sediment check structures; water management measures such as to avoid turbidity or shoreline erosion; reforestation and re-vegetation activities; measures to address land use practices; etc.

Avoid, minimise, mitigate and compensate is a sequential process. Measures to avoid or prevent negative or adverse impacts are always prioritised, and where avoidance is not practicable, then minimisation of adverse impacts is sought. Where avoidance and minimisation are not practicable, then mitigation and compensation measures are identified and undertaken commensurate with the project's risks and impacts.

Erosion and sedimentation opportunities may include, for example, forming partnerships with land-use protection or catchment management groups; joint research projects around erosion or sedimentation management; new technologies; carbon credits for reforestation with benefits of erosion and sedimentation risk reduction; etc.

Potential interviewees: power station or company environmental manager; government representative (e.g. from environment department), independent expert

Examples of evidence: erosion and sedimentation assessment reports; erosion and sedimentation management plans; monitoring reports

O-17 Water Quality

This topic addresses the management of water quality issues associated with the operating hydropower facility. The intent is that water quality in the vicinity of the operating hydropower facility is not adversely impacted by activities of the operator; that ongoing or emerging water quality issues are identified and addressed as required; and commitments to implement measures to address water quality are fulfilled.

Scoring:

1	*There are significant gaps relative to basic good practice.*
2	*Most relevant elements of basic good practice have been undertaken, but there is one significant gap.*
3	**Assessment:** Ongoing or emerging water quality issues have been identified, and if management measures are required then monitoring is being undertaken to assess if management measures are effective. **Management:** Measures are in place to manage identified water quality issues. **Conformance/Compliance:** Processes and objectives in place to manage water quality issues have been and are on track to be met with no major non-compliances or non-conformances, and water quality related commitments have been or are on track to be met. **Outcomes:** Negative water quality impacts arising from activities of the operating hydropower facility are avoided, minimised and mitigated with no significant gaps.
4	*All relevant elements of basic good practice have been undertaken and in one or more cases exceeded, but there is one significant gap in the requirements for proven best practice.*
5	**Assessment:** In addition, identification of ongoing or emerging water quality issues takes into account both risks and opportunities. **Management:** In addition, processes are in place to anticipate and respond to emerging risks and opportunities. **Conformance/Compliance:** In addition, there are no non-compliances or non-conformances. **Outcomes:** In addition, water quality in the area affected by the operating hydropower facility is of a high quality; or the facility has contributed or is on track to contribute to addressing water quality issues beyond those impacts caused by the operating hydropower facility.

Assessment Guidance:

Water quality issues examples at the operation stage include: reduced oxygenation, aseasonal temperatures, stratification potential, pollutant inflow, nutrient capture, algal bloom potential, release of toxicants from inundated sediments, chemical or waste spills, etc.

Assessment processes for water quality may be built into other plans and processes, e.g. visual inspections undertaken for operational purposes.

Measures to address water quality at the operation stage may include, for example: aeration features to address dissolved oxygen levels; water management measures such as to ensure adequate water circulation and through-flow; vegetation management to address organic decomposition; addressing pollutants from non-project activities such as sewage, wastes, contaminated sites, etc.

Avoid, minimise, mitigate and compensate is a sequential process. Measures to avoid or prevent negative or adverse impacts are always prioritised,

and where avoidance is not practicable, then minimisation of adverse impacts is sought. Where avoidance and minimisation are not practicable, then mitigation and compensation measures are identified and undertaken commensurate with the project's risks and impacts.

Water quality opportunities may include, for example: addressing pollutants from non-project activities such as sewage, wastes, contaminated sites; groundwater stabilisation, improved water quality through oxygenation or temperature dispersion; new technologies; new service providers; partnerships with community waterway health monitoring groups; participating in or forming catchment management groups to address water quality issues at the catchment level; etc.

Potential interviewees: power station or company environmental manager; government representative (e.g. from environment department), independent expert

Examples of evidence: water quality monitoring reports; water quality management plans

O-18 Reservoir Management

This topic addresses management of environmental, social and economic issues within the reservoir area during hydropower facility operation. The intent is that the reservoir is well managed taking into account power generation operations, environmental and social management requirements, and multi-purpose uses where relevant.

Scoring:

1	*There are significant gaps relative to basic good practice.*
2	*Most relevant elements of basic good practice have been undertaken, but there is one significant gap.*
3	**Assessment:** Ongoing or emerging reservoir management issues have been identified, and if management measures are required then monitoring is being undertaken to assess if management measures are effective. **Management:** Measures are in place to manage identified issues. **Conformance/Compliance:** Processes and objectives in place for reservoir management have been and are on track to be met with no major non-compliances or non-conformances, and reservoir management related commitments have been or are on track to be met.
4	*All relevant elements of basic good practice have been undertaken and in one or more cases exceeded, but there is one significant gap in the requirements for proven best practice.*
5	**Assessment:** In addition, identification of ongoing or emerging reservoir management issues takes into account both risks and opportunities. **Management:** In addition, processes are in place to anticipate and respond to emerging risks and opportunities. **Conformance/Compliance:** In addition, there are no non-compliances or non-conformances.

Assessment Guidance:

Topic relevance: This topic is relevant if there is any storage of water.

Reservoir refers to any artificial pondage or lake used by the project for the storage and regulation of water.

Reservoir area refers to the area that is inundated when the reservoir is at its maximum expected level and the dry buffer zone above this level.

Reservoir management issues include, for example: optimising power generation, maintenance requirements, debris management (particularly an issue in monsoon prone parts of the world), multiple uses (e.g. commercial, recreational), safety, flood management, shoreline erosion, reservoir sedimentation, public access, water quality, biodiversity, invasive species, water-borne diseases, monitoring, etc.

Emerging risks or opportunities may be in relation to, for example, multi-purpose considerations, leveraging of the reservoir for other industries (e.g. tourism, aquaculture, irrigation) or as a vehicle for development (e.g. source of clean water, fisheries and other livelihoods, improved water-based transport), etc.

Potential interviewees: relevant power station or company managers; power station or company environmental and social issues managers; local government representative

Examples of evidence: modelled and actual output for reservoir operations; relevant excerpts of environmental and social issues management plans; reservoir operating rules; time series plots of reservoir operations

O-19 Downstream Flow Regimes

This topic addresses the flow regimes downstream of the operating hydropower facility infrastructure in relation to environmental, social and economic objectives. The intent is that issues with respect to the operating hydropower facility's downstream flow regimes are identified and addressed, and commitments with respect to downstream flow regimes are fulfilled.

Scoring:

1 *There are significant gaps relative to basic good practice.*

2 *Most relevant elements of basic good practice have been undertaken, but there is one significant gap.*

3 **Assessment:** Ongoing or emerging issues relating to the operating hydropower facility's downstream flow regimes have been identified, and if management measures are required then monitoring is being undertaken to assess if management measures are effective.

Management: In the case of a need to address downstream flow regimes, measures are in place to address identified downstream flow issues; and where formal commitments have been made, these are publicly disclosed.

Conformance/Compliance: In the case of a need to address downstream flow regimes, processes and objectives in place to manage downstream flows have been and are on track to be met with no major non-compliances or non-conformances, and downstream flow related commitments have been or are on track to be met.

Outcomes: In the case of a need to address downstream flow regimes and commitments to downstream flow regimes have been made, these take into account environmental, social and economic objectives, and where relevant, agreed transboundary objectives.

4 *All relevant elements of basic good practice have been undertaken and in one or more cases exceeded, but there is one significant gap in the requirements for proven best practice.*

5 **Assessment:** In addition, issues identification takes into account both risks and opportunities. In the case of a need to address downstream flow regimes, an assessment has been undertaken that includes identification of the flow ranges and variability to achieve different environmental, social and economic objectives based on field studies as well as relevant scientific and other information.

Management: In addition, processes are in place to anticipate and respond to emerging risks and opportunities. In the case of a need to address downstream flow regimes, in addition commitments are made in relation to downstream flow regimes that include the flow objectives; the magnitude, range and variability of the flow regimes; the locations at which flows will be verified; and ongoing monitoring.

Stakeholder Engagement: In the case of a need to address downstream flow regimes, in addition the assessment and management process for downstream flow regimes has involved appropriately timed and two-way engagement with directly affected stakeholders, and ongoing processes are in place for stakeholders to raise issues with downstream flow regimes and get feedback.

Conformance/Compliance: In the case of a need to address downstream flow regimes, in addition there are no non-compliances or non-conformances.

Outcomes: In the case of a need to address downstream flow regimes and commitments to downstream flow regimes have been made, in addition these represent an optimal fit amongst environmental, social and economic objectives within practical constraints of the present circumstances.

Assessment Guidance:

Topic relevance: This topic will always be relevant, because it should be captured by processes in place to identify any ongoing or emerging issues relating to the operating hydropower facility's downstream flow regimes. If there are no issues identified, then the topic is scored on the first sentence in the Level 3 statement for the Assessment criterion, and the first sentence in the Level 5 statements for the Assessment and Management criteria. If issues are identified, then all other statements are relevant.

Flow regimes is with reference to the fact that there may be multiple sites at which flows are affected by project infrastructure, e.g. downstream of a diversion dam as well as downstream of the main dam or the turbines.

Ongoing or emerging issues might be with respect to concerns about downstream impacts arising from water discharge or management activities, or changing policies, legislation or community expectations, or changing community values or uses of the downstream waterways.

Downstream flow regimes might be specified for different components and stages of projects in a manner such as, for example: minimum flows in part of certain seasons, maximum flows in part of certain seasons. Individual countries may have laws specifying downstream flow requirements; in such circumstances it will be necessary to see how social, economic and environmental considerations can still be taken into account. In cases where the downstream impact of the operating hydropower facility on flow regimes extends beyond the jurisdiction in which the facility is found, any implications of this would need to be taken into consideration.

Optimal in this context means best fit once all identified environmental, social and economic considerations have been factored in, based on the outcomes of a consultative process; the best fit may in fact be no flow at all in a particular river reach because another river reach has objectives that are considered of higher priority.

Potential interviewees: relevant power station or company managers; hydrologist; power station or company environmental and social issues managers; aquatic ecologist; independent environmental flows expert; stakeholder representatives; project affected community representatives; downstream riparian community representatives; representative from the responsible governmental authority; downstream transboundary community representatives if relevant

Examples of evidence: assessment of downstream flows in relation to flow-related objectives; downstream flow regime plans specifying range, variability and verification location; system operations plans; design documents in relation to release mechanisms; records of consultation and stakeholder involvement; records of response to stakeholder issues; third party review report; commitments and agreements; monitoring reports

O-20 Climate Change Mitigation and Resilience

This topic addresses the estimation and management of the project's greenhouse gas (GHG) emissions, analysis and management of the risks of climate change for the project, and the project's role in climate change adaptation. The intent is that the project's GHG emissions are consistent with low carbon power generation, the project is resilient to the effects of climate change, and the project contributes to wider adaptation to climate change.

Scoring:

1 *There are significant gaps relative to basic good practice.*

2 *Most relevant elements of basic good practice have been undertaken, but there is one significant gap.*

3

Assessment:

For climate mitigation: power density has been calculated; if power density is below 5 W/m^2, estimates of net GHG emissions (gCO_2e) of electricity generation are calculated and independently-verified, and periodically updated; if power density is below 5 W/m^2 and estimated emissions are above 100 gCO_2e/kWh, a site-specific assessment of GHG emissions is undertaken and periodically updated.

For climate resilience: an assessment of the project's resilience to climate change is undertaken and periodically updated; this assessment of project resilience incorporates an assessment of plausible climate change, identifies a range of resulting climatological and hydrological conditions at the project site, and applies these conditions in a documented risk assessment or stress test that encompasses dam safety, other infrastructural resilience, environmental and social risks, and power generation availability.

Management:

For climate mitigation: if GHG emissions estimates assume management measures, these measures are in place.

For climate resilience: measures are in place to avoid or reduce identified climate risks.

Stakeholder Engagement:

For climate mitigation: power density calculations, estimated GHG emissions, and / or the results of a site-specific assessment are publicly disclosed.

For climate resilience: ongoing processes are in place for stakeholders to raise issues and get feedback on the management of climate risks.

Conformance/Compliance:

Processes and objectives relating to climate change mitigation and resilience have been and are on track to be met with no major non-compliances or non-conformances, and any mitigation-related and resilience-related commitments have been or are on track to be met.

Outcomes:

For climate mitigation: the project's GHG emissions are demonstrated to be consistent with low carbon power generation.

For climate resilience: findings of the climate change assessment indicate that the project is resilient to climate change.

4 *All relevant elements of basic good practice have been undertaken and in one or more cases exceeded, but there is one significant gap in the requirements for proven best practice.*

5

Assessment:

For climate mitigation: in addition, if a site-specific assessment is required, it incorporates a broad range of scenarios, uncertainties and risks.

For climate resilience: in addition, assessment of resilience incorporates sensitivity analysis, project-specific hydrological modelling using recognized climate models, and the project's opportunities to provide adaptation services are considered on an ongoing basis.

Management:

For climate mitigation: management measures are in place to respond to risks and opportunities including offsetting emissions; plans are in place to monitor parameters used in GHG emissions estimates or to monitor GHG stocks.

For climate resilience: in addition, measures take account of a broad range of risks and inter-relationships, and processes are in place to respond to unanticipated climate change; and plans are in place to provide adaptation services if necessary.

Stakeholder Engagement:

In addition, the assessment of project resilience is publicly disclosed.

Conformance/Compliance:

In addition, there are no non-compliances or non-conformances.

Outcomes:

For climate mitigation: in addition, project net emissions are minimised or project operations facilitate system emissions reductions.

For climate resilience: in addition, the project is resilient under a broad range of scenarios; and the project will contribute to climate change adaptation at a local, regional or national levels.

Assessment Guidance:

Topic relevance: This topic is always relevant, including for older projects that were developed without any consideration of climate change. The role of older projects in climate change mitigation and their resilience can be assessed and enhanced during operation.

Climate change mitigation is defined, by the Inter-governmental Panel on Climate Change (IPCC, Fifth Assessment Report, glossary), as a human intervention to reduce the sources or enhance the sinks of GHG and other substances which may contribute directly or indirectly to climate change.

Resilience is the capacity of social, economic and environmental systems to cope with a hazardous event or trend or disturbance, responding or reorganizing in ways that maintain their essential function, identity and structure, while also maintaining the capacity for adaptation, learning and transformation (IPCC, Fifth Assessment Report, glossary).

Climate Change adaptation is defined by the Inter-governmental Panel on Climate Change (IPCC, Fifth Assessment Report, glossary) as the process of adjustment to actual or expected climate and its effects. In human systems, adaptation seeks to moderate or avoid harm or exploit beneficial opportunities. In some natural systems, human intervention may facilitate adjustment to expected climate and its effects. Hydropower-specific examples include flood control and drought management.

Power density is calculated using the average reservoir area (the area of flooded land, net of the pre-impoundment water body) and the capacity

of the power facilities in the project fed by this water body. A number of facilities may be included where they are part of one project or scheme being assessed (for example, a scheme of two facilities in a cascade, or a project with main and ecological power plants). Existing or separately planned facilities that will form a cascade with the project being assessed are not included in this calculation.

Net GHG emissions estimates should deliver an estimate of emissions in gCO^2e per kWh, using a recognized tool such as the G-res tool or site-specific calculations. For older projects, a comparison with current system emissions intensity has been made. Recognised tools or site-specific calculations should take into account pre-impoundment GHG emissions from the catchment, post-impoundment GHG emissions from the catchment, unrelated anthropogenic sources, emissions from construction and ongoing operational activities, the life cycle of the water body of at least 100 years, and the allocation of emissions between electricity generation and other services provided by multipurpose projects. Estimates made using a tool such as the G-res Tool should have been independently verified.

For the purposes of the assessment, **system emissions** shall mean greenhouse gas emissions associated with the local, regional or national grid to which the project is connected.

Older projects are defined as those commissioned prior to 2004.

The estimation of GHG emissions may be an **iterative process**. For projects with emissions estimated at more than 100 gCO^2e per kWh, operational measures would be identified to lower emissions below this figure.

A broad range of scenarios, uncertainties and risks in emissions assessment would encompass potential changes in the catchment, trends and risks related to anthropogenic sources of carbon inflows, inter-relationships between issues such as project construction and in-migration, the influence of climate change-induced temperature increases and altered inflows.

Operational measures to manage emissions include measures to reduce carbon loading in inflows, reservoir management to reduce reservoir stratification (mixing, and oxygenation measures), and operational procedures for the use of design features such as multi-level off-takes.

Measures to respond to risks of higher emissions than anticipated may include design features or operational measures that can be instigated in response to emissions measurements. Active involvement in the development of the catchment to minimise carbon inflows would also minimise risks.

Opportunities concerning emissions reductions include opportunities to add additional renewables facilities, such as floating solar, or take opportunities to increase power density with further expansion.

Consistency with low carbon power generation may be demonstrated by alignment with national plans for mitigation, and: a power density greater than or equal to 5 W/m^2; or net emissions intensity that is less than internationally-recognised thresholds at the time of the assessment (such as less than 100 gCO^2e/kWh); or in the case of older projects, current emissions intensity lower than current emissions intensity at the system level.

An assessment of **plausible climate change** would use all available secondary information, and follow a sequential approach such as: a. obtain all relevant historical climatological and hydrological data for the project area, and identify observed climatological and hydrological trends, including extreme events at a river basin scale; b. obtain data from global, regional or basin-scale climate models relevant to the project area, for a range of scenarios, and assess the degree of consistency between them; c. based on a and b, establish plausible climatological and hydrological conditions for the project site.

Climatological conditions at the project site refers

to annual averages, seasonal averages, and ranges of temperatures and precipitation, changes in the type and seasonal distribution of precipitation, and extreme weather events. Changes in these conditions will have effects on hydrological and other conditions including, for example, run-off, seasonal patterns of run-off, glacial melt or timing of glacial melt, intensity of floods and droughts, presence of ice (resulting in ice jams or affecting infrastructure such as power lines), frequency or magnitude of landslides, and sediment transport.

A **risk assessment or stress test** would be documented, for example in a risk register or matrix. This would set out the range of potential risks and hazards, assess the probability and magnitude of the impacts of each. It would identify and prioritise measures to avoid, minimise and mitigate the risks and impacts, and promote an approach of decision-making under uncertainty.

Measures for project resilience may not be only engineering measures. Non-engineering measures may include risk monitoring and risk management plans, disaster risk reduction and management plans, or other climate risk management plans.

Sensitivity analysis in the assessment of resilience refers to analysis of the increased probability and severity of impacts in relation to ranges of conditions.

Risks and inter-relationships in resilience refers to lower probability risks, and inter-relationships between issues, for example an increase in temperatures resulting in increased peak electricity demand which results in increased downstream flow variations for communities.

Environmental and social risks refers to the increased risk for the local environment and communities that result from the project within a context of a changing climate. For example downstream environmental flows may not be feasible with decreased flows resulting from climate change. This risk needs to be assessed and suitable mitigation developed.

Conversely, the project may have opportunities to provide **adaptation services** to the local environment and communities, above and beyond the risks created by the project. For example,

Public disclosure of emissions calculations is important for credibility. Public disclosure of power density refers to the disclosure of the details of the calculation, demonstrating how the calculation conforms to the definition of power density above and public information on the project design.

In stakeholder engagement, it is important that plans for the management of increased dam safety and environmental and social risks have been discussed with stakeholders, for example in the development of plans for emergency preparedness.

Potential interviewees: GHG emissions assessment researchers; verifier of GHG emissions assessment; hydrologists; environmental manager; social experts; dam safety engineers; regional and national climate scientists; designated national authorities (DNAs); disaster preparedness authorities; emergency response services.

Examples of evidence: power density calculation; results of G-res Tool application or other tool; verification report on G-res Tool application; climate change studies in the region; analysis of plausible climate change, and conditions at the project site; risk assessment or stress tests; national and regional policies and plans on mitigation and adaptation; feasibility study; operational plans; environmental and social management plans; disaster preparedness and response plans; minutes of meetings with stakeholders; evidence of public disclosure, etc.

Glossary of Terms

Additional Benefits: Benefits for the region that can be leveraged from the project.

Accountability: Obligation of an individual, firm, or institution to account for its activities, accept responsibility for them, and to disclose the results in a transparent manner.

Accountable: Responsible to or liable to account for someone or for some activity.

Adequate: Sufficient or enough to satisfy a requirement or meet a need.

Agreement: A recorded understanding between individuals, groups or entities to follow a specific course of conduct or action. It may be incorporated into, for example, a memorandum of understanding, minutes of a meeting, a letter of intent, a joint statement of principles, a contract, an operating licence, etc.

Appropriate: Suitable for a particular person, condition, occasion, or place; fitting; meeting identified needs or requirements.

Baseline: A set of measurements, statistics, or conditions used as a basis for later comparison. The baseline refers to the pre-project conditions, prior to the initiation of the project, against which post-project changes can be compared. For operating hydropower facilities, if a pre-project baseline does not exist then the present condition is taken as the baseline.

Commitment: A binding pledge or promise to do, give, or refrain from doing something.

Community Groups: Groups of people with common characteristics or interests living together within the larger society. There are many different ways to view these groups, and these will need to be defined in meaningful ways for the project. These may include, by way of example, urban dwellers, rural dwellers, Indigenous Peoples, ethnic minorities, people of a common profession or religion, disabled, elderly, illiterate, women, men, children, etc.

Compliance: Adherence to legal requirements, policies and public commitments.

Comprehensive: All relevant components have been considered and addressed.

Conformance: Addresses the level of conformance of implementation measures with most up-to-date project-related plans.

Consent: Signed agreements with community leaders or representative bodies who have been authorised by the affected communities which they represent, through an independent and self-determined decision-making process undertaken with sufficient time and in accordance with cultural traditions, customs and practices.

Corruption: Lack of integrity or honesty (especially susceptibility to bribery); use of a position of trust for dishonest gain.

Credible: Capable of being believed; plausible; worthy of confidence; reliable.

Cultural Heritage: The legacy of physical artefacts and intangible attributes of a group or society that are inherited from past generations, maintained in the present and bestowed for the benefit of future generations.

Cumulative Impacts: Cumulative impacts are those that result from the incremental impact of the project when added to other past, present, and reasonably foreseeable future actions. Effects should be assessed in terms of the capacity of the water resource, ecosystem, and/or affected communities to accommodate such impacts. Analyses need to be defined within realistic boundaries.

Deception: The fact or state of being deceived; to be given cause to believe what is not true; to be mislead.

Developer: The lead entity or consortium of entities investing in the development of a hydropower project.

Directly Affected Stakeholder: Those stakeholders with substantial rights, risks and responsibilities in relation to the issue. These may be inside the project affected area (e.g. project affected communities) or outside the project-affected area (e.g. government regulators, finance institution representatives, or investment partners).

Disclosure: Made publicly available (see also "Publicly disclosed").

Economic Displacement: Loss of assets, access to assets, or income sources or means of livelihoods as a result of (i) acquisition of land, (ii) changes in land use or access to land, (iii) restriction on land use or access to natural resources including water resources, legally designated parks, protected areas or restricted access areas such as reservoir catchments and (iv) changes in environment leading to health concerns or impacts on livelihoods. Economic displacement applies whether such losses and restrictions are full or partial, and permanent or temporary.

Effective: Producing or capable of producing an intended, expected and/or desired effect.

Engaged: Interacted with, often through consultation processes.

Equitable: Fair, just or impartial

Evidence: Evidence provided by an auditee and used by an assessor to verify whether and to what degree a criterion has been met. Evidence can be qualitative or quantitative information, records or statements of fact, either verbal or documented. It is retrievable or reproducible; not influenced by emotion or prejudice; based on facts obtained through observation, measurements, documentation, tests or other means; factual; reproducible; objective and verifiable.

Expert: A person with a high degree of skill in or knowledge of a certain subject, as a result of a high degree of experience or training in that subject.

Gender Analysis: The process of assessing the impact that an activity may have on females and males, and on gender relations. It can be used to ensure that men and women are not disadvantaged by development activities, to enhance the sustainability and effectiveness of activities, or to assess and build capacity and commitment to gender sensitive planning.

Governance: The combination of processes and structures that inform, direct, manage and monitor the activities of the project toward the achievement of its objectives.

Grievance Mechanisms: The processes by which stakeholders are able to raise concerns, grievances and legitimate complaints, as well as the project procedures to track and respond to any grievances.

Human Rights: The basic rights and freedoms to which all humans are entitled, encompassing civil, political, economic, social, and cultural rights, and enshrined in international declarations such as the Universal Declaration on Human Rights 1948.

Hydrological Resource: Water inflows to the project.

Impact: Effect or consequence of an action or event; the degree to which an impact is interpreted as negative or positive depends on context and perspective.

Independent Review: Expert review by someone not employed by the project and with no financial interest in profits made by the project.

Indigenous Peoples: A distinct social and cultural group possessing the following characteristics in varying degrees: self-identification as members of a distinct indigenous cultural group and recognition of this identity by others; collective attachment to geographically distinct habitats or ancestral territories in the project area and to the natural resources in these habitats and territories; customary cultural, economic, social or political institutions that are separate from those of the dominant society or culture; an indigenous language, often different from the official language of the country or region.

Integrated: Merged, interspersed, embedded into something.

Integrated Water Resources Management (IWRM): A process which promotes the coordinated development and management of water, land and related resources, in order to maximize the resultant economic and social welfare in an equitable manner without compromising the sustainability of vital ecosystems.

Intermediaries: Workers engaged through third parties who are either performing work directly related to the functions essential for the project for a substantial duration, or who are geographically working at the project location.

Invasive Species: A species that does not naturally occur in a specific area and whose introduction does or is likely to cause economic or environmental harm or harm to human health.

Land Rehabilitation: The process of returning the land to some degree of its former state after disturbance or damage associated with project implementation.

Legacy Issues: Impacts of previous projects that are unmitigated or not compensated with a similar good or service, or long-standing issues with a present (existing) project, or pre-existing issues in the present location of a new project.

Livelihood: The capabilities, assets (stores, resources, claims and access) and activities required for a means of living.

Living Standards: The level of material comfort as measured by the goods, services, and luxuries available to an individual, group, or nation; indicators of household well-being; examples include: consumption, income, savings, employment, health, education, nutrition, housing, and access to electricity, clean water, sanitation, health services, educational services, transport, etc.

Local: Administrative subdivisions of a national territory (e.g. with reference to local land use plans)

Long-Term: The planned life of the hydropower project.

Maintenance: The work of keeping something in proper condition; upkeep.

Management Plan: A management plan is a tool used as a reference for managing a particular project issue, and establishes the why, what, how, who, how much, and when for that issue.

Management System: The framework of processes and procedures used to ensure that an organisation can fulfil all tasks required to achieve its objectives.

Maximised: Achieved to as great an extent practicable, taking into account all constraints.

Minimised: Achieved to as little an extent practicable, taking into account all constraints.

Mitigation: Moderation, alleviation, and/or relief of a negative impact

Non-Compliance: Not meeting legal, licence, contractual or permit obligations

Non-Conformance: Not meeting targets and objectives in the management plans; these may or may not be publicly stated commitments, but they are not legally binding and violation can not incur legal action.

Non-Critical: Not essential for something to be suitable, adequate and/or effective

Occupational Health and Safety: Protecting the safety, health and welfare of people engaged in work or employment, for example through preventing disease or injury that might arise as a direct result of the workplace activities.

Offset: Measurable conservation outcomes resulting from actions designed to compensate for significant adverse biodiversity impacts arising from project development and persisting after appropriate avoidance, minimization, and restoration measures have been taken. Generally, these are not within the project site.

Optimal: Best fit, once all considerations have been factored in, based on the outcomes of a consultative process

Optimisation Process: The process by which alternatives have been considered towards determining the best fit

Outstanding: Not settled or resolved.

Plans: Management measures to address an identified issue, that may or may not be formalised into business management plans. Plans can include documented planned arrangements, for example based on agreements for forward actions made at meetings. Plans may also be those of the developer, owner or operator, or plans of the relevant government agency or other institution which has the primary responsibility for that sustainability topic. Plans can also be those developed by the contractor responsible for implementation.

Political Risk: A risk of financial loss or inability to conduct business faced by investors, corporations, and governments due to government policy changes, government action preventing entry of goods, expropriation or confiscation, currency inconvertibility, politically-motivated interference, government instability, or war.

Practicable: Capable of being done with means at hand and circumstances as they are.

Process: A series of actions, changes, or functions bringing about a result.

Procurement: The acquisition of goods and/or services at the best possible cost, in the right quality and quantity, at the right time, in the right place and from the right source for the direct benefit or use of the hydropower project or operating facility, generally via a contract.

Programme: Relates to the hydropower development programme, which encompasses all project components (construction, environmental, social, resettlement, finance and procurement, and communications, etc.).

Project-Affected Area: The catchment, reservoir, and downstream of the project site and associated dams, and the area affected by any associated developments (e.g. roads, transmissions lines, quarries, construction villages, relocation areas, etc).

Project Affected Communities: The interacting population of various kinds of individuals in the project affected area who are affected either positively or negatively by the hydropower project preparation, implementation and/or operation.

Project Catchment: The portion of the river basin that drains into the project reservoirs, either to pass ultimately through the generation turbines or to spill over the dams into the downstream rivers.

Project Components: Components of the overall hydropower development programme, including design, construction, environmental, social, resettlement, finance, communications and procurement.

Project Lands: The land that is owned, utilised and/or affected by the project.

Protection: To keep in safety and protect from harm, decay, loss, damage or destruction.

Publicly Disclosed: The public is informed that the agreement, commitment, assessment, management plan or significant report has been made or completed, and it is made publicly available either voluntarily (e.g. posted on a website) or on request in a timely manner.

Refurbishment: The state of being restored to its former good condition.

Regional: Refers to a supranational entity in an international context. To refer to administrative subdivisions of a national territory (e.g. with reference to local land use plans) this protocol uses the designation of local.

Relevant: Directly related, connected, applicable, current or pertinent to a topic. In the Protocol, relevance will be determined based on project-specific considerations and analyses. Project representatives make a case for what is relevant and provide evidence to support this, e.g. support of regulatory authorities; the assessor views and seeks evidence to affirm relevance.

Reservoir: Any artificial pondage or lake used by the project for the storage and regulation of water.

Reservoir Area: The area that is inundated when the reservoir is at its maximum expected level and the dry buffer zone above this level.

Resettlement: The process of moving people to a different place to live, because due to the project they are no longer allowed to stay in the area where they used to live.

Resettlees: Those people who are required to be resettled, including those who have formal legal rights, customary or traditional rights, as well as those who have no recognizable rights to the land.

River Basin: The area drained by a river and all its tributaries

Resettlement Action Plan: A document or set of documents specifically developed to identify the actions that will be taken to address resettlement. It would typically include identification of those being resettled; the socio-economic baseline for the resettlees; the measures to be implemented as part of the resettlement process including those relating to resettlement assistance and livelihood support; the legal and compensation frameworks; organisational roles and responsibilities; budget allocation and financial management; the timeframe, objectives and targets; grievance redress mechanisms; monitoring, reporting and review provisions; and understandings around consultation, participation and information exchange.

Sensitivity Analysis: Investigation into how projected performance varies along with changes in the key assumptions on which the projections are based

Short-Term: Covers day-to-day operations.

Significant: Important in effect or consequence, or relatively large.

Stakeholder: One who is interested in, involved in or affected by the hydropower project and associated activities.

Stakeholder Group: A set of stakeholders with common characteristics or interests.

Strategic Fit: The compatibility of the project with local, national and regional needs identified through the priorities and objectives put forth in options assessments and other relevant local, national and regional and multi-national policies and plans.

Suitable: Appropriate for the desired purpose, condition or occasion.

Timely: Occurring at a suitable or opportune time

Transboundary Agreements: Agreements made amongst riparian states about how shared water resources will be utilised by the parties involved, and the processes that will be followed to sustain these understandings.

Transparent / Transparency: Open to public scrutiny, publicly available, and/or able to be viewed or disclosed to the public on request.

Upgrade: To improve to a higher grade or standard.

Vulnerable Social Groups: Social groups who are marginalised or impoverished with very low capacity and means to absorb change.

Understanding the Protocol's Gradational Approach

The gradational approach undertaken in the Preparation, Implementation and Operation assessments tools can be understood by examination of Table 1. This table provides general guidance on characteristics that are likely to be exhibited for these different criteria at the five different scoring levels. The scoring statements found in the Preparation, Implementation and Operation assessment tools have been guided by the approach shown in Table 1. This table is not intended to be the basis for assigning of scores, as sufficient information should be provided on the topic pages. However, this table can be referred to during an assessment if there is insufficient information in the topic scoring statements and in the topic-specific assessment guidance to help the assessor to determine a score. If there are questions in the assessment process about whether the assessment, management and stakeholder engagement approaches are sufficient for basic good practice, Table 1 may be of assistance.

Table 1 - Understanding the Protocol's Gradational Approach

This table captures characteristics that are likely to be exhibited at different scoring levels for each of the criteria used in the Hydropower Sustainability Assessment Protocol.

Level	Assessment	Management
5	Suitable, adequate and effective assessment with no significant opportunities for improvement. In addition to basic good practice (Level 3), the assessment is likely to take a relatively broad, external or regional view or perspective; emphasise opportunities; and show a high level examination of interrelationships amongst relevant sustainability issues.	Suitable, adequate and effective management processes with no significant opportunities for improvement. In addition to basic good practice (Level 3), management plans and processes are likely to show excellent anticipation of, and response to, emerging issues or opportunities; senior management and/or executive decisions are likely to be timely, efficient and effective in response to monitoring data, investigations and issues arising; and, in cases, commitments in plans are public, formal and legally enforceable.
4	Suitable, adequate and effective assessment with only a few minor gaps. In addition to basic good practice (Level 3), the assessment is likely to exhibit some recognition of broader, external or regional issues; opportunities; and interrelationships amongst relevant sustainability issues.	Suitable, adequate and effective management processes with only a few minor gaps. In addition to basic good practice (Level 3), management plans and processes are likely to exhibit good anticipation of, and response to, emerging issues or opportunities; and, in cases, commitments in plans are public and formal.
3	Suitable adequate and effective assessment with no significant gaps. This would typically encompass (as appropriate to the topic and life cycle stage) identification of the baseline condition including relevant issues, appropriate geographic coverage, and appropriate data collection and analytical methodologies; identification of relevant organisational roles and responsibilities, and legal, policy and other requirements; appropriate utilisation of expertise and local knowledge; and appropriate budget and time span. At level 3 the assessment encompasses the considerations most relevant to that topic, but tends to have a predominantly project-focussed view or perspective and to give stronger emphasis to impacts and risks than it does to opportunities.	Suitable, adequate and effective management processes with no significant gaps. These would typically encompass (as appropriate to the topic and life cycle stage) development and implementation of plans that: integrate relevant assessment or monitoring findings; are underpinned by policies; describe measures that will be taken to address the considerations most relevant to that topic; establish objectives and targets; assign roles, responsibilities and accountabilities; utilise expertise appropriate to that topic; allocate finances to cover implementation requirements with some contingency; outline processes for monitoring, review and reporting; and are periodically reviewed and improved as required.
2	A significant gap in assessment processes relative to basic good practice (Level 3).	A significant gap in management processes relative to basic good practice (Level 3).
1	Significant gaps in assessment processes relative to basic good practice (Level 3)	There are significant gaps in management processes relative to basic good practice (Level 3)

Stakeholder Engagement	Stakeholder Support	Outcomes	Conformance/ Compliance
Suitable, adequate and effective stakeholder engagement processes with no significant opportunities for improvement. In addition to basic good practice (Level 3), the engagement is likely to be inclusive and participatory with the directly affected stakeholders; thorough feedback is likely to be available on how directly affected stakeholder issues are taken in to consideration; in cases, there is likely to be directly affected stakeholder involvement in decision-making; and information identified through engagement processes to be of high interest to stakeholders is released publicly in a timely and easily accessible manner.	There is support of nearly all directly affected stakeholder groups for the assessment, planning or implementation measures for that topic, or no opposition by these stakeholders. In cases formal agreements or consent with the directly affected stakeholder groups have been reached for management measures for that topic.	In addition to basic good practice (Level 3), there may be exhibited enhancements to pre-project conditions; contributions to addressing issues beyond those impacts caused by the project; leveraging of opportunities; or significant contribution to capacity building.	No non-compliances or non-conformances.
Suitable, adequate and effective stakeholder engagement processes with only a few minor gaps. In addition to basic good practice (Level 3), there is likely to be good feedback on how directly affected stakeholder issues have taken into consideration; and information on sustainability topics understood to be of high interest to stakeholders is voluntarily released publicly.	There is support of a large majority of directly affected stakeholder groups for the assessment, planning or implementation measures for that topic, or only very low level opposition by these stakeholders.	In addition to basic good practice (Level 3), there may be exhibited full compensation of negative impacts; some positive enhancements; or evidence of capacity building associated with the project.	Very few minor non-compliances and non-conformances that can be readily remedied.
Suitable, adequate and effective stakeholder engagement processes with no significant gaps. These would typically encompass (as appropriate to the topic and life cycle stage): Identification of directly affected stakeholders; Appropriate forms, timing, frequency and locations of stakeholder engagement, often two-way; Freedom for affected stakeholders to participate; Attention to special stakeholder engagement considerations relating to gender, minorities, cultural sensitivities, level of literacy, and those who might require particular assistance; Mechanisms by which stakeholders can see that their issues are recognised and acknowledged, and how they have been or are being responded to; and disclosure of information on significant sustainability topics (in cases, this may be on request).	There is general support amongst directly affected stakeholder groups for the assessment, planning or implementation measures for that topic, or no significant ongoing opposition by these stakeholders.	As appropriate to the topic and the life cycle stage, there may be exhibited avoidance of harm, minimisation and mitigation of negative impacts; fair and just compensation; fulfilment of obligations; or effectiveness of implementation plans.	No major non-compliances and non-conformances.
A significant gap in stakeholder engagement processes relative to basic good practice (Level 3).	There is support amongst some directly affected stakeholder groups for the assessment, planning or implementation measures for that topic, with some opposition.	A significant gap relative to basic good practice (Level 3), for example, some deterioration in baseline condition.	A major non-compliance or non-conformance.
There are significant gaps in stakeholder engagement processes relative to basic good practice (Level 3).	There is low support amongst directly affected stakeholder groups for the assessment, planning or implementation measures for that topic, or a majority oppose.	Significant gaps relative to basic good practice (Level 3), for example deterioration in baseline conditions with delay or difficulties in addressing negative impacts.	major non-compliances and non-conformances.

About the tools

The Hydropower Sustainability Tools define international good and best practice in sustainable hydropower development and are used to assess the sustainability of individual projects.

HydroSustainability.org

ISBN 978-0-9566228-1-5

Governed by Hydropower Sustainability Assessment Council

Published by iha