

# Hydropower Sustainability Standard



Version 1.0 – DRAFT  
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**Hydropower  
Sustainability**



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A formal review and revision process for the HS Standard takes place at least every five years. The next review is scheduled for 2026. The HS Council welcomes comments on the HS Standard at any time. Comments will be incorporated into the next review process.

Please submit comments by mail or email to the address below.

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# Hydropower Sustainability Council

The Hydropower Sustainability (HS) Council is the multi-stakeholder governance body of the Hydropower Sustainability Certification Scheme. The HS Council includes representatives of social, community and environmental organisations, developed and developing country governments, financial institutions and the hydropower sector. The HS Council consists of seven chambers, each representing a different segment of hydropower stakeholders. Chamber members participate in a democratic process to elect representatives to speak for their stakeholder group on the HS Governance Committee. The Council ensures multi-stakeholder input and confidence in the content quality, relevance and assurance of the Hydropower Sustainability Certification Scheme.



The **vision** for the Hydropower Sustainability Certification Scheme is to make sustainable hydropower the norm.

The **mission** for the Hydropower Sustainability Council is to drive positive and long-lasting change in the hydropower sector by building knowledge, incentivising and embedding sustainable practices.

# Glossary

**Accreditation** – A formal recognition that a process meets certain requirements, e.g. a company is accredited to provide certification audits, a training course is accredited to equip trainees to become assessors, etc.

**Application** – The process step in which a project is proposed to be assessed for Certification against the Standard.

**Assessment** – The process by which Accredited Assessors assess hydropower projects against the Standard and develop an Assessment Report for the project.

**Associated Facilities** – The facilities that would not be constructed if the project did not exist, and where the project would not be viable without the other facility. Examples pertinent to a hydropower project could include roads, transmission lines, buildings, etc.

**Assurance** – The demonstration that specified requirements have been fulfilled in a credible manner.

**Certification** – A comprehensive evaluation of hydropower projects against the Standard, in order to receive an HS Certification rating approved by the HS Council. The certification methodology is guided by agreed procedures as described in the HS Assurance System.

**HSAP** – The Hydropower Sustainability Assessment Protocol, an assessment tool to measure and guide sustainable performance in the hydropower sector.

**HESG** – The Hydropower Sustainability Environmental, Social and Governance Gap Analysis Tool, an assessment tool based on the framework of the HSAP that provides an action plan to help project proponents to address gaps against good practice.

**HGIIP** – The Hydropower Sustainability Good International Industry Practice Guidelines, a guidance document on the processes and outcomes that constitute good international industry practice in accordance with the HSAP and HESG.

**Hydropower Sustainability (HS) Assurance System** – The processes and measures for the credible assurance of the HS Certification Scheme.

**HS Certification Scheme** – A certification and labelling scheme for hydropower sustainability including the HS Standard, Assurance System and the other standard-setting documents.

**HS Council** – The multi-stakeholder governing body of the Hydropower Sustainability Certification Scheme.

**HS Governance Committee** – The executive committee that brings together representatives of the multi-sectoral chambers of the HS Council in promoting the use and integrity of the HS Certification Scheme.

**HS Secretariat** – The organisation that serves the function of secretariat for the HS Council and its Board. The HS Secretariat role is presently held by IHA Sustainability Limited.

**HS Standard** – The global standard for the sustainability of hydropower development, which sets out the criteria that must be met for a hydropower project or operating facility to achieve certification.

**Hydropower Sustainability Tools (HST)** – A framework to define and measure sustainability in the hydropower sector, comprising the HSAP, the HESG and the HGIIP.

**Label** – A visual element denoting a project's rating.

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

**Primary suppliers** – The 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.

**Project** – A hydropower project or operating facility eligible for HS Certification.

**Rating** – A ranking of a project according to the HS Certification Scheme based on an assessment against the HS Standard.

**Scoring** – The assignment of topic scores in an assessment, which will inform the rating for the project.

**Standard** – A document that sets out what is aimed to be achieved or demonstrated





# Introduction

# 1 Introduction

The Hydropower Sustainability (HS) Certification Scheme is the driving mechanism to achieve the vision of making sustainable hydropower the norm. The HS Certification Scheme is set up to incentivise increased uptake of hydropower performance requirements expressed in the Hydropower Sustainability (HS) Standard, supported by a comprehensive system of assurance processes to give confidence and credibility.

This document, the HS Standard, supports the vision and mission of the HS Certification Scheme by:

- Setting out the contextual framework for the HS Certification Scheme and its role in demonstrating that the hydropower sector can be sustainable;
- Providing a common standard for hydropower on Environmental, Social and Governance (ESG) performance;
- Expressing hydropower performance requirements that can be independently audited based on objective evidence;

**Table 1. The standard-setting documents of the HS Certification Scheme**

Standard-setting document	Purpose	User groups
<b>Hydropower Sustainability Standard</b>	Presents the key elements of the Certification Scheme, namely the Theory of Change, the scope and eligibility, the hydropower performance requirements, and the hydropower sustainability Certification process.	All stakeholders interested in knowing why we have a certification scheme, what hydropower performance requirements to expect, how the different Certification labels are derived, and what they relate to.
<b>Hydropower Sustainability Assurance System</b>	Defines all process aspects of the Certification Scheme, including steps towards obtaining certification, assessor accreditation, hydropower assessment processes, claims, renewal, appeals, and other governance processes.	Organisations, project owners and practitioners interested in the quality control mechanisms of the HS Certification Scheme.
<b>Assessment Tools</b>	Includes the assessment tool and assessment report templates.	Project Proponents interested in Projects undergoing assessments, and Accredited Assessors in conducting assessments.
<b>Guidance Documents</b>	Includes good practice guidelines and a series of topic-specific how-to guides.	Project Proponents and practitioners interested in learning more about hydropower performance requirements in the HS Standard, and how to reach them.
<b>Training Manuals</b>	Includes Accredited Assessor manuals, and further training materials to be developed over time.	Accredited Assessors in conducting assessments.

- Reinforcing and promoting consumer and stakeholder confidence in hydropower through clear definition of certification levels.

The HS Standard provides the key structural elements of the HS Certification Scheme. These are:

- the Theory of Change (Section 2);
- the Scope and Eligibility (Section 3);
- the Hydropower Performance Requirements (Section 4); and
- the Hydropower Sustainability Certification Process (Section 5).

All process requirements relating to the HS Certification Scheme are found in the accompanying Assurance System document, supported by information and resources on the HS website.

The HS Standard, along with the Assurance System, Assessment Tools, Guidance Documents and Training Manuals, make up the standard-setting documents of the HS Certification Scheme, as summarised in Table 1.

All standard-setting documents of the HS Certification Scheme other than the training manuals can be found on the HS website. Training manuals are issued to training course participants.

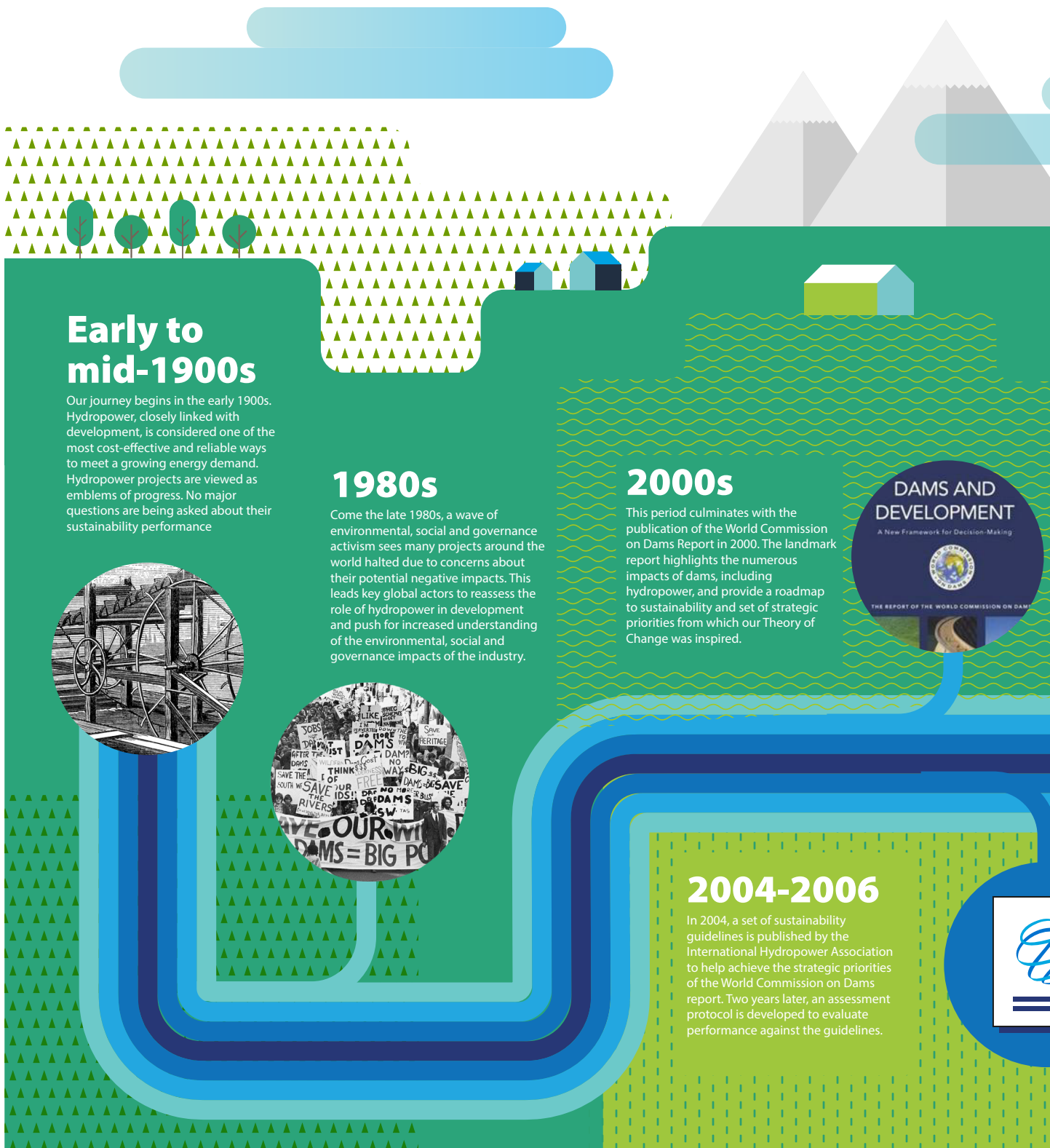


Figure 1 – Timeline of change

## 2010-2018

The Hydropower Sustainability Assessment Protocol was published in 2010 and, since its launch, has been used officially in over 25 countries to help hydropower developers across the globe to implement better practices and increase the sustainability performance of their projects.

In 2018, two supporting resources were developed based on the good practice requirements defined in the assessment protocol: an ESG gap analysis tool and a set of good practice guidelines. The topics of the ESG tool are aligned with the environmental and social standards of the World Bank Group.



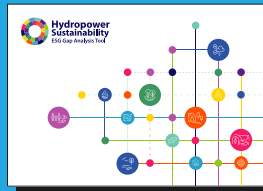
## 2020-2021

In November 2020, a 90-day global consultation was launched to develop the Hydropower Sustainability Tools into a global standard for sustainable hydropower. Following a consultation, the Standard was launched by the Hydropower Sustainability Council in September 2021 with the vision of making sustainable hydropower the norm.

## 2008-2010

In 2008, a multi-stakeholder initiative – the Hydropower Sustainability Assessment Forum – is launched to build on the existing protocol to create a sustainability assessment framework that represents the views of the entire hydropower community, not just industry groups.

The Forum operated for two and a half years, from 2008 to 2010 and followed a similar process implemented by the World Commission on Dams using reference groups and open consultation periods to obtain a wide array of views.





# Theory of Change

# 2 Theory of Change

## 2.1 Context

Hydropower is the planet's most mature source of renewable energy. It provides clean electricity to power homes and industries, and can offer other essential services such as irrigation, flood control and drought mitigation. Along with wind and solar, hydropower can help governments decarbonise their electricity systems and communities meet sustainable development objectives. In a world that aims to provide enough food, water and electricity for a growing population, hydropower has a vital role to play. However, the sector has been challenged with how to consistently and effectively develop projects that avoid, minimise and mitigate impacts to the environment and communities.

The challenge for the HS Standard is to embed a process by which all hydropower development is done sustainably and responsibly, recognising that sustainable development challenges and what is considered sustainable also evolves and will continue to over time. Hydropower's past may be complicated, but the Standard can make its future as clear as blue water. Sustainability is a journey of continuous improvement to good, better and best practice; for hydropower, this Theory of Change is the roadmap.

## 2.2 A roadmap for sustainable hydropower

The Theory of Change outlines the plan to work towards and ultimately seek to achieve the vision of a sustainable hydropower sector. It defines desired impacts and then maps out the pathways needed to achieve these impacts. The Theory of Change also provides a guiding framework to monitor and evaluate the effectiveness of the Hydropower Sustainability Certification Scheme. It allows understanding of the causal relationships between activities, outputs, outcomes and impacts. Based on these causal chains, key performance indicators will be developed to measure progress and gain insight into how systems can be improved over time.

These standard-setting processes are driven by three intervention spheres: Policy, Promotion and Practice. The 3-Ps aim to embed good practice in hydropower policy and incentivise higher performance in project development by focusing on strategies and activities. The strategies and activities, in turn, are intended to bring about increased adoption of the HS Standard, greater transparency and inclusivity in the Certification Scheme, and increased market uptake of and investment in sustainable hydropower. These outputs aim to lead to outcomes over four key impact areas: Resilient Infrastructure, Prosperous Communities, Healthy Ecosystems and Good Governance.

Over time, the success of our Theory of Change will allow achievement of the mission to drive positive and long-lasting change in the hydropower sector, by increasing knowledge in and incentivising sustainable practices.





Intervention	Strategies	Activities
<b>POLICY</b>	<b>S1</b> Instigate a cultural shift in hydropower companies towards sustainability	Establish the use of the Standard as an expectation of industry Involve Boards, CEOs and compliance officers in the cultural transition towards sustainability
	<b>S2</b> Embed the Standard in financial requirements of financiers and green bond issuers	Collaborate with issuers, development banks, commercial banks and institutional investors to adopt Standard as core requirements Lead the dialogue with influential international organisations (e.g. IEA, IRENA, UNEP)
	<b>S3</b> Position the Standard at the core of Government's regulation and policy design for hydropower and energy	Cooperate with governments, development agencies and multilateral development banks in capacity building programmes to embed the Standard in hydropower and energy policy
<b>PROMOTION</b>	<b>S4</b> Prepare proactive communications and social media presence to increase knowledge about and engagement with the Standard	Implement a high-profile launch of the Standard supported by clear and relevant communications Engage with public society to demand greater use of the Standard
	<b>S5</b> Support practitioners to meet the Standard requirements	Deliver capacity building programmes through donor- and company-funded support, including online and face-to-face training and technical workshops through the Hydropower Sustainability Training Academy
	<b>S6</b> Incentivise, recognise and acknowledge higher sustainability performance	Award prizes and a tiered rating system to create healthy peer competition and encourage further use of the Standard
<b>PRACTICE</b>	<b>S7</b> Follow an independent and evidence-based certification process	Follow a systematic and field-tested assessment methodology, based on evidence and conducted by independent accredited assessors
	<b>S8</b> Meet market demand for certification with available accredited assessors to conduct assessments	Provide training to accredited assessors through the Hydropower Sustainability Training Academy Support newly trained assessor in their integration in the certification market
	<b>S9</b> Guarantee transparent reporting and consultation on assessment results and standard-setting processes	Integrate a transparent public consultation system in the assessment methodology, including high quality comments/inputs and resolved grievances
	<b>S10</b> Ensure Standard requirements remain up-to-date and aligned with best evidence through continuous research and development	Establish a management system to monitor the effectiveness of the Standard
	<b>S11</b> Institute an open multistakeholder governance	Encourage wide public representation and maintain multistakeholder governance framework to promote transparency and good governance

Figure 2 – Theory of change

## Outputs

Increased adoption of the Standard through embedding in company systems, financial mechanisms and government policies

Increased investment in sustainable hydropower through improved recognition

Greater transparency and inclusivity in the hydropower sector through the Standard methodology

## Vision and impacts



# A world where all hydropower projects enable:

### Healthy ecosystems



- Projects protect forests, rivers and other critical habitats from degradation
- Projects support biodiversity conservation and preservation
- Projects maintain local ecosystem services and values
- Projects manage impacts to ecosystems, such as erosion and sedimentation, responsibly

### Prosperous communities



- Projects engage in good faith with affected communities
- Projects respect the dignity and human rights of affected communities
- Projects improve the livelihoods and living standards of affected communities
- Projects share their benefits with affected communities

### Resilient infrastructure



- Projects demonstrate their ability to respond to the effects of climate change
- Projects take into account regional water needs and availability
- Projects contribute to wider adaptation strategies and flexible grid operations
- Projects protect communities and the environment from the consequences of dam failure and other infrastructure safety risks

### Good governance



- Projects are governed by sound corporate business structures
- Projects implement ethical and transparent policies and practices
- Projects treat their workers fairly and respectfully
- Projects contribute to wider development strategies and national planning



# Scope and eligibility

# 3 Scope and eligibility

## 3.1 Hydropower project eligibility

Projects that are eligible to be assessed and certified against the HS Standard include:

- Run-of-river hydropower
- Storage hydropower
- Pumped storage hydropower
- Multipurpose dams with a hydroelectrical component

Only individual projects, new and existing, are eligible for assessment and certification against the HS Standard. There are no eligibility restrictions on size or location. Multipurpose dams can be assessed against the HS Standard if they have a hydroelectrical component. Process aspects on determining eligibility are described in the HS Assurance System under Section 3.1.2.

In the future, the HS Secretariat will develop processes in which multiple power stations could be assessed under a single Certification, in cases in which the stations are designed to function in cascade or as a complex, are at the same life cycle stage and under the same owner. At present these processes are not developed, and so cascades and complexes are not eligible for a single certification. Clients could consider undertaking an HSAP Assessment for a cascade or complex and then follow the harmonisation process to have the individual stations certified if eligible.

Should the development of the Project require the developing of associated facilities, these are included within the scope of the HS Assessment and Certification. 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 on an ongoing basis. 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. within clear proximity of

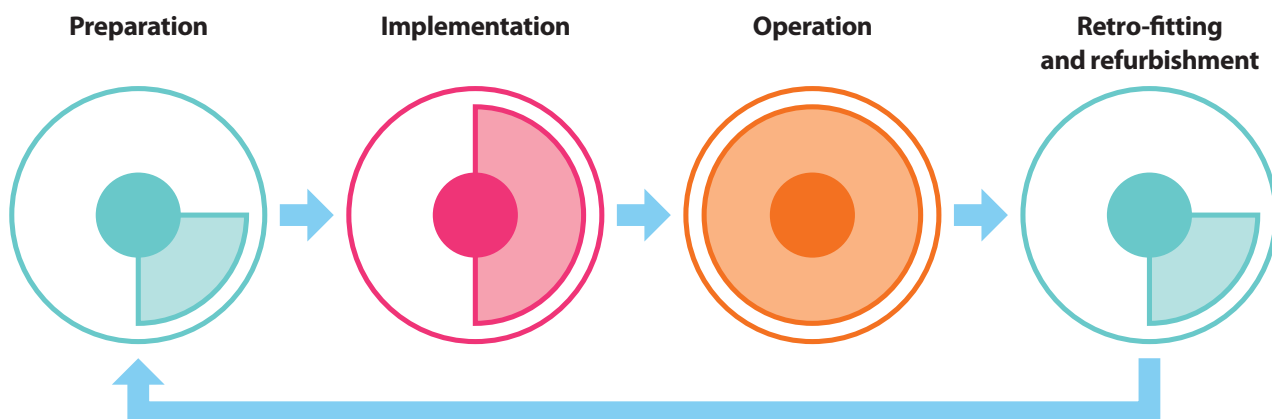
the hydropower project. Associated facilities should not be confused with primary suppliers, which are those first-tier suppliers who are providing goods or materials essential for project construction, such as an off-site quarry in other ownership. Primary suppliers are specifically considered in some of the performance requirements of the Standard, but are not subject to the full assessment. Scope and proximity need to be clearly documented as part of the Assessment as described in the HS Assurance System under Section 4.

## 3.2 Hydropower life cycle stages

The HS Standard is used to certify individual projects tailored to the Preparation, Implementation and Operation stages. Certification against the HS Standard recognises performance achievements at that life cycle stage only. Assessments undertaken reflect a snapshot in time, documenting what Assessors find with respect to the performance requirements of the HS Standard based on the evidence they are able to review at the time of the Assessment. For example, certification of an operating project against the Operation stage requirements does not in any way imply that the preparation or implementation of that project met the Preparation or Implementation stage requirements of the HS Standard.

### 3.2.1 Preparation stage

The Preparation stage performance requirements relate to 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 regarding award of 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. The Preparation stage can be used prior to, and to inform, the decision to move



forward with project implementation, in addition to national or state regulatory processes (such as obtaining a construction permit and an operating license based on the ESIA and project specific governmental requirements). Following this point, construction commences along with implementation of relevant elements of environmental and social management plans. The Preparation stage tool takes into consideration some early stage issues around siting and design, demonstrated need and strategic fit, and cumulative impact assessment.

### 3.2.2 Implementation stage

The Implementation stage performance requirements relate to 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 some units (i.e. turbines) of a multiple unit power station may be commissioned while others are still being installed. 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 full project commissioning.

### 3.2.3 Operation stage

The Operation stage performance requirements relate to the operation of a hydropower facility. These performance requirements 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 stage is framed by the operating conditions put forth in the relevant governmental authorisation (e.g. an operating license).

Certification of an operating project against the Operation stage requirements would not imply that the preparation or implementation of that project met the Preparation or Implementation stage performance requirements of the HS Standard. Recognising that older projects may have been developed before there was legislation requiring environmental or social impact assessments, the Operation stage assessment framework is carefully designed, consistent with the approach of ISO 14001, so that the existing condition is the baseline and risks are assessed against that condition.

### 3.3 Major refurbishments

Hydropower projects tend to have an extensive lifetime, with many operating facilities having been in service for more than a century. The Preparation stage can provide guidance on important considerations for decisions relating to facility or transmission network re-optimisation, facility life extension, change in ownership, or decommissioning. Project decisions relating to major refurbishment would be assessed against the Preparation stage performance requirements, whereas in the case of re-licensing or minor refurbishment, the Operation stage would be appropriate.

### 3.4 Topic relevance

The global applicability of the HS Standard means considerable variety must be accommodated, for example with regulatory frameworks, project scale and complexity, public or private sector projects, mainstream or tributary stream siting, multi-unit versus single-unit design, single-use versus multi-use purpose, reservoir versus run-of-river design, social and environmental values, and stakeholder concerns. In the particular context of a hydropower project, certain issues included in the HS Standard may not be relevant; for example, there may be no resettlement or cultural heritage issues that need to be managed. In such cases, Accredited Assessors make a determination on the topic as Not Relevant if evidence presented supports such a conclusion, and the performance requirements associated with the topic would not be applicable to the project.

### 3.5 Legacy issues

Legacy issues are defined as the impacts of previous projects that are unmitigated or not compensated with a similar good or service, or longstanding issues with a present (existing) project, or pre-existing issues in the present location of a new project. For the minimum requirements (good practice), projects are required to be responsible for their own impacts.

At the Preparation and Implementation stages, the minimum requirements include understanding and scoping of cumulative impacts which could include legacy issues (HS-1 Environmental and Social Assessment and Management), and a number of topics require assessment and management of ongoing issues.

At the Operation stage, in general the present condition is taken as the baseline, but some topic focal areas (project affected communities and project benefits within HS-4 Community Impacts and Infrastructure Safety, and HS-5 Resettlement) evaluate delivery of past commitments and

identification of ongoing or emerging issues as part of the minimum requirements.

For the advanced requirements (best practice) at all project stages, project performance requirements require taking into account ongoing issues and broad considerations, and contributing to outcomes that extend beyond the project's own impacts, which for older projects often include legacy issues.





# Performance requirements

# 4 Hydropower performance requirements

The HS Standard performance requirements are based on the definitions of good and best international industry practice of the Hydropower Sustainability Tools. The performance requirements are presented under 12 sustainability topics that cover the environmental, social, governance and climate change aspects important to hydropower development and operation. Each topic includes a principle (i.e. the intent of the topic) and a description of scope. There are two levels of performance requirements: minimum requirements to achieve certification (equivalent to good practice) and advanced requirements for additional recognition (equivalent to best practice). The performance requirements are specified below in a table format grouped by sustainability topic, with each topic showing the requirements criteria-by-criteria for each project life cycle stage.

Assessments against the HS Standard performance requirements are carried out by HS Accredited Assessors in line with the HS Assurance System. Accredited Assessors assess projects against the performance requirements of the HS Standard using the HS Standard Assessment Tool, which offers a practical and user-friendly interface to evaluate project performance.

The HS Standard Assessment Tool is available on the HS website, along with a growing body of resources that build a common understanding of what is expected by the performance requirements. Key resources include the Hydropower Sustainability Guidelines on Good International Industry Practice and topic-specific How-to Guides that describe the practical measure to achieve good practice.

## 4.1 Environmental and social assessment and management

**Principle:** 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.

**Scope:** 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 contribution of the project in meeting demonstrated needs for water and energy services, and the evaluation and determination of project siting and design options.

### Requirements:

Criteria	Minimum requirements (good practice)	Advanced requirements (best practice)
Assessment	<p><b>Preparation Stage:</b></p> <p><i>Environmental and social impacts</i> – 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 a baseline has been established and well-documented for the pre-project condition</p>	<p><b>Preparation Stage:</b></p> <p><i>Environmental and social impacts</i> – The assessment of project environmental and social impacts takes broad considerations into account, and both risks and opportunities; and the social impact assessment incorporates assessment of human rights.</p> <p><i>Demonstrated need and strategic fit</i> – The assessment is based on dialogue with</p>

against which post-project changes can be compared.

***Demonstrated need and strategic fit*** – 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.

***Siting and design*** – 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..

**Implementation Stage:**

***Environmental and social issues*** – 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.

***Waste, noise and air quality*** – 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

**Operation Stage:**

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.

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.

***Siting and design*** – Options take into consideration sustainable river basin design and integrated water resources management

**Implementation Stage:**

***Environmental and social issues*** – 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.

***Waste, noise and air quality*** – 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.

**Operation Stage:**

Processes to identify ongoing and emerging environmental and social issues take broad considerations into account, and both risks and opportunities

<p><b>Management</b></p>	<p><b>Preparation Stage:</b></p> <p><i>Environmental and social issues</i> – 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.</p> <p><b>Implementation Stage:</b></p> <p><i>Environmental and social issues</i> – 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.</p> <p><i>Waste, noise and air quality</i> – 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.</p> <p><b>Operation Stage:</b></p> <p>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).</p>	<p><b>Preparation Stage:</b></p> <p><i>Environmental and social issues</i> – 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.</p> <p><b>Implementation Stage:</b></p> <p><i>Environmental and social issues</i> – 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.</p> <p><i>Waste, noise and air quality</i> – Processes are in place to anticipate and respond to emerging risks and opportunities.</p> <p><b>Operation Stage:</b></p> <p>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.</p>
<p><b>Conformance/ Compliance</b></p>	<p><b>Operation Stage:</b></p> <p>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.</p>	<p><b>Operation Stage:</b></p> <p>There are no non-compliances or non-conformances.</p>
<p><b>Outcomes</b></p>	<p><b>Preparation Stage:</b></p> <p><i>Environmental and social issues</i> – Environmental and social plans avoid, minimise and mitigate negative impacts.</p> <p><i>Demonstrated need and strategic fit</i> – The strategic fit of the project with needs for water and energy services, and relevant policies and plans can be demonstrated.</p> <p>The final project siting and design has responded to environmental and social considerations.</p>	<p><b>Preparation Stage:</b></p> <p><i>Environmental and social issues</i> – Environmental and social plans avoid, minimise, mitigate and compensate negative project impacts; and plans provide for enhancements to pre-project environmental or social conditions or contribute to addressing issues beyond those impacts caused by the project.</p> <p>The project is one of the priority options to address demonstrated needs.</p>

The project can pay for social and environmental plans and commitments.

**Implementation Stage:**

*Environmental and social issues* – Negative environmental and social impacts of the project are avoided, minimised and mitigated.

*Waste, noise and air quality* – Negative noise and air quality impacts arising from project activities are avoided, minimised and mitigated with no significant gaps, and project wastes managed responsibly.

**Operation Stage:**

Negative environmental and social impacts associated with hydropower facility operations are avoided, minimised and mitigated; and land disturbance associated with development of the hydropower project is rehabilitated or mitigated.

**Implementation Stage:**

*Environmental and social issues* – negative environmental and social impacts are avoided, minimised, mitigated and compensated; 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.

*Waste, noise and air quality* – 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.

**Operation Stage:**

Negative environmental and social impacts associated with hydropower facility operations are avoided, minimised, mitigated and compensated.

**4.2 Labour and working conditions**

**Principle:** Workers are treated fairly and are protected.

**Scope:** Labour and working conditions, including employee and contractor opportunity, equity, diversity, health and safety.

**Requirements:**

Criteria	Minimum requirements (good practice)	Advanced requirements (best practice)
Assessment	<p><b>Preparation Stage:</b></p> <p>An assessment has been undertaken of human resource and labour management requirements for the project, including project occupational health and safety (OH&amp;S) issues, risks, and management measures.</p> <p><b>Implementation Stage:</b></p> <p>Human resources and labour management requirements have been identified through an assessment process, including occupational health and safety (OH&amp;S) issues and risks; and processes are in place to identify any emerging or ongoing issues, and to monitor if management measures are effective.</p> <p><b>Operation Stage:</b></p> <p>A periodically updated assessment has been undertaken of human resource and labour management requirements for the operating facility, including occupational health and safety (OH&amp;S) issues, risks, and management measures;</p>	<p><b>Preparation Stage and Implementation Stage:</b></p> <p>The assessment takes broad considerations into account, and both risks and opportunities.</p> <p><b>Operation Stage:</b></p> <p>Identification of ongoing or emerging labour management issues takes broad considerations into account, and both risks and opportunities.</p>

	monitoring is being undertaken to assess if management measures are effective; and ongoing or emerging labour management issues have been identified.	
<b>Management</b>	<p><b>Preparation Stage:</b></p> <p>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</p> <p><b>Implementation Stage and Operation Stage:</b></p> <p>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.</p>	<p><b>Preparation Stage, Implementation Stage and Operation Stage:</b></p> <p>Processes are in place to anticipate and respond to emerging risks and opportunities.</p>
<b>Conformance/ Compliance</b>	<p><b>Implementation Stage and Operation Stage:</b></p> <p>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.</p>	<p><b>Implementation Stage and Operation Stage:</b></p> <p>There are no non-compliances or non-conformances.</p>
<b>Outcomes</b>	<p><b>Preparation Stage, Implementation Stage and Operation Stage:</b></p> <p>There are no identified inconsistencies of labour management policies, plans and practices with internationally recognised labour rights.</p>	<p><b>Preparation Stage, Implementation Stage and Operation Stage:</b></p> <p>Labour management policies, plans and practices are demonstrated to be consistent with internationally recognised labour rights.</p>

### 4.3 Water quality and sediments

**Principle:** Water quality in the vicinity of the project is not adversely impacted by project activities, and that erosion and sedimentation caused by the project are managed responsibly and do not present problems with respect to other social, environmental and economic objectives.

**Scope:** The management of water quality, erosion and sedimentation issues associated with the project.

**Requirements:**

Criteria	Minimum requirements (good practice)	Advanced requirements (best practice)
<b>Assessment</b>	<p><b>Preparation Stage:</b></p> <p><i>Sediments</i> – An erosion and sedimentation issues assessment has been undertaken; 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.</p> <p><i>Water Quality</i> – A water quality issues assessment has been undertaken.</p>	<p><b>Preparation Stage and Implementation Stage:</b></p> <p>The assessments take broad considerations into account, and both risks and opportunities.</p> <p><b>Implementation Stage:</b></p> <p>Monitoring of erosion and sedimentation, and water quality issues during project implementation takes into account inter-relationships amongst issues, and both risks and opportunities that become evident during implementation.</p>

	<p><b>Implementation Stage:</b></p> <p>Erosion and sedimentation, and 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.</p> <p><b>Operation Stage:</b></p> <p>Ongoing or emerging erosion and sedimentation, and water quality issues have been identified, and if management measures are required then monitoring is being undertaken to assess if management measures are effective.</p>	<p><b>Operation Stage:</b></p> <p>Identification of ongoing or emerging erosion and sedimentation, and water quality issues takes into account both risks and opportunities.</p>
<p><b>Management</b></p>	<p><b>Preparation Stage:</b></p> <p>Plans and processes to address identified erosion and sedimentation, and water quality issues have been developed for project implementation and operation.</p> <p><b>Implementation Stage:</b></p> <p>Processes are in place to ensure management of identified erosion and sedimentation, and water quality issues, and to meet commitments, relevant to the project implementation stage; plans are in place for the operation stage for ongoing erosion and sedimentation, and water quality issues management.</p> <p><b>Operation Stage:</b></p> <p>Measures are in place to manage identified erosion and sedimentation, and water quality issues.</p>	<p><b>Preparation Stage and Implementation Stage:</b></p> <p>Processes are in place to anticipate and respond to emerging risks and opportunities.</p> <p><b>Operation Stage:</b></p> <p>Measures are in place to anticipate and respond to emerging risks and opportunities.</p>
<p><b>Conformance/ Compliance</b></p>	<p><b>Implementation Stage and Operation Stage:</b></p> <p>Processes and objectives in place to manage erosion and sedimentation, and water quality issues have been and are on track to be met with no major non-compliances or non-conformances, and erosion and sedimentation, and water quality related commitments have been or are on track to be met.</p>	<p><b>Implementation Stage and Operation Stage:</b></p> <p>There are no non-compliances or non-conformances.</p>
<p><b>Outcomes</b></p>	<p><b>Preparation Stage:</b></p> <p>Plans avoid, minimise and mitigate erosion and sedimentation issues, and negative water quality impacts arising from project activities, and erosion and sedimentation issues that may impact on the project.</p> <p><b>Implementation Stage and Operation Stage:</b></p> <p>Erosion and sedimentation issues during project implementation, and negative water quality impacts arising from project activities are avoided, minimised and mitigated.</p>	<p><b>Preparation Stage:</b></p> <p>Plans avoid, minimise, mitigate and compensate erosion and sedimentation issues due to project activities, and negative water quality impacts; and plans provide for enhancements to pre-project erosion and sedimentation, and water quality conditions or contribute to addressing erosion and sedimentation, and water quality issues beyond those impacts caused by the project.</p>

**Operation Stage:**

*Sediments* – Erosion and sedimentation issues are avoided, minimised and mitigated.

*Water quality* – Negative water quality impacts arising from activities of the operating hydropower facility are avoided, minimised and mitigated

**Implementation Stage:**

Erosion and sedimentation issues during project implementation, and water quality issues arising from project activities are avoided, minimised, mitigated and compensated with no identified gaps; and enhancements to pre-project erosion and sedimentation, and water quality conditions or contribution to addressing erosion and sedimentation, and water quality issues beyond those impacts caused by the project are achieved or are on track to be achieved.

**Operation Stage:**

*Sediments* – 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.

*Water quality:* 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.



## 4.4 Community impacts and infrastructure safety

**Principle:** Livelihoods and living standards impacted by the project are improved relative to pre-project conditions for project-affected communities; and life, property and community assets and resources are protected from the consequences of dam failure and other infrastructure safety risks.

**Scope:** Impacts of the project on project-affected communities, including economic displacement, impacts on livelihoods and living standards, public health impacts, and impacts to rights, risks and opportunities of those affected by the project. This section also addresses project benefits and infrastructure safety during project preparation, implementation and operation.

### Requirements:

Criteria	Minimum requirements (good practice)	Advanced requirements (best practice)
Assessment	<p><b>Preparation Stage:</b></p> <p><i>Project-affected Communities</i> – An assessment of issues relating to project affected communities has been undertaken, utilising local knowledge.</p> <p><i>Public Health</i> – A public health issues assessment has been undertaken; the assessment includes public health system capacities and access to health services, and has considered health needs, issues and risks for different community groups.</p> <p><i>Project Benefits</i> – 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.</p> <p><i>Infrastructure Safety</i> – An assessment has been undertaken of dam and other infrastructure safety risks with appropriate expertise during project preparation, construction and operation.</p> <p><b>Implementation Stage:</b></p> <p><i>Project-affected Communities</i> – 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.</p> <p><i>Public Health</i> – 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.</p> <p><i>Project Benefits</i> – 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.</p>	<p><b>Preparation Stage:</b></p> <p>The assessments take broad considerations into account, and both risks and opportunities.</p> <p><b>Implementation Stage:</b></p> <p><i>Project-affected Communities and Public Health</i> – Monitoring of project-affected communities issues, and public health issues during project implementation takes into account inter-relationships amongst issues, and both risks and opportunities that become evident during implementation.</p> <p><i>Project Benefits</i> – The assessment of delivery of project benefits takes into consideration both risks and opportunities.</p> <p><i>Infrastructure Safety</i> – Consideration of safety issues takes into account a broad range of scenarios and both risks and opportunities.</p> <p><b>Operation Stage:</b></p> <p><i>Project-affected Communities</i> – Identification of ongoing or emerging issues for project affected communities takes into consideration both risks and opportunities, and interrelationships amongst issues.</p> <p><i>Public Health</i> – 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.</p> <p><i>Project Benefits</i> – Identification of ongoing or emerging issues relating to project benefits takes into account both risks and opportunities.</p> <p><i>Infrastructure Safety</i> – Identification of ongoing or emerging safety issues takes into account consideration of a broad range of scenarios and both risks and opportunities.</p>

**Operation Stage:**

***Project-affected Communities and Project Benefits***

– Monitoring is being undertaken to assess if commitments to project affected communities, and to project benefits, have been delivered and if management measures are effective; and ongoing or emerging issues that affect project affected communities, or relating to the delivery of project benefits, have been identified.

***Public Health*** – 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.

***Infrastructure Safety*** – 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**

**Preparation Stage:**

***Project-affected Communities*** – Management plans and processes for issues that affect project affected communities have been developed including monitoring procedures, utilising local expertise when available; and if there are formal agreements with project affected communities these are publicly disclosed.

***Public Health*** – Plans and processes to address identified public health issues have been developed for project implementation and operation.

***Project Benefits*** – 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.

***Infrastructure Safety*** – 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 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.

**Implementation Stage:**

***Project-affected Communities*** – 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.

**Preparation Stage, Implementation Stage and Operation Stage:**

***Project-affected Communities, Public Health, and Project Benefits*** – 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.

***Infrastructure Safety*** – 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

**Public Health** – 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.

**Project Benefits** – Measures are in place to deliver commitments by the project to additional benefits or benefit sharing; and commitments to project benefits are publicly disclosed.

**Infrastructure Safety** – 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.

**Operation Stage:**

**Project-affected Communities and Project Benefits** – Measures are in place to deliver commitments to project affected communities, and to project benefits, and to manage any identified issues relating to these commitments; and if there are any formal agreements with project affected communities, and commitments to project benefits, these are publicly disclosed.

**Public Health** – Measures are in place to manage identified public health issues.

**Infrastructure Safety** – Dam and other infrastructure safety management plans and processes have been developed in conjunction with relevant regulatory and local authorities, and provide for communication of public safety measures; emergency response plans and processes include awareness and training programs and emergency response simulations.

**Conformance/ Compliance**

**Implementation Stage and Operation Stage:**

Processes and objectives relating to project-affected communities issues, project benefits, safety, and 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 commitments have been or are on track to be met.

**Implementation Stage and Operation Stage:**

There are no non-compliances or non-conformances

## Outcomes

### Preparation Stage:

**Project-affected Communities** – 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.

**Public Health** – Plans avoid, minimise and mitigate negative public health impacts arising from project activities.

**Project Benefits** – Plans deliver benefits for communities affected by the project.

**Infrastructure Safety** – Plans avoid, minimise and mitigate safety risks.

### Implementation Stage and Operation Stage:

**Project-affected Communities** – 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.

**Public Health** – Negative public health impacts arising from project activities are avoided, minimised and mitigated.

**Project Benefits** – Communities directly affected by the development of the hydropower project, and any other identified beneficiary of the facility have received or are on track to receive benefits.

**Infrastructure Safety** – Safety risks have been avoided, minimised and mitigated.

### Preparation Stage:

**Project-affected Communities** – 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.

**Public Health** – 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.

**Project Benefits** – Plans deliver significant and sustained benefits for communities affected by the project.

**Infrastructure Safety** – plans contribute to addressing safety issues beyond those risks caused by the project itself.

### Implementation Stage:

**Project-affected Communities** – The measures put in place to improve livelihoods and living standards are on track to promote self-sufficiency in the long-term.

**Public Health** – Negative public health impacts arising from project implementation are avoided, minimised, mitigated and compensated; 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.

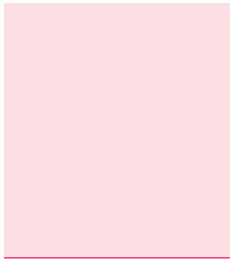
**Project Benefits** – Benefits are significant and the project has delivered or is on track to deliver significant and sustained benefits for communities affected by the project

**Infrastructure Safety** – Safety risks have been avoided, minimised and mitigated; and safety issues have been addressed beyond those risks caused by the project itself.

### Operation Stage:

**Project-affected Communities** – The measures put in place to improve livelihoods and living standards are on track to become self-sustaining in the long-term.

**Public Health** – 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.



**Project Benefits** – Benefits are significant and sustained for communities affected by the project.

**Infrastructure Safety** – 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.

## 4.5 Resettlement

**Principle:** The dignity and human rights of those physically displaced are respected; that these matters are dealt with in a fair and equitable manner; and livelihoods and standards of living for resettles and host communities are improved.

**Scope:** Physical displacement arising from the hydropower project development.

### Requirements:

Criteria	Minimum requirements (good practice)	Advanced requirements (best practice)
Assessment	<p><b>Preparation Stage:</b></p> <p>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 resettles and host communities, and has included an economic assessment of required resettlement including ongoing costs for improvement in living standards.</p> <p><b>Implementation Stage:</b></p> <p>An assessment of the resettlement implications of the project has been undertaken that establishes the pre-project socio-economic baseline for resettles and host communities; monitoring is being undertaken of implementation of the resettlement plans, and to see if commitments made to resettles and host communities have been delivered and are effective and to identify any ongoing or emerging issues.</p> <p><b>Operation Stage:</b></p> <p>Monitoring is being undertaken to assess if commitments made to resettles and host communities have been delivered and if management measures are effective; and ongoing or emerging issues relating to resettlement have been identified.</p>	<p><b>Preparation Stage:</b></p> <p>The assessment takes broad considerations into account, and both risks and opportunities.</p> <p><b>Implementation Stage:</b></p> <p>The assessment of delivery of commitments to resettles and host communities takes into consideration both risks and opportunities.</p> <p><b>Operation Stage:</b></p> <p>Identification of ongoing or emerging resettlement issues takes into account both risks and opportunities.</p>
Management	<p><b>Preparation Stage:</b></p> <p>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 resettles and host communities are publicly disclosed.</p>	<p><b>Preparation Stage, Implementation Stage and Operation Stage:</b></p> <p>Processes are in place to anticipate and respond to emerging risks and opportunities.</p>

	<p><b>Implementation Stage:</b></p> <p>Measures to address resettlement are documented in a Resettlement Action Plan; measures are in place to deliver commitments to resettles and host communities, and to manage any identified issues relating to resettlement, including provision of grievance mechanisms; and formal agreements with resettles and host communities are publicly disclosed.</p> <p><b>Operation Stage:</b></p> <p>Measures to address resettlement are documented in a Resettlement Action Plan; measures are in place to deliver commitments to resettles and host communities, and to manage any issues relating to resettlement, including provision of grievance mechanisms; and formal agreements with resettles and host communities are publicly disclosed.</p>	
<p><b>Conformance/ Compliance</b></p>	<p><b>Implementation Stage and Operation Stage:</b></p> <p>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.</p>	<p><b>Implementation Stage and Operation Stage:</b></p> <p>There are no non-compliances or non-conformances.</p>
<p><b>Outcomes</b></p>	<p><b>Preparation Stage:</b></p> <p>Plans provide for resettlement to be treated in a fair and equitable manner, and resettles and host communities to experience a timely improvement in livelihoods and living standards.</p> <p><b>Implementation Stage:</b></p> <p>Resettlement has been and is being treated in a fair and equitable manner, and resettles 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.</p> <p><b>Operation Stage:</b></p> <p>Resettlement has been and is being treated in a fair and equitable manner, and resettles 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.</p>	<p><b>Preparation Stage:</b></p> <p>Plans provide for resettles and host communities to experience a timely improvement in livelihoods and living standards with the aim of self-sufficiency in the long term.</p> <p><b>Implementation Stage:</b></p> <p>The measures put in place to improve livelihoods and living standards are on track to promote self-sufficiency in the long-term.</p> <p><b>Operation Stage:</b></p> <p>The measures put in place to improve livelihoods and living standards are on track to become self-sustaining in the long-term.</p>

## 4.6 Biodiversity and invasive species

**Principle:** There are healthy, functional and viable aquatic and terrestrial ecosystems in the project-affected area that are sustainable over the long-term, and biodiversity impacts arising from project activities are managed responsibly; and that ongoing or emerging biodiversity issues are identified and addressed.

**Scope:** 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.

### Requirements:

Criteria	Minimum requirements (good practice)	Advanced requirements (best practice)
<b>Assessment</b>	<p><b>Preparation Stage:</b></p> <p>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.</p> <p><b>Implementation Stage:</b></p> <p>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.</p> <p><b>Operation Stage:</b></p> <p>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..</p>	<p><b>Preparation Stage:</b></p> <p>The assessment takes broad considerations into account, and both risks and opportunities.</p> <p><b>Implementation Stage:</b></p> <p>Monitoring of biodiversity issues during project implementation takes into account inter-relationships amongst issues, and both risks and opportunities that become evident during implementation.</p> <p><b>Operation Stage:</b></p> <p>Identification of ongoing or emerging biodiversity issues takes into account both risks and opportunities</p>
<b>Management</b>	<p><b>Preparation Stage:</b></p> <p>Plans and processes to address identified biodiversity issues have been developed for project implementation and operation.</p> <p><b>Implementation Stage:</b></p> <p>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.</p> <p><b>Operation Stage:</b></p> <p>Measures are in place to manage identified biodiversity issues.</p>	<p><b>Preparation Stage, Implementation Stage and Operation Stage:</b></p> <p>Processes are in place to anticipate and respond to emerging risks and opportunities; and commitments in plans are public, formal and legally enforceable.</p>
<b>Conformance/ Compliance</b>	<p><b>Implementation Stage and Operation Stage:</b></p> <p>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.</p>	<p><b>Implementation Stage and Operation Stage:</b></p> <p>There are no non-compliances or non-conformances.</p>

<b>Outcomes</b>	<p><b>Preparation Stage:</b></p> <p>Plans avoid, minimise, mitigate and compensate negative biodiversity impacts arising from project activities.</p> <p><b>Implementation Stage and Operation Stage:</b></p> <p>Negative biodiversity impacts arising from project activities are avoided, minimised, mitigated, and compensated..</p>	<p><b>Preparation Stage:</b></p> <p>Plans avoid, minimise, mitigate and compensate negative biodiversity impacts due to project activities; and plans provide for enhancements to pre-project biodiversity conditions or contribute to addressing biodiversity issues beyond those impacts caused by the project.</p> <p><b>Implementation Stage:</b></p> <p>Negative biodiversity impacts arising from project implementation are avoided, minimised, mitigated and compensated; 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.</p> <p><b>Operation Stage:</b></p> <p>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.</p>
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## 4.7 Indigenous peoples

**Principle:** 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.

**Scope:** 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 marginalised and vulnerable segments of the population.

### Requirements:

Criteria	Minimum requirements (good practice)	Advanced requirements (best practice)
Assessment	<p><b>Preparation Stage:</b></p> <p>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.</p> <p><b>Implementation Stage:</b></p> <p>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.</p>	<p><b>Preparation Stage and Implementation Stage:</b></p> <p>The assessment takes broad considerations into account, including wider opportunities for Indigenous Peoples.</p> <p><b>Implementation Stage:</b></p> <p>Monitoring during project implementation takes into account inter-relationships amongst issues, and both risks and opportunities that become evident during implementation.</p> <p><b>Operation Stage:</b></p> <p>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.</p>



	<p><b>Operation Stage:</b></p> <p>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.</p>	
<p><b>Management</b></p>	<p><b>Preparation Stage:</b></p> <p>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.</p> <p><b>Implementation Stage:</b></p> <p>Measures are in place to address the Indigenous Peoples' rights at risk in relation to the project, and formal commitments are publicly disclosed.</p> <p><b>Operation Stage:</b></p> <p>Measures are in place to address the Indigenous Peoples' rights at risk relating to the operating hydropower facility; and formal agreements are publicly disclosed.</p>	<p><b>Preparation Stage and Implementation Stage:</b></p> <p>Processes are in place to anticipate and respond to emerging risks and opportunities.</p> <p><b>Operation Stage:</b></p> <p>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.</p>
<p><b>Stakeholder Engagement</b></p>	<p><b>Preparation Stage:</b></p> <p>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.</p> <p><b>Implementation Stage:</b></p> <p>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.</p> <p><b>Operation Stage:</b></p> <p>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.</p>	<p><b>Preparation Stage and Implementation Stage:</b></p> <p>Feedback on how issues raised have been taken into consideration has been thorough and timely.</p> <p><b>Operation Stage:</b></p> <p>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.</p>
<p><b>Conformance/ Compliance</b></p>	<p><b>Implementation Stage and Operation Stage:</b></p> <p>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.</p>	<p><b>Implementation Stage and Operation Stage:</b></p> <p>There are no non-compliances or non-conformances.</p>

<b>Outcomes</b>	<p><b>Preparation Stage:</b></p> <p>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.</p> <p><b>Implementation Stage:</b></p> <p>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.</p> <p><b>Operation Stage:</b></p> <p>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.</p>	<p><b>Preparation Stage and Implementation Stage:</b></p> <p>Opportunities for positive impacts have been thoroughly identified and maximised as far as practicable.</p> <p><b>Operation Stage:</b></p> <p>Opportunities for positive impacts have been identified and maximised as far as practicable, and have been or are on track to be achieved.</p>
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## 4.8 Cultural heritage

**Principle:** Physical cultural resources are identified, their importance is understood, and measures are in place to address those identified to be of high importance.

**Scope:** Scope: 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).

### Requirements:

Criteria	Minimum requirements (good practice)	Advanced requirements (best practice)
<b>Assessment</b>	<p><b>Preparation Stage:</b></p> <p>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.</p> <p><b>Implementation Stage:</b></p> <p>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.</p> <p><b>Operation Stage:</b></p> <p>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.</p>	<p><b>Preparation Stage:</b></p> <p>The assessment takes broad considerations into account, and both risks and opportunities.</p> <p><b>Implementation Stage:</b></p> <p>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.</p> <p><b>Operation Stage:</b></p> <p>Identification of ongoing or emerging cultural heritage issues takes broad considerations into account, and both risks and opportunities.</p>

<p><b>Management</b></p>	<p><b>Preparation Stage:</b></p> <p>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.</p> <p><b>Implementation Stage:</b></p> <p>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.</p> <p><b>Operation Stage:</b></p> <p>Measures are in place to manage identified cultural heritage issues.</p>	<p><b>Preparation Stage and Implementation Stage:</b></p> <p>Processes are in place to anticipate and respond to emerging risks and opportunities; and plans are supported by public, formal and legally enforceable commitments.</p> <p><b>Implementation Stage:</b></p> <p>Processes are in place to anticipate and respond to emerging risks and opportunities.</p> <p><b>Operation Stage:</b></p> <p>Processes are in place to anticipate and respond to emerging risks and opportunities.</p>
<p><b>Conformance/ Compliance</b></p>	<p><b>Implementation Stage and Operation Stage:</b></p> <p>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.</p>	<p><b>Implementation Stage and Operation Stage:</b></p> <p>There are no non-compliances or non-conformances.</p>
<p><b>Outcomes</b></p>	<p><b>Preparation Stage:</b></p> <p>Plans avoid, minimise, mitigate and compensate negative impacts on cultural heritage arising from project activities.</p> <p><b>Implementation Stage:</b></p> <p>Negative cultural heritage impacts arising from project implementation are avoided, minimised, mitigated and compensated</p> <p><b>Operation Stage:</b></p> <p>Negative cultural heritage impacts arising from activities of the operating hydropower facility are avoided, minimised, mitigated and compensated.</p>	<p><b>Preparation Stage:</b></p> <p>Plans contribute to addressing cultural heritage issues beyond those impacts caused by the project.</p> <p><b>Implementation Stage:</b></p> <p>Contributions to addressing cultural heritage issues beyond those impacts caused by the project are achieved or are on track to be achieved.</p> <p><b>Operation Stage:</b></p> <p>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.</p>

## 4.9 Governance and procurement

**Principle:** 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); can ensure compliance; and procurement processes are equitable, transparent and accountable.

**Scope:** Corporate and external governance considerations for the project, and all project-related procurement including works, goods and services.

### Requirements:

Criteria	Minimum requirements (good practice)	Advanced requirements (best practice)
Assessment	<p><b>Preparation Stage:</b></p> <p>Assessments have been undertaken of political and public sector governance issues, corporate governance requirements and issues, major supply needs, supply sources, relevant legislation and guidelines, supply chain risks and corruption risks through the project development cycle.</p> <p><b>Implementation Stage:</b></p> <p><b>Governance</b> – 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.</p> <p><b>Procurement</b> – 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.</p> <p><b>Operation Stage:</b></p> <p>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.</p>	<p><b>Preparation Stage, Implementation Stage and Operation Stage:</b></p> <p>There are no significant opportunities for improvement in the assessment of political and public sector governance issues and corporate governance requirements and issues; and the assessment includes opportunities for local suppliers and local capacity development.</p>
Management	<p><b>Preparation Stage</b></p> <p><b>Governance</b> – 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.</p> <p><b>Procurement</b> – Procurement plans and processes have been developed for project implementation and operation.</p>	<p><b>Preparation Stage and Implementation Stage:</b></p> <p><b>Governance</b> – 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, sustainability and anti-corruption criteria are specified in the pre-qualification screening; and anti-corruption measures are strongly emphasised in procurement planning processes.</p> <p><b>Procurement</b> – 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.</p>

	<p><b>Implementation Stage:</b></p> <p><i>Governance</i> – same as Preparation stage.</p> <p><i>Procurement</i> – 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.</p> <p><b>Operation Stage:</b></p> <p>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.</p>	<p><b>Operation Stage:</b></p> <p>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.</p>
<b>Conformance/ Compliance</b>	<p><b>Preparation Stage, Implementation Stage and Operation Stage:</b></p> <p>The project has no major non-compliances.</p>	<p><b>Implementation Stage and Operation Stage:</b></p> <p>There are no non-compliances or non-conformances</p>
<b>Outcomes</b>	<p><b>Preparation Stage:</b></p> <p><i>Governance</i> – There are no significant unresolved corporate and external governance issues identified</p> <p><i>Procurement</i> – 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.</p> <p><b>Implementation Stage:</b></p> <p><i>Governance</i> – same as Preparation stage.</p> <p><i>Procurement</i> – 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.</p> <p><b>Operation Stage:</b></p> <p>There are no significant unresolved corporate and external governance issues identified.</p>	<p><b>Preparation Stage and Implementation Stage:</b></p> <p><i>Governance</i> – There are no unresolved corporate and external governance issues identified.</p> <p><i>Procurement</i> – Opportunities for local suppliers including initiatives for local capacity development have been delivered or are on track to be delivered.</p> <p><b>Operation Stage:</b></p> <p>There are no unresolved corporate and external governance issues identified.</p>

## 4.10 Communications and consultation

**Principle:** 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.

**Scope:** 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).

### Requirements:

Criteria	Minimum requirements (good practice)	Advanced requirements (best practice)
<b>Assessment</b>	<p><b>Preparation Stage:</b></p> <p>Stakeholder mapping has been undertaken to identify and analyse stakeholders, to establish those that are directly affected, and to establish communication requirements and priorities.</p> <p><b>Implementation Stage:</b></p> <p>Communications and consultation requirements and approaches have been identified through an assessment process involving stakeholder mapping, supported by ongoing monitoring.</p> <p><b>Operation Stage:</b></p> <p>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. .</p>	<p><b>Preparation Stage and Implementation Stage:</b></p> <p>The stakeholder mapping takes broad considerations into account.</p> <p><b>Operation Stage:</b></p> <p>The stakeholder mapping takes broad considerations into account.</p>
<b>Management</b>	<p><b>Preparation Stage</b></p> <p>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.</p> <p><b>Implementation Stage:</b></p> <p>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.</p> <p><b>Operation Stage:</b></p> <p>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.</p>	<p><b>Preparation Stage and Implementation Stage:</b></p> <p>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.</p> <p><b>Operation Stage:</b></p> <p>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.</p>

## Stakeholder Engagement

### Preparation Stage:

There has been engagement with the following groups, or on the following topics, or through the following processes, with directly affected stakeholders:

- Project preparation, on topics of interest and relevance to directly affected stakeholders.
- The business interacts with a range of directly affected stakeholders to understand issues of interest to them.
- Environmental and social impact assessment and management planning.
- Siting and design optimisation.
- Project benefits.
- Project-affected communities.
- Resettlees and host communities.
- Assessment and planning for cultural heritage issues.
- Assessment and planning for public health, including health officials.
- Downstream flow regimes.
- Plans for the management of climate risks.

Engagement with directly affected stakeholders has been appropriately timed, has often been two-way, and undertaken in good faith; and there are ongoing processes in place for stakeholders to raise issues and get feedback.

The business makes significant project reports publicly available, and publicly reports on project performance, in some sustainability areas; the results of the assessment of strategic fit are publicly disclosed; the power density calculations, estimated GHG emissions, and / or the results of a site-specific assessment have been publicly disclosed.

### Implementation Stage and Operation Stage:

The project implementation and operation stages involve engagement with directly affected stakeholders, and engagement is appropriately timed and scoped, often two-way, and undertaken in good faith.

The business interacts with a range of directly-affected stakeholders to understand issues of interest to them.

Ongoing processes are in place for stakeholders to raise issues and get feedback.

The business makes significant project reports publicly available, and publicly reports on project performance, in some sustainability areas; power density calculations, estimated GHG emissions, and / or the results of a site-specific assessment have been publicly disclosed.

### Preparation Stage, Implementation Stage and Operation Stage:

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.

The business makes significant project reports publicly available and publicly reports on project performance in sustainability areas of high interest to its stakeholders

The assessment of project resilience has been publicly disclosed.

In the case of a need to address downstream flow regimes, 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.

<b>Stakeholder Support</b>	<p><b>Preparation Stage:</b></p> <p>Affected communities generally support or have no major ongoing opposition to the plans for the issues that specifically affect their community; and directly affected stakeholder groups generally support or have no major ongoing opposition to the cultural heritage assessment, planning or implementation measures.</p> <p><b>Implementation Stage:</b></p> <p>Affected communities generally support or have no major ongoing opposition to the plans for the issues that specifically affect their community, and there is general support or no major ongoing opposition amongst directly affected stakeholder groups for the cultural heritage assessment, planning or implementation measures.</p>	<p><b>Preparation Stage and Implementation Stage:</b></p> <p>Formal agreements with nearly all the directly affected communities have been reached for the mitigation, management and compensation measures relating to their communities; there is consent with legally binding agreements by the resettles and host communities for the Resettlement Action Plan; formal agreements with the directly affected stakeholder groups have been reached for cultural heritage management measures.</p>
<b>Conformance/ Compliance</b>	<p><b>Preparation Stage, Implementation Stage and Operation Stage:</b></p> <p>Processes and objectives relating to communications and consultation have been and are on track to be met with no major non-conformances and non-compliances; and any communications related commitments have been or are on track to be met.</p>	<p><b>Preparation Stage, Implementation Stage and Operation Stage:</b></p> <p>There are no non-compliances or non-conformances.</p>

#### 4.11 Hydrological resource

**Principle:** The project’s planned power generation takes into account hydrological resource availability and reliability in the short- and long-term, and that the reservoir and downstream flow regimes are planned and managed with an awareness of environmental, social and economic objectives.

**Scope:** Hydrological resource availability and reliability to the project, reservoir planning and downstream flow regimes in relation to environmental, social and economic impacts and benefits.

#### Requirements:

Criteria	Minimum requirements (good practice)	Advanced requirements (best practice)
<b>Assessment</b>	<p><b>Preparation Stage:</b></p> <p><i>Reservoir Planning</i> – Assessment has been undertaken of the important considerations prior to and during reservoir filling and during reservoir operations</p> <p><i>Downstream Flows</i> – 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.</p> <p><i>Hydrological Resource</i> – An assessment of hydrological resource availability has been</p>	<p><b>Preparation Stage:</b></p> <p><i>Reservoir Planning</i> – the assessment is based on dialogue with local community representatives, and takes broad considerations, risks and opportunities into account.</p> <p><i>Downstream Flows</i> – The assessment is based on field studies, and takes broad considerations, risks and opportunities into account.</p> <p><i>Hydrological Resource</i> – 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.</p>



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.

**Implementation Stage:**

**Reservoir Preparation and Filling** – 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.

**Downstream Flows** – 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.

**Operation Stage:**

**Reservoir Management** – 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.

**Downstream Flows** – 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.

**Hydrological Resource** – 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.

**Implementation Stage:**

**Reservoir Preparation and Filling** – Monitoring of reservoir preparation and filling activities takes into account inter-relationships amongst issues, and both risks and opportunities that become evident during implementation.

**Downstream Flows** – monitoring of downstream flow issues takes into account inter- relationships amongst issues, and both risks and opportunities that become evident during implementation.

**Operation Stage:**

**Reservoir Management** – identification of ongoing or emerging reservoir management issues takes into account both risks and opportunities.

**Downstream Flows** – 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.

**Hydrological Resource** – 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**

**Preparation Stage:**

**Hydrological Resource** – 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.

**Reservoir Planning** – Plans and processes to manage reservoir preparation, filling and operations have been developed

**Downstream Flows** – 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

**Preparation Stage:**

**Reservoir Planning** – 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.

**Downstream Flows** – Processes are in place to anticipate and respond to emerging risks and opportunities; and commitments in plans are public, formal and legally enforceable.

**Hydrological Resource** – 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.

regimes; the locations at which flows will be verified; and ongoing monitoring; and where formal commitments have been made, these are publicly disclosed.

**Implementation Stage:**

*Reservoir Preparation and Filling* – 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.

*Downstream Flows* – 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.

**Operation Stage:**

*Reservoir Management* – Measures are in place to manage identified issues.

*Downstream Flows* – 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.

*Hydrological Resource* – 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.

**Implementation Stage:**

*Reservoir Preparation and Filling* – Processes are in place to anticipate and respond to emerging risks and opportunities.

*Downstream Flows* – processes are in place to anticipate and respond to emerging risks and opportunities.

**Operation Stage:**

*Reservoir Management* – processes are in place to anticipate and respond to emerging risks and opportunities.

*Downstream Flows* – 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.

*Hydrological Resource* – 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.

**Outcomes**

**Preparation Stage:**

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

**Implementation Stage:**

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.

**Operation Stage:**

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.

**Preparation Stage:**

Plans for downstream flow regimes represent an optimal fit amongst environmental, social and economic objectives.

**Implementation Stage:**

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.

**Operation Stage:**

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.

## 4.12 Climate change mitigation and resilience

**Principle:** The project’s greenhouse gas (GHG) emissions are consistent with low carbon power generation, the project is resilient to the effects of climate change, and contributes to wider adaptation to climate change.

**Scope:** The estimation and management of the project’s GHG emissions, analysis and management of the risks of climate change for the project, and the project’s role in climate change adaptation.

### Requirements:

Criteria	Minimum requirements (good practice)	Advanced requirements (best practice)
Assessment	<p><b>Preparation Stage:</b></p> <p><i>For climate mitigation:</i> power density has been calculated; if power density is below 5 W/m<sup>2</sup>, net GHG emissions (gCO<sub>2</sub>e) of electricity generation have been estimated and independently-verified; if power density is below 5 W/m<sup>2</sup> and estimated emissions are above 100 gCO<sub>2</sub>e/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.</p> <p><i>For climate resilience:</i> 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.</p> <p><b>Implementation Stage:</b></p> <p><i>For climate mitigation:</i> power density has been calculated; if power density is below 5 W/m<sup>2</sup>, net GHG emissions (gCO<sub>2</sub>e) of electricity generation have been estimated and independently-verified; if power density is below 5 W/m<sup>2</sup> and estimated emissions are above 100 gCO<sub>2</sub>e/kWh, a site-specific assessment of GHG emissions has been undertaken.</p> <p><i>For climate resilience:</i> 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.</p>	<p><b>Preparation Stage:</b></p> <p><i>For climate mitigation:</i> if a site-specific assessment is required, it incorporates a broad range of scenarios, uncertainties and risks.</p> <p><i>For climate resilience:</i> assessment of resilience incorporates sensitivity analysis and project-specific hydrological modelling using recognised climate models.</p> <p><b>Implementation Stage:</b></p> <p><i>For climate mitigation:</i> in addition, if a site-specific assessment is required, it incorporates a broad range of scenarios, uncertainties and risks.</p> <p><i>For climate resilience:</i> in addition, assessment of resilience incorporates sensitivity analysis, and project-specific hydrological modelling using recognised climate models; and an assessment of the project’s potential adaptation services has been undertaken.</p> <p><b>Operation Stage:</b></p> <p><i>For climate mitigation:</i> in addition, if a site-specific assessment is required, it incorporates a broad range of scenarios, uncertainties and risks.</p> <p><i>For climate resilience:</i> in addition, assessment of resilience incorporates sensitivity analysis, project-specific hydrological modelling using recognised climate models, and the project’s opportunities to provide adaptation services are considered on an ongoing basis.</p>

**Operation Stage:**

*For climate mitigation:* power density has been calculated; if power density is below 5 W/m<sup>2</sup>, estimates of net GHG emissions (gCO<sub>2</sub>e) of electricity generation are calculated and independently- verified, and periodically updated; if power density is below 5 W/m<sup>2</sup> and estimated emissions are above 100 gCO<sub>2</sub>e/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****Preparation Stage:**

*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.

**Implementation Stage:**

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.

**Operation Stage:**

*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.

**Preparation Stage:**

*For climate mitigation:* 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:* 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.

**Implementation Stage:**

*For climate mitigation:* 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:* 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.

**Operation Stage:**

*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:* measures take account of a broad range of risks and inter-relationships, and

		<p>processes are in place to respond to unanticipated climate change; and plans are in place to provide adaptation services if necessary.</p>
<p><b>Conformance/ Compliance</b></p>	<p><b>Implementation Stage and Operation Stage:</b></p> <p>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.</p>	<p><b>Implementation Stage and Operation Stage:</b></p> <p>There are no non-compliances or non-conformances.</p>
<p><b>Outcomes</b></p>	<p><b>Preparation Stage:</b></p> <p><i>For climate mitigation:</i> 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.</p> <p><i>For climate resilience:</i> 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.</p> <p><b>Implementation Stage:</b></p> <p><i>For climate mitigation:</i> the project’s GHG emissions are demonstrated to be consistent with low carbon power generation.</p> <p><i>For climate resilience:</i> plans will deliver a project that is resilient to climate change under a range of scenarios.</p> <p><b>Operation Stage:</b></p> <p><i>For climate mitigation:</i> the project’s GHG emissions are demonstrated to be consistent with low carbon power generation.</p> <p><i>For climate resilience:</i> findings of the climate change assessment indicate that the project is resilient to climate change.</p>	<p><b>Preparation Stage:</b></p> <p><i>For climate mitigation:</i> in addition, project net emissions are minimised or project operations facilitate system emissions reductions.</p> <p><i>For climate resilience:</i> 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.</p> <p><b>Implementation Stage:</b></p> <p><i>For climate mitigation:</i> in addition, project net emissions are minimised or project operations facilitate system emissions reductions.</p> <p><i>For climate resilience:</i> 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.</p> <p><b>Operation Stage:</b></p> <p><i>For climate mitigation:</i> project net emissions are minimised or project operations facilitate system emissions reductions.</p> <p><i>For climate resilience:</i> 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</p>



# Certification process

# 5 Hydropower sustainability certification process

## 5.1 Certification process

The process to become certified against the HS Standard is made up of four key steps as detailed in the diagram below.

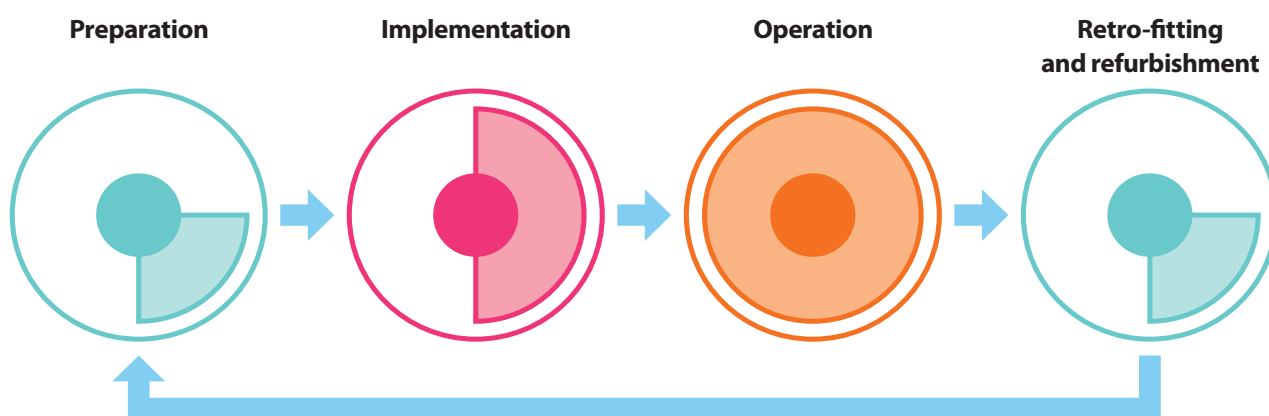
More information on the Certification process can be found in the Assurance System, which includes the procedural elements, governance, appeals and claims related to the HS Certification Scheme.

## 5.2 Scoring methodology and rating system

The scoring methodology and rating system define how hydropower projects are recognised for their performance against the HS Standard. A Project that has been assessed by an Accredited Assessor will receive a final Assessment report that is published on the HS website. The report will demonstrate the Project's performance against the HS Standard's performance requirements.

A project must meet all minimum performance requirements of the HS Standard on all relevant topics to achieve HS Certified label. An important principle in the design of the certification scheme is to incentivise and reward improving practice; hence higher tiers of certification status (Silver or Gold) are recognised for projects that meet advanced requirements, depending on the total number of advanced requirements met.

The total number of advanced requirements met are summed and converted into a total score out of 100. To receive the HS Silver label, projects must meet a minimum of 30% of the advanced requirements on each relevant topic, and have a total advanced requirements score between 30 and 70, inclusive. To receive the HS Gold label, projects must meet a minimum of 60% of the advanced requirements on each relevant topic, and have a total advanced requirements score above 70.





Not Relevant topics (discussed in Section 3.4) are treated differently in the scoring process. The mitigation hierarchy of “avoid, minimise, mitigate, compensate” is an important design principle in the statements of topic performance requirements, and a concern for the advanced requirements of the certification scheme was that projects that avoid impacts (e.g. resettlement) should have some recognition for this rather than removal of those topics from the counting of the Advanced Requirements Score. The scoring process described above will be followed for all relevant topics, and then converted into a total score out of 100. Additional to this, each Not Relevant topic will receive a bonus 5 points. In a case where a project meets all advanced requirements and receives bonus points for NR topics, the total advanced requirement score will be capped at 100.

Below are four examples to illustrate the scoring process, noting that the Assessments were conducted in line with the HS Assurance System.

**Project A** is assessed against the HS Standard in its Implementation stage and does not meet the minimum performance requirements. Project A is not certified.

**Project B** is assessed against the HS Standard in its Preparation stage, and all topics are relevant. Project B met all relevant minimum performance requirements as well as some advanced requirements as follows:

Project B has met 78 of a possible 96 advanced requirements. This ratio (78/96) is converted to a score out of 100. Project B will be attributed a score of 81 (78/96\*100). Project B has a total advanced requirement score above 70 and meets a minimum of 60% of the advanced

#### Project B

Section	PREPARATION (advanced requirements)
Environmental and social assessment and management	11/11 (100%)
Labour and working conditions	3/3 (100%)
Water quality and sediments	4/6 (67%)
Community impacts and infrastructure safety	8/10 (80%)
Resettlement	3/5 (60%)
Biodiversity and invasive species	4/5 (80%)
Indigenous peoples	5/5 (100%)
Cultural heritage	4/6 (67%)
Governance and procurement	8/10 (80%)
Communications and consultation	8/12 (67%)
Hydrological resource	10/13 (77%)
Climate change mitigation and resilience	10/10 (100%)
<b>TOTAL</b>	<b>78/96</b>

requirements on each relevant topic. Project B is certified and receives the HS Gold recognition.

**Project C** was assessed against the HS Standard in its Implementation stage and the Resettlement section/topic was determined to be Not Relevant. Project C met all relevant minimum performance requirements as well as some advanced requirements as follows:

Project C has met 34 (+5 for the NR topic) of a possible 103 advanced requirements. This ratio (39/103) is converted to a score out of 100. Project C is attributed a score of 38 (39/103\*100). Project C has a total advanced requirements score between 30 and 70, but does not meet a minimum of 30% of the advanced requirements on each relevant topic. Project C is certified but does not receive an additional recognition.

### Project C

Section	Implementation (advanced requirements)
Environmental and social assessment and management	6/12 (50%)
Labour and working conditions	2/4 (50%)
Water quality and sediments	10/10 (100%)
Community impacts and infrastructure safety	3/16 (19%)
Resettlement	NR (+5)
Biodiversity and invasive species	6/6 (100%)
Indigenous peoples	7/7 (100%)
Cultural heritage	0/7 (0%)
Governance and procurement	0/11 (0%)
Communications and consultation	0/10 (0%)
Hydrological resource	0/7 (0%)
Climate change mitigation and resilience	0/13 (0%)
<b>TOTAL</b>	<b>34/103 (+5)</b>

**Project D** was assessed against the HS Standard in its Operation stage and the Resettlement, Indigenous Peoples and Cultural Heritage sections/topics were determined to be Not Relevant. Project D met all relevant minimum performance requirements as well as some advanced requirements as follows:

Project D has met 32 (+15 for NR topics) of a possible 79 advanced requirements. This ratio (47/79) is converted to a score out of 100. Project D has a total advanced requirement score between 30 and 70, and meets a minimum of 30% of the advanced requirements on each relevant topic. Project D is attributed a score of 59 (47/79\*100). Project D is certified and receives the HS Silver recognition.

### Project D

Section	Operation (advanced requirements)
Environmental and social assessment and management	2/5 (40%)
Labour and working conditions	2/4 (50%)
Water quality and sediments	3/7 (43%)
Community impacts and infrastructure safety	7/14 (50%)
Resettlement	NR (+5)
Biodiversity and invasive species	2/5 (40%)
Indigenous peoples	NR (+5)
Cultural heritage	NR (+5)
Governance and procurement	3/7 (43%)
Communications and consultation	3/7 (43%)
Hydrological resource	6/17 (35%)
Climate change mitigation and resilience	4/13 (31%)
<b>TOTAL</b>	<b>32/79 (+15)</b>

### 5.3 Label meaning

A Project's Certification status and associated label is determined based on the outcome of the independent Assessment, following final approval from the HS Governance Committee. The Certification status is expressed as either:



**Certified:** Projects have undergone an independent Assessment in line with the HS Certification Scheme's standard-setting documents, have met the minimum requirements of the HS Standard, and have received a total advanced requirement score below 30.



**Certified – Silver:** Projects have undergone an independent Assessment in line with the HS Certification Scheme's standard-setting documents, have met the minimum requirements of the HS Standard, have a total advance requirement score between 30 and 70, inclusive, and meet a minimum of 30% of the advanced requirements on each relevant topic.



**Certified – Gold:** Projects have undergone an independent Assessment in line with the HS Certification Scheme's standard-setting documents, have met the minimum requirements of the HS Standard, have a total advance requirement score above 70 and meet a minimum of 60% of the advanced requirements on each relevant topic.



# Hydropower Sustainability