

Hydropower Sustainability Assessment Protocol

Section II Outline Document

DRAFT 22 February 2010

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About this Document

This Section II Outline Document is a first step in the re-drafting of the Draft Hydropower Sustainability Assessment Protocol August 2009.

In line with agreements made at Forum Meeting 8, it presents modified Section II content containing 25 topics (previously named “aspects”), each with no more than four criteria (previously named “attributes”) as the basis for the assessment.

For each criterion, only the scoring statements of 3 and 5 are provided in this document. A 3 statement is an expression of basic good practice on that issue that is expected for projects in all contexts. A 5 statement is proven best practice on that issue that is demonstrable in multiple country contexts.

To assist in review of this outline document by Forum members and their reference groups, the following additional information is provided for each topic:

- Topic description and intent
- Relevant excerpts from the IHA Sustainability Guidelines 2004, labelled with either a 3 or 5 to indicate whether it was expressed as a basic expectation or something that is desirable; also an indication of whether there was a similar aspect in the IHA Sustainability Assessment Protocol 2006.
- Examples of interviewees.
- Examples of objective evidence
- Whether it picks up on any of the high profile or cross-cutting issues identified by the Forum: integrated water resource management (IWRM), multi-purpose hydro, climate change, corruption, transparency, human rights, communication, gender, complaints mechanisms, livelihoods.

Attachment 1 provides an extraction of all of the statements of 3, so they can be examined as a collation with respect to how well they describe practice that every project should exhibit to be considered a sustainable project.

The intention of the Forum is for this document to be reviewed by Forum members and their reference groups during the week of 22nd February 2010, and discussed by Forum members at Webinar 3 on 2 March 2010 (UK time).

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II-1: Consultation & Communications

This topic addresses the identification and engagement with project stakeholders, both within the company as well as between the company and external stakeholders (e.g. affected communities, governments, key institutions, partners, contractors, catchment residents, etc).

The intent is that stakeholders are identified and engaged in the issues of interest and relevance to them, and consultation and communication plans establish a foundation for stakeholder relations throughout the project cycle.

IHA 2004 Guidelines:

- 5 - Identify stakeholders and impacted communities and provide them with the opportunity to have informed input into the decision making process. The community must view the process as being open, fair and inclusive (*section 6.3, p.18*).
- 3 - The project proponent should ensure that adequate consultation is undertaken, with relevant local, regional and national agencies consulted (*section 6.3, p.18*).
- 3 - The project proponent should ensure that stakeholders who may be affected by the project are provided with the opportunity to be represented during the different phases of project development (*section 6.3, p.18*).
- 5 - A process for addressing future concerns or risks from the project needs to be outlined to stakeholders at the start of the project (*section 6.3, p.19*).
- 3 - The principle stakeholders in any project are the developer, the electricity user/supplier (if different), governments, financing agencies, communities and individuals directly affected by the scheme (e.g. traditional resource users) (*section 7.3, p.22*).

IHA 2006 Protocol: B7 - Community and stakeholder consultation and support

II-1.1 Stakeholder Mapping

3 – Directly affected people and key internal and external stakeholders are fully identified, and linked to the issues of most relevance to them.

5 – In addition, identification of stakeholders includes those who are directly and indirectly affected, and analysis is based on their rights, risks and responsibilities.

II-1.2 Communications and Consultation Planning

3 – A plan for communications and consultation is implemented and periodically reviewed to support assessment and management planning for project issues.

5 – In addition, communications and consultation plans are gender and culturally sensitive, developed in consultation with stakeholders, and actively reviewed and adapted as required through the project development cycle.

Interviewees: e.g. project communications staff; project manager

Evidence: e.g. project stakeholder mapping document; project communications and/or consultation plan

Cross-cutting issues: communications, human rights, gender

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II-2: Demonstrated Need & Strategic Fit

This topic addresses the contribution of the project towards meeting demonstrated needs; local, regional and national development objectives; and regional and national policies and plans.

The intent is that the need for the project can be demonstrated, as well as the strategic fit with regional and national policies and plans.

IHA 2006 Protocol: A1 - Demonstrated Need for the Project

II-2.1 Assessment of Needs and Policy Context

3 – The relationship of water and energy needs, and relevant policies and plans to the project are assessed.

5 – In addition, the assessment of needs extends beyond just water and energy to include social and environmental related needs including integrated water resource management.

II-2.2 Consistency with Regional and National Policies and Plans

3 – The strategic fit of the project with water and energy needs, and relevant policies and plans can be demonstrated.

5 – In addition, a strategic fit of the project with social, environmental and integrated water resource management needs, policies and plans can also be demonstrated.

Interviewees: e.g. project manager; government representatives (e.g. energy, water, development departments)

Evidence: e.g. Energy Master Plan; Water Development Plan; Country Development Report; report on analysis of relevant policies and plans; report on project demonstrated need and strategic fit

Cross-cutting issues: IWRM

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II-3: Siting & Design

This topic addresses the evaluation and determination of project siting and design options.

The intent is that the project site selection and design is optimized as a result of an iterative and consultative process that has taken into account emerging information about technical, economic, financial, environmental and social considerations.

IHA 2004 Guidelines:

- 3 - The project proponent should ensure that the proposed project is the best alternative, following the consideration of relevant stakeholders concerns (*section 6.3, p.18*).
- 5 - For the proponent to demonstrate that their recommended option is sustainable and of net benefit to the community, early engagement with relevant stakeholders on the comparative benefits of feasible options is recommended (*section 4.1, p.5*).
- 3 - Prioritise alternatives that provide opportunities for multiple use benefits, that are on already developed river systems, that minimize the area flooded per unit of energy (GWh) produced, that maximize opportunities for and do not pose unsolvable threats to vulnerable social groups, that enhance public health and minimize public health risks, that minimize population displacement, that avoid exceptional natural and human heritage sites, that have lower impacts on rare, threatened or vulnerable species, that maximize habitat restoration and protect high quality habitats, that achieve or complement community supported objectives in downstream areas (i.e. environmental flows), that have associated catchment management benefits, that have lower sedimentation and erosion risks (*section 4.2, p.8-9*).

IHA 2006 Protocol: B6 - Site selection and design optimisation

II-3.1 Preliminary Site and Design Options Assessment

3 – High level information on environmental and social issues, risks and opportunities is identified at an early stage and analysed alongside technical, economic, financial and regulatory considerations in order to develop preliminary project designs for alternative sites.

5 – In addition, considerations about project siting and design relating to sustainable river basin design and integrated water resource management are factored into this early stage analysis.

II-3.2 Detailed Site and Design Optimisation

3 – A process of analysis of preliminary project designs at alternative sites is undertaken which iteratively draws on emerging information from the environmental and social impact assessments alongside technical, economic and financial information, with the objective of arriving at a final site and design.

5 – In addition, the analysis of alternative sites and preliminary designs emphasises optimisation of the following considerations:

- multiple use
- safety
- project benefits

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- population displacement
- exceptional cultural heritage sites
- exceptional natural heritage sites
- high quality habitats
- rare, threatened or vulnerable species
- project affected peoples and livelihoods
- indigenous peoples
- public health
- sedimentation and erosion

II-3.3 Stakeholder Involvement in Siting and Design Optimisation

3 – The siting and design optimisation process is consultative and iterative.

5 – In addition, the siting and design optimisation process is highly inclusive and responsive to the inputs of key stakeholders groups.

II-3.4 Final Site and Design

3 – The final project site and design is optimal for avoiding and/or minimising negative project impacts, and delivers on some opportunities for enhancement.

5 – In addition, final site and design is optimal for maximising positive benefits.

Interviewees: e.g. project manager; project designers

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

Cross-cutting issues: communication, multi-purpose hydro, IWRM

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II-4: Hydrological Resource

This topic addresses the level of understanding of the hydrological resource availability and reliability to the project, and the planning for short- and long-term management of this resource.

The intent is that hydrological resource availability and reliability for the project's planned power generation are understood and optimally planned for in the short- and long-term, taking into account climate change and likely future trends that could directly affect the project.

IHA 2006 Protocol: B4 - Planned operational efficiency and reliability

II-4.1 Assessment of Hydrological Resource Availability

3 – An understanding of hydrological resource availability has been developed utilising all available data, field measurements, appropriate statistical indicators, and a hydrological model.

5 – In addition, analyses are based on long-term forecasts, and modelling which factors in scenarios, uncertainties and risks including other water resource developments and climate change, and has been subject to appropriately qualified third party review.

II-4.2 Systems Operations Planning

3 – A plan for system operations has been developed, based on analysis of the hydrological resource availability alongside social, environmental and economic considerations, which will ensure delivery of the project's planned power generation.

5 – In addition, systems operation planning has a long-term perspective, which optimises water use with respect to environmental issues, social issues, multiple uses and integrated water resource management, and has the flexibility to adapt to anticipate and adapt to future changes.

Interviewees: e.g. company hydrologists; government hydrologists; power system planners; project designers

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

Cross-cutting issues: climate change, IWRM, multi-purpose hydro

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II-5: Infrastructure Safety

This topic addresses planning for dam and other infrastructure safety through project preparation, implementation and operation periods.

The intent is that life, property and the environment are protected from the consequences of dam failure and other infrastructure safety risks.

IHA 2004 Guidelines:

3 - Dam safety is factored into all phases of the planning, design, construction and operation of a hydropower development... Comprehensive dam safety risk assessments are completed for selected sites in any proposed schemes... All operating dams should have a dam safety management plan... Dam safety programs need to include emergency response plans, developed in conjunction with relevant regulatory authorities and stakeholders, clearly specifying responsibilities, supported by awareness and training programs (*section 4.5, p.11*).

3 - Public health and emergency response plans should be developed in conjunction with the local authorities (*section 5.1, p.16*).

5 - Safety planning can often be integrated within a formalized [environmental] management system (*section 4.5, p.11*).

IHA 2006 Protocol: B11 - Safety

II-5.1 Assessment of Safety Risks

3 – An assessment has been undertaken of dam and other infrastructure safety risks during project preparation, construction and operation, which covers seismic, geotechnical, dam or generation unit failure, electric shock, drowning, road accidents, and accidents arising from community interactions with project activities.

5 – In addition, simulation modelling and scenario testing are factored into the risk assessment, and it has been subject to appropriately qualified third party review.

II-5.2 Safety Management Planning

3 – A dam and other infrastructure safety management plan has been developed in conjunction with relevant regulatory authorities and stakeholders, and includes signage, exclusion zones, emergency preparedness, monitoring, inspections, training, incident response, communication, and allocation of responsibilities.

5 – In addition, plans allow for periodic appropriately qualified third party review, allow for emergency response practice exercises, and outline adaptive management measures that will be taken to dam and infrastructure safety issues as they arise.

Interviewees: e.g. project manager; project designers; project safety manager; local authorities

Evidence: e.g. safety risk assessments; safety management plans; emergency preparedness plans

Cross-cutting issues: human rights, communication

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II-6: Financial Viability

This topic addresses both access to finance, and the ability of a project to generate the required financial returns to meet project funding requirements, including funding of measures aimed at ensuring project sustainability.

The intent is that projects proceed with a sound financial basis that covers all project funding requirements including social and environmental measures, and enables a profit and a return to shareholders/investors.

IHA 2004 Guidelines:

5 - The full capital and recurring costs of environmental and social mitigation plans should be included (*section 7.2, p.21*).

5 - Construction, operations and maintenance costs should be fully detailed (*section 7.2, p.21*).

II-6.1 Financial Analysis and Planning

3 – Opportunities for project financing are identified and evaluated, and financial viability of the project is analysed and optimized with recognized models including some scenario testing, risk assessment, and sensitivity analysis.

5 – In addition, financial models utilise extensive scenario testing and are subject to appropriately qualified third party review.

II-6.2 Likely Financial Return

3 – The project can pay for all social and environmental plans and commitments, can service its debt, and is highly likely to be commercially viable.

5 – In addition, the adaptive management and contingency measures built into the environmental and social plans are fully accounted for in the project financial plans, and the project is likely to be commercially viable under a range of scenarios based on the adaptive management measures factored into the financial plans.

Interviewees: e.g. project financial officers; corporate financial officers; principal financing institution representative

Evidence: e.g. analysis of financing options; financial modelling reports; financial risk analysis; financial plans; financial status reports; third party review reports

Cross-cutting issues:

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II-7: Project Benefits

This topic addresses the additional benefits that can arise from a hydropower project, and the sharing of benefits amongst local and/or regional communities (beyond one-off compensation payments or resettlement support for project affected communities).

The intent is that opportunities for additional benefits are recognised and pursued where practicable, and that a benefit sharing strategy is designed so that local and regional communities clearly benefit from the project.

IHA 2004 Guidelines:

- 5 -Hydropower schemes have the ability to significantly reduce poverty and enhance quality of life in the communities they serve. Access to electricity promotes new economic activity, empowers women by reducing domestic and repetitive chores such as firewood collection, improves health and education services, and provides a cleaner and healthier home environment. Hydropower infrastructure, such as reservoirs, also provide multiple use benefits, particularly through increased availability, reliability and quality of fresh water supplies and reduced flood risks (*section 6, p.17*).
- 3 -Local communities are impacted by the change associated with new hydro projects. To be sustainable these schemes need to recognize entitlements and share benefits with directly affected people. The goal should be to ensure that all individuals and communities affected by developments gain sustainable benefits (*section 6, p.17*).
- 3 -When developing hydropower projects, governments and proponents should aim to achieve ... ensuring equitable distribution of the benefits of the project, particularly to affected and vulnerable communities, through processes such as revenue sharing, training programmes and educational outreach (*section 6.2, p.17*).
- 3 -There can be no sustainable development without the demonstration of sound and equitable distribution of economic benefits (*section 7, p.20*).
- 5 -Communities and / or groups that are impacted by a project should be the first to benefit. These groups should also participate in the identification, planning and distribution of benefits (*section 6.3, p.19*).

IHA 2006 Protocol: B3 – Additional Benefits

II-7.1 Project Benefits Analysis and Planning

3 – Opportunities to increase the development contribution of the project through initial investments and/or an ongoing sharing of benefits have been identified and evaluated, and a commitment to implement some of them has been incorporated into project plans.

5 – Based on a perspective to utilize the project as a vehicle for regional development, all opportunities to increase the development contribution of the project through initial investments and/or an ongoing sharing of benefits have been considered and a significant contribution relative to project base costs and revenues is incorporated into project plans.

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II-7.2 Stakeholder Involvement in Project Benefit Planning

3 – The project benefit planning process is consultative and iterative.

5 – In addition, the project benefit planning process is highly inclusive and responsive to the inputs of key stakeholders groups.

II-7.3 Likely Project Benefit Outcomes

3 – The project is likely to deliver notable benefits to the local population, with commitments made public and fully funded, and accountabilities clear.

5 – In addition, the project is highly likely to deliver notable benefits to the regional population.

Interviewees: e.g. project manager; government representative (e.g. department of economic development)

Evidence: e.g. analysis of regional development indicators; analysis of potential project benefits; analysis of benefit sharing options and opportunities; meeting minutes or reports demonstrating stakeholder input and involvement; benefit sharing plan

Cross-cutting issues: communication

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II-8: Economic Viability

This topic addresses the net economic viability of the project from a regional perspective.

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

IHA 2004 Guidelines:

- 3 - Direct and indirect costs and benefits should be identified (*section 7, p.20*).
- 3 - When developing hydropower projects, governments and proponents should aim to achieve ... supporting additional community infrastructure associated with the project, particularly water and electricity connection, where positive benefits to the community will result (*section 6.2, p. 17*).
- 5 - Direct and indirect costs and benefits should be where possible quantified in monetary terms (*section 7, p.20*).
- 5 - Ensure that benefits and costs of the project, including environmental, social and economic, are clearly identified, documented and disseminated to stakeholders (*section 6.3, p. 18*).
- 3 - Proponents need to demonstrate that their recommended option is sustainable and of net benefit to the community (*section 4.1, p.5*).

IHA 2006 Protocol: B2 - Economic viability

II-8.1 Assessment of Direct and Indirect Project Costs and Benefits

3 – As part of an assessment of economic viability, all positive and negative impacts of the project are identified and either valued in monetary terms or documented in qualitative or quantitative dimensions.

5 – In addition, a comprehensive cost-benefit analysis including sensitivity analysis is conducted and disclosed.

II-8.2 Likely Net Economic Return

3 – The project benefits can be demonstrated to outweigh project costs under a wide range of circumstances.

5 – In addition, the project shows a high rate of return compared to other investment options in the economy.

Interviewees: e.g. project manager; government representative (e.g. department of economic development)

Evidence: e.g. analysis of regional development indicators; analysis of potential project benefits; analysis of benefit sharing options and opportunities; meeting minutes or reports demonstrating stakeholder input and involvement; benefit sharing plan

Cross-cutting issues: transparency

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II-9: Governance

This aspect addresses key project governance considerations such as business administration, policies and processes to ensure responsible management, accountability, risk management, ethical business practices and compliance.

The intent is that the developer has sound business structures, policies and practices, can compensate for or manage any public sector governance issues, and can ensure ethical business practices and compliance.

IHA 2004 Guidelines:

- 3 - Governments should ensure that ... an efficient institutional framework is in place ... (section 7.1, p.20). [role of governments]
- 5 - IHA encourages bilateral and multilateral development agencies to support institutional strengthening and capacity building for impact assessment in developing countries (section 4.3, p.11). [role of MDBs]
- 3 - Operators of hydro-electric schemes should ensure that they have processes in place to ensure compliance with all relevant laws, policies, permits, agreements, and codes of practice for the jurisdictions in which they operate (section 4.5.1, p.12).
- 3 - The project proponent should ensure that ... any legislation, regulations, codes of practice or guidelines of government agencies complied with (section 6.3, p.18).
- 5 - These may include international agreements and protocols; relevant international laws, conventions and protocols; and voluntary commitments and signed agreements (section 4.5.1, p.12).

II-9.1 Assessment of Public Sector Governance Issues

3 - An analysis has been undertaken of the relevant public sector legal, judicial, and institutional structures important to hydropower project development, as well as the potential for political or public sector corruption risks.

5 – In addition, the analysis of public sector governance issues includes consideration of scenarios and mitigation measures.

II-9.2 Corporate Governance

3 - The business vision, policies, business structures and processes are clearly identifiable and communicated internally and externally, and include commitments in culturally appropriate forms to ensure social and environmental responsibility, ethical business practices, management of risks, compliance, and transparency.

5 – In addition, the business has a strong commitment to sustainability and measures in place to ensure and communicate on sustainable performance.

II-9.3 Ethical Business Practices

3 - Processes are in place to ensure ethical business practices at the company and project level appropriate to the level of identified risk.

5 - In addition, ethical business practices at the project level are supported by complaints mechanisms and are subject to appropriately qualified third party review.

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II-9.4 Compliance

3 - Processes are in place to ensure documentation of and compliance with all relevant laws, policies, permits, agreements, and codes of practice.

5 - In addition, the business is committed to annual public reporting on compliance.

Interviewees: e.g. business managers for corporate governance, compliance, internal audit, business risk

Evidence: e.g. business internal website and external website for vision, values, policies, structure, procedures, annual reports; assessment of public sector governance issues; internal audit reports; project compliance plan; reports to Board on ethical business practices and compliance; log of ethical business practices complaints; third party review reports

Cross-cutting issues: human rights, corruption, transparency, complaints mechanisms

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II-10: Transboundary Rivers

This topic addresses the degree of involvement and influence of the project in seeking efficient and sustainable water resource utilisation agreements when the project is on a river system that crosses jurisdictional boundaries.

The intent is that water resource utilisation conflicts are avoided.

IHA 2004 Guidelines:

3 - IHA supports the resolution of issues between nations where river basins cross national boundaries (section 3.2, p.4). [*role of governments*]

II-10.1 Assessment and Planning for Transboundary Project Issues

3 – Transboundary project issues both upstream and downstream of the project, and the degree of project influence, are assessed, and plans developed to manage these.

5 – In addition, the transboundary project issues assessment and planning follows a transparency and consultative process, and considers both negative impacts and the potential for positive benefits from the perspective of the multiple jurisdictions.

II-10.2 Transboundary stakeholder involvement and support for transboundary arrangements

3 – Governments of all affected jurisdictions are involved in consultation processes around development of project transboundary agreements.

5 – In addition, formal agreements have been reached with all affected jurisdictions around utilisation of the shared water resources.

II-10.3 Likely Effectiveness of Transboundary Arrangements

3 – Transboundary arrangements are supported by cross-jurisdictional monitoring and information sharing.

5 – In addition, transboundary arrangements are supported by formal and long-term institutional structures and processes including complaints mechanisms that can address transboundary issues as they arise from the project.

Interviewees: e.g. project manager, government representatives from the affected jurisdictions

Evidence: e.g. assessment of transboundary project issues; records of meetings with relevant jurisdictional representatives; transboundary agreements

Cross-cutting issues: communication, transparency, complaints mechanisms

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II-11: Integrated Project Management

This topic addresses the developer's capacity to coordinate and manage all project components within the overall hydropower development programme, including construction, environmental, social, resettlement, finance and procurement.

The intent is that the developer efficiently manages the interactions across the various project components so that one does not progress at the expense of another.

IHA 2004 Guidelines:

3 - Construction programs should be geared to ensuring minimum disturbance and appropriate rehabilitation of disturbed sites (*section 4.2, p.9*).

IHA 2006 Protocol: B5 - Project management plan; B15 - Construction and associated infrastructure impacts

II-11.1 Overall Project Management Responsibilities

3 – Responsibilities are assigned for all preparation and implementation aspects of the project including design, construction, communications, environmental, social, finance and procurement to appropriately qualified personnel.

5 – In addition, measures for staff development, shared learning and knowledge management are well-developed and implemented.

II-11.2 Integrated Project Management Planning

3 – An integrated project management plan takes into account all project activities, and includes scheduling, interface targets, critical path analysis, communications and cost control with the objective of adhering to the project timetable and budget.

5 – In addition, the integrated management plan contains measures that enable anticipation and avoidance or proactive management of issues, including a high degree of internal communication.

II-11.3 Construction Management Planning

3 – A Construction Management Plan details and outlines processes that contractors and others are required to follow to manage specific construction-related issues, including chemical and waste storage and handling, pollution, land disturbance, health, safety, community relations, and site zoning for special area protection.

5 – In addition, the Construction Management Plan allows for adaptive management to issues as they arise, through consultation and communication mechanisms, risk assessment and contingency planning.

Interviewees: e.g. project manager; construction manager

Evidence: e.g. organisational structure; management team qualifications; integrated programme management plans, analyses and reports; construction management plan

Cross-cutting issues: communication

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II-12: Procurement

This topic addresses all project-related procurement including works, goods and services.

The intent is that procurement processes are equitable, transparent and accountable; support achievement of project timeline, quality and budgetary milestones; support developer and contractor environmental, social and ethical performance; and promote opportunities for local industries

IHA 2004 Guidelines:

3 - [There is a need for] transparency in procurement processes (*section 7.3, p.22*).

II-12.1 Assessment of Procurement Requirements

3 – An assessment has been undertaken of the major project supply needs for works, goods and services, as well as of supply sources, relevant legislation and guidelines, and supply chain issues and corruption risks.

5 – In addition, the assessment identifies local supply sources, evaluates their capacity to supply for all project components and the potential for local capacity development.

II-12.2 Procurement Management Planning

3 – Plans are in place for fair, efficient, transparent and timely procurement processes including anti-corruption measures

5 – In addition, procurement plans include adaptive management and state-of-the-art anti-corruption measures.

II-12.3 Likely Effectiveness of Procurement Arrangements

3 - Fair, efficient, transparent and timely procurement processes can be demonstrated across major project components, as well as processes for timely response to bidder complaints.

5 – In addition, opportunities for local suppliers have been thoroughly identified and maximized as far as practicable, including initiatives for local capacity development.

Interviewees: e.g. project manager; project procurement officer

Evidence: e.g. relevant purchasing policy and procedures; project procurement plan; analysis of local supply sources and capacities; tender requirements / specifications; bidding documents; supplier screening criteria; evaluation of supplier performance; bidder complaints log

Cross-cutting issues: human rights, corruption, transparency, complaints mechanisms

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II-13: Environmental & Social Impact Assessment & Management

This aspect addresses the assessment and planning processes for environmental and social impacts associated with project implementation and operation.

The intent is that environmental and social impacts are identified and assessed, and avoidance, minimisation, mitigation, compensation and enhancement measures designed and implemented.

IHA 2004 Guidelines:

- 3 - Environmental assessments should be applied at the project level; should be based on good science and factual information; should be relevant to the scale and nature of the project in question and factor in existing information. ... Stakeholders should be given opportunities to participate in decision-making processes. Their roles, and rights to access information, should be documented in language relevant to their needs... IHA supports transparency of process and coordination between the different sectors involved (*section 4.3, p.10*)...
- 3 - It is recommended that all hydropower schemes implement an independently audited environmental management system (*section 5.1, p.16*).
- 5 - Social compensation projects (such as new roads) should undergo appropriate environmental assessment (*section 6.3, p.19*).
- 3 - When developing hydropower projects, governments and proponents should aim to achieve ... ensuring that the local knowledge of communities and stakeholders is used in project planning (*section 6.2, p.17*).
- 3 - The project proponent should ensure that impacts on the community, stakeholders and the environment are identified and that stakeholders are informed about the project and the implications for them, as well as being regularly consulted throughout the planning and implementation phases (*section 6.3, p.18*).
- 5 - Affected stakeholders should participate in the development and implementation of mitigation measures, including the formulation of a Resettlement Plan or Policy (*section 6.3, p.18*).
- 5 - The implementation of [environmental management systems] is enhanced where [list including corporate environmental ethos, senior management leadership and commitment, clear lines of accountability and responsibility, etc] (*section 4.5.2, p.13*).
- 5 - Hydropower operators should also consider incorporating their environmental management system as part of a broader sustainability management and public reporting program. Open and continuous stakeholder consultation enhances longer-term relationships with the local community, regulators and shareholders (*section 4.5.2, p.13*).

IHA 2006 Protocol: B8 - Social impact assessment and management plan; B13 - Environmental impact assessment and management plan; B14 - Threshold and cumulative environmental or social impacts

II-13.1 Environmental and Social Impact Assessment

3 – Project environmental and social impact assessments cover baseline conditions, positive and negative impacts, and risks covering project-affected communities, livelihoods, cultural heritage, public health, aquatic and terrestrial biodiversity, water quality, and erosion and sedimentation throughout the project affected area, using appropriate expertise and local knowledge.

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5 – In addition, the assessment covers legacy issues, cumulative impacts, and a range of alternatives and scenarios, and is subject to appropriately qualified third party review.

II-13.2 Environmental and Social Management Planning

3 – An environmental and social issues management planning process is based upon environmental and social impact assessment outputs, addresses both environmental and social issues, includes measures to manage risks and enhance opportunities, and provides for scheduling, change management, and allocation of resources and responsibilities.

5 – In addition, the management planning process will be embedded into an environmental/social management system, and is subject to appropriately qualified third party review.

II-13.3 Stakeholder Involvement in Environmental and Social Assessment and Management Planning

3 – The environmental and social assessment and management planning process is consultative and iterative.

5 – In addition, the environmental and social assessment and management planning process is highly inclusive and responsive to the inputs of key stakeholders groups.

II-13.4 Likelihood of Effectiveness of Environmental and Social Management Plans

3 – Environmental and social plans avoid, minimise, mitigate and compensate major negative impacts, and some practicable opportunities for positive impacts are likely to be achieved.

5 – All major and minor negative impacts are avoided, mitigated or compensated, and opportunities for positive impacts have been thoroughly identified and maximised as far as practicable.

Interviewees: e.g. project managers responsible for environmental and social issues assessment and management; government representatives responsible for environmental and social issues

Evidence: e.g. regulatory requirements for EIA / SIA; EIA / SIA and associated reports; environmental and social management plans; records of consultation and stakeholder involvement; records of response to stakeholder issues; third party review report

Cross-cutting issues: communication, legacy issues

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II-14: Project-Affected Communities & Livelihoods

This aspect addresses the rights, risks and opportunities of the project with respect to communities directly affected by the project, including those economically displaced by means which may or may not relate to land acquisition. Note that Topic II-15 specifically addresses indigenous peoples issues, and Topic II-16 addresses those stakeholders who are physically resettled by the project.

The intent is that the dignity and human rights of those affected by the project are respected, that project affected communities are involved in consultation and negotiations about the project, that livelihoods are sustained and where possible improved, and that compensation measures are agreed.

IHA 2004 Guidelines:

- 3 - When developing hydropower projects, governments and proponents should aim to achieve ... providing affected communities with improved living conditions (*section 6.2, p.17*).
- 3 - The project proponent should ensure that a negotiated and agreed outcome is achieved wherever possible (*section 6.3, p.18*).
- 5 - Community acceptance of a project, particularly in its early phases, will greatly assist in the successful implementation of that project (*section 6.3, p.18*).
- 3 - The project proponent should ensure that those communities or individuals affected by the project are compensated for impacts caused by the project (*section 6.3, p.18*).
- 5 - Communities that will be affected should be compensated for their loss. This will include those persons or groups displaced by associated infrastructure developments, such as roads, those communities both upstream and downstream who experience loss of livelihood, and those who depend on common resources such as forests and agricultural land that might be altered by the project (*section 6.3, p.19*).
- 5 - Where compensation is to be paid, this is undertaken in a timely manner to ensure that the displaced persons are not disadvantaged (*section 6.3, p.19*).

IHA 2006 Protocol: B9 - Predicted extent and severity of economic and social impacts on directly affected stakeholders

II-14.1 Assessment of Project-Affected Communities and Impacts to Livelihoods

3 – An assessment has been undertaken utilising local knowledge and identifying all project affected communities, their livelihoods prior to project development, the nature of the impacts of the project on their livelihoods, the degree of economic displacement, and options to address livelihoods and economic displacement issues.

5 – In addition, the assessment includes a detailed gender analysis and is subject to appropriately qualified third party review.

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II-14.2 Project Affected Communities Management Planning

3 – Mitigation and compensation measures for project affected communities, and opportunities for improvement to livelihoods, are developed in a consultative manner and built into project plans.

5 – In addition, mitigation and compensation measures have been developed in partnership with the affected communities, and provide for complaints mechanisms.

II-14.3 Project Affected Communities Involvement and Support for Compensation Measures

3 – There is general agreement for compensation measures from most affected community groups, and no major ongoing opposition.

5 – Formal agreements are in place for compensation measures for all affected community groups.

II-14.4 Likely Project Impacts on Livelihoods

3 – Project plans ensure livelihoods of project affected communities are sustained and in some cases improved, and economic displacement is fairly compensated.

5 – Project plans ensure that in many cases livelihoods of project affected communities are improved, and reviews will be undertaken by an appropriately qualified third party reviewer.

Interviewees: e.g. representatives of project affected communities; project social issues manager; independent reviewer

Evidence: e.g. assessment report on project affected communities and livelihoods; gender analysis; records of consultation and project affected community involvement; records of response to project affected community issues; third party review report; report on compensation measures; agreements on compensation measures

Cross-cutting issues: communication, gender, livelihoods, human rights, complaints mechanisms

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II-15: Indigenous Peoples

This aspect addresses the issues, risks and opportunities of the project with respect to indigenous peoples, recognising that as social groups with identities distinct from dominant groups in national societies, they are often the most marginalized and vulnerable segments of the population.

The intent is that the project respects the dignity, human rights, aspirations, culture, knowledge, practices and natural resource-based livelihoods of indigenous peoples.

IHA 2004 Guidelines:

- 5 - Specifically identify any minority and / or vulnerable groups and ensure that they are adequately represented in any consultation process and are not adversely impacted by the project (*section 6.3, p.19*).
- 3 - Where vulnerable social groups will be affected, projects should include comprehensive social and cultural enhancement programs (*section 4.2, p.8*).
- 3 - Projects that present significant threats to vulnerable social groups should be avoided if the threats cannot be mitigated (*section 4.2, p.8*).

II-15.1 Assessment of Indigenous Peoples Issues and Risks

3 – The project social impact assessment includes specific assessment of the representation of indigenous peoples in the project affected community, their rights, risks and vulnerabilities, and any cultural sensitivities and needs, and is based on utilisation of local knowledge and expertise.

5 – In addition, the assessment has been undertaken in partnership with the indigenous peoples, includes a gender analysis, and is subject to appropriately qualified third party review.

II-15.2 Management Planning for Indigenous Peoples Issues

3 – Project social management plans include specific plans that address indigenous peoples issues, risks and opportunities.

5 – In addition, the plans have been developed in partnership with the indigenous peoples, include comprehensive social and cultural enhancement programs, complaints mechanisms, adaptive management measures, and appropriately qualified third party review.

II-15.3 Indigenous Peoples Involvement and Support for Indigenous Related Measures

3 – A consultative approach is taken to assessment of indigenous issues that is culturally appropriate, timely, two-way and iterative, and there is general agreement for the management planning for indigenous peoples from most affected groups and no major ongoing opposition.

5 – In addition, consultation is highly iterative through project preparation, with participants involved in the decision-making around indigenous peoples options and

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management, and there is full consent¹ with legally binding agreements by the indigenous peoples for the issues that affect them.

II-15.4 Likely Outcomes for Indigenous Peoples

3 – Major negative impacts of the project to indigenous peoples and their associated culture, knowledge and practices are identified, avoided, mitigated and/or compensated, and opportunities for positive impacts have been identified and some practicable opportunities are likely to be achieved.

5 – All negative impacts of the project to indigenous peoples and their associated culture, knowledge and practices are identified, avoided, mitigated and/or compensated, and opportunities for positive impacts are thoroughly identified and maximised as far as practicable.

Interviewees: e.g. representatives of project affected indigenous communities; project social issues manager; independent reviewer

Evidence: e.g. assessment report on indigenous peoples; records of consultation and project affected community involvement; records of response to indigenous peoples issues; third party review report; indigenous peoples management plans; agreements on measures for indigenous peoples

Cross-cutting issues: communication, gender, human rights, complaints mechanisms

¹ Consent: signed agreements with community leaders or representative bodies who have been authorised by the affected communities which they represent, through an independent and self-determined decision-making process undertaken with sufficient time and in accordance with cultural traditions, customs and practices.

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II-16: Resettlement

This topic addresses physical displacement (relocation or loss of shelter) caused by land acquisition arising from a hydropower project development. Economic displacement associated with land acquisition is addressed in Topic II-14 “Project-Affected Communities”.

The intent is that the dignity and human rights of those physically or economically displaced by land acquisition are respected; that these matters are dealt with in a fair and equitable manner; and that standards of living for displaced persons and host communities are improved.

IHA 2004 Guidelines:

- 3 - Where population displacement is necessary, comprehensive resettlement and rehabilitation plans need to be developed and implemented in consultation with the affected population (*section 4.2, p.9*).
- 3 - Opportunities to modify scheme design to reduce population displacement need to be carefully examined (*section 4.2, p.9*).
- 3 - When developing hydropower projects, governments and proponents should aim to achieve ... ensuring that displacement is dealt with in a fair and equitable manner. The broad guidelines required to address displacement are:
 - To investigate all possible project alternatives to ensure that displacement is avoided or minimized where feasible;
 - To plan the resettlement thoroughly, where displacement is necessary, ensuring that adequate resources are available to enable the displaced groups to share in the benefits of the project;
 - To ensure adequate and on-going consultation with those groups or individuals that will be displaced, so that they have input into both the planning and the implementation of the resettlement program;
 - To provide displaced groups with sufficient assistance to ensure that their livelihoods are improved or, as a minimum, to ensure that they are re-established at no disadvantage; and
 - To improve standards of living for both the displaced communities as well as the host community, where applicable (*section 6.2, p. 18*).
- 5 - Affected stakeholders should participate in the development and implementation of mitigation measures, including the formulation of a Resettlement Plan or Policy (*section 6.3, p. 18*).
- 5 - Where involuntary displacement is necessary, following consideration of all other alternatives, the same compensation and support standards should apply to all groups whether they have agreed to relocation arrangements or not (*section 6.3, p. 19*).
- 5 - All displaced persons should be informed about their rights and options in relation to resettlement (*section 6.3, p. 19*).
- 5 - Land acquisition costs should be evaluated in terms of actual economic value of land, as opposed to arbitrary valuations based on little substance (*section 7.2, p.21*).

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II-16.1 Assessment of Resettlement Issues

3 – The social impact assessment includes specific assessment of the physical resettlement implications of the project early in the project preparation stage, and establishes the socio-economic baseline including analysis of community structures, gender, vulnerable social groups, living standards and livelihoods for those potentially physically displaced.

5 – In addition, the assessment of resettlement issues is subject to appropriately qualified third party review.

II-16.2 Resettlement Management Planning

3 – A Resettlement Action Plan has been developed in a timely manner, which includes an up-to-date socio-economic baseline, compensation framework, budget and implementation schedule, organisational responsibilities, monitoring and evaluation, and grievance mechanism components.

5 – In addition, the Resettlement Action Plan has a strong emphasis on adaptive management, and is subject to appropriately qualified third party review.

II-16.3 Resettlement Stakeholders Involvement and Support for Resettlement Management Plans

3 – A consultative approach is undertaken with resettlee and host communities to assessment of physical resettlement issues that is timely, iterative, and two-way, and there is general agreement for the Resettlement Action Plan from most affected groups and no major ongoing opposition.

5 – In addition, consultation is an iterative and constant process through project preparation, with participants involved in the decision-making around resettlement options and management, and there is full consent² with legally binding agreements for the Resettlement Action Plan.

II-16.4 Likely Impact on Standards of Living for Resettlees and Host Communities

3 – The Resettlement Action Plan is likely to result in timely improvement in living standards for resettlees and host communities.

5 – In addition, mechanisms are built into the plan to sustain living standards over the long-term.

Interviewees: e.g. community representatives affected by resettlement and land acquisition; representatives from resettlement host communities; project social issues manager; independent reviewer

Evidence: e.g. assessment report on resettlement and land acquisition; records of consultation and affected stakeholder involvement; records of response to resettlement and

² Consent: signed agreements with community leaders or representative bodies who have been authorised by the affected communities which they represent, through an independent and self-determined decision-making process undertaken with sufficient time and in accordance with cultural traditions, customs and practices.

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land acquisition issues; third party review report; resettlement action plans; land acquisition plans; compensation agreements; agreements on resettlement action plan

Cross-cutting issues: communication, gender, livelihoods, human rights, complaints mechanisms

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II-17: Labour & Working Conditions

This topic addresses labour and working conditions, including employee opportunity, equity, diversity, health and safety.

The intent is that workers are treated fairly and protected, and equal opportunities provided, in accordance with national and international standards and expectations on labour and working conditions.

IHA 2004 Guidelines:

5 - Local and regional resources (particularly labour) should be utilised in the development and operation of the project. Local communities will then more readily see the benefits of the scheme to their community (*section 6.3, p. 19*).

II-17.1 Labour and Working Conditions Planning

3 – Human resource and labour management systems are well established, addressing equity, OH&S, workforce planning, staff development and training, and including monitoring and management responses consistent with national and international labour standards.

5 – In addition, grievance mechanisms are well established and the project is committed to achieve staff and contractor satisfaction.

II-17.2 Occupational Health & Safety

3 – An assessment has been undertaken of occupational health and safety issues, risks, and mitigation / management measures, and an OH&S plan has been developed for project construction and operation consistent with national and international standards and with responsibilities clearly allocated and resourced.

5 – In addition, the OH&S assessment and management plans have been subject to appropriately qualified third party review, and review and grievance mechanisms are well established.

Interviewees: e.g. project human resources staff; company human resources staff; project manager, contracted workforce manager, project safety officer

Evidence: e.g. policies, plans and programs relating to human resources, employees, contractors, equity, occupational health & safety, workforce planning, grievance mechanisms

Cross-cutting issues: communication, gender, human rights, complaints mechanisms

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II-18: Cultural Heritage

This aspect addresses the level of impact and planning for protection and conservation of cultural heritage that can be damaged or lost through the physical landscape changes brought about by hydropower project construction and operation, as well as through associated infrastructure impacts (e.g. new roads, transmission lines).

The intent is that cultural heritage is identified, recorded, and high value artefacts protected.

IHA 2004 Guidelines:

3 - Developers should make every effort to avoid, or reduce to a minimum, alteration to sites of exceptional national and international value (*section 4.2, p.9*).

IHA 2006 Protocol: B12 - Cultural heritage

II-18.1 Cultural Heritage Assessment and Planning

3 – Cultural heritage has been identified and recorded, and plans ensure that high value artefacts are documented, protected and conserved.

5 – In addition, assessment and plans have been subject to appropriately qualified third party review.

II-18.2 Cultural Heritage Stakeholder Involvement and Support for Cultural Heritage Management

3 – There is general agreement for the cultural heritage management plan from most key cultural heritage stakeholder groups, and no major ongoing opposition.

5 – In addition, formal agreements are in place for critical cultural heritage.

II-18.3 Likely Cultural Heritage Outcomes

3 – The level of protection represented by the cultural heritage management plan is consistent with national and international standards.

5 – In addition, 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.

Interviewees: e.g. project environmental and social issues manager, local cultural heritage expert, representative from relevant government department (e.g. heritage or environment)

Evidence: e.g. cultural heritage impact statements; conservation plans; records of consultation and response to stakeholder issues; heritage plans and agreements

Cross-cutting issues: communication

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II-19: Public Health

This aspect addresses public health risks and opportunities associated with the hydropower project.

The intent is that public health risks are avoided, and enhancement opportunities are identified and implemented where practicable.

IHA 2004 Guidelines:

3 - Where these [public health] risks exist, they need to be managed and monitored with an appropriate public health plan (*section 4.2, p.8*).

3 - Public health and emergency response plans should be developed in conjunction with the local authorities (*section 5.1, p.16*).

3 - When developing hydropower projects, governments and proponents should aim to achieve ... improving public health conditions for impacted communities (*section 6.2, p.17*).

IHA 2006 Protocol: B10 - Enhancement of public health and minimisation of public health risks

II-19.1 Public Health Assessment and Planning

3 – In collaboration with local health officials, public health risks and opportunities have been identified, prioritised, and communicated to affected communities; and public health management measures have been incorporated into plans.

5 – In addition, a highly collaborative approach with the affected communities has been taken to the public health assessment and planning, and plans include provisions for continuous monitoring and regular review.

II-19.2 Likely Public Health Outcomes

3 – The level of protection provided by the public health management plan is consistent with national and international standards.

5 – In addition, plans include arrangements for chance public health outbreaks, and ensure that public health expertise will be regularly liaised with particularly during construction.

Interviewees: e.g. project social issues manager, independent public health expert, representative from government health department

Evidence: e.g. public health issues and opportunities assessment; public health management plans

Cross-cutting issues: communication

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II-20: Land & Catchment Management

This topic addresses the degree to which catchment activities and project impacts on the catchment are understood and managed. Impacts from the project and other activities include changes to water quality, land clearing, erosion, future water abstraction, access and terrestrial and aquatic biodiversity. The topic also addresses specific land rehabilitation measures associated with the construction of the project.

The intent is that project land and catchment management measures promote positive environmental, social and economic outcomes, taking into consideration the specific role and responsibility of the proponent.

IHA 2004 Guidelines:

- 3 - Development proposals need to be considered within the context of existing catchment activities, especially those contributing to sediment inflow to the storage (*section 5.1, p.14*).
- 5 - Catchment management strategies can reduce sediment load entering a reservoir (4.2, p.9). Reducing reservoir sedimentation through cooperation with local communities and regulatory authorities in improving catchment management practices is an option (*section 5.1, p.14*).
- 5 - Where appropriate, support should be given for conservation areas within catchments (*section 4.2, p.9*).
- 5 - Working with local communities and regulatory authorities in improving catchment management practices can have significant water quality benefits for hydro reservoirs (*section 5.1, p.14*).

IHA 2006 Protocol: B16 - Land management and rehabilitation

II-20.1 Catchment Management

3 – Potential catchment impacts from the project and actual catchment impacts of other activities have been identified and assessed, and plans are developed to manage project impacts and in accordance with the degree of proponent influence to address other catchment impacts based on a consultative process.

5 – In addition, a highly collaborative approach to catchment management has been taken between the project proponent and other catchment users, and opportunities to enhance sustainable catchment use have been identified and are likely to be implemented.

II-20.2 Land Rehabilitation

3 – Project design has focussed on minimising disturbance associated with all project construction activities, and plans have been developed to effectively rehabilitate disturbed sites.

5 – In addition, a highly collaborative approach to land rehabilitation has been taken with other land users and stakeholders, and opportunities for land rehabilitation are likely to be maximised.

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Interviewees: e.g. project manager; construction manager; project environmental and social issues managers, catchment community representatives, representatives of relevant government departments (e.g. lands, forestry, environment, wildlife).

Evidence: e.g. construction management plans; catchment management plans; land rehabilitation plans; relevant excerpts of environmental and social impact assessments and management plans; records of stakeholder meetings

Cross-cutting issues: communication

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II-21: Reservoir Management

This topic addresses the planning for management of environmental, social and economic issues within and around the reservoir area during project implementation and operation.

The intent is that the reservoir is well managed taking into account power generation operations, environmental and social management requirements, and multi-purpose uses where relevant.

IHA 2006 Protocol: B18 - Environmental flows and reservoir management

II-21.1 Planning for Reservoir Filling

3 – Plans for reservoir filling identify other critical activities (e.g. resettlement, cleaning up of contaminated sites, clearing of reservoir vegetation, relocation of cultural heritage items and/or wildlife, slope stability) and outline timely and coordinated implementation.

5 – In addition, plans allow for adaptive management to issues as they arise, through consultation and communication mechanisms, risk assessment and contingency planning.

II-21.2 Planning for Reservoir Operation

3 – Plans for reservoir operation include consideration of debris management, multiple uses, safety, flood management, erosion/sedimentation, and water-borne diseases, and outline management responses.

5 – In addition, plans consider water quality, biodiversity, and invasive species, and allow for adaptive management to issues as they arise through consultation, risk assessment and contingency planning.

Interviewees: e.g. project manager; construction manager; project environmental and social issues managers

Evidence: e.g. integrated project management plans; construction management plans; reservoir design documents; model output for reservoir operations; relevant excerpts of environmental and social impact assessments and management plans

Cross-cutting issues: communication

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II-22: Downstream Flow Regimes

This topic addresses the flow regimes downstream of hydropower project infrastructure in relation to environmental, social and economic impacts and benefits.

The intent is that downstream flow regimes are designed with the involvement of stakeholders to optimise environmental, social and economic objectives.

IHA 2004 Guidelines:

3 - Environmental flow regimes should be developed on the basis of community-supported objectives (*section 4.2, p.9*).

3 - It is important that the environmental objectives of any flow release are identified in a clear and transparent manner (*section 5.1, p.15*).

5 - Operating schedules should, where necessary and practicable, incorporate environmental water release patterns (including environmental flows) within the operational framework for the supply of power (*section 5.1, p.15*).

5 - It is desirable that the environmental flow objectives be agreed with the local communities (*section 5.1, p.15*).

IHA 2006 Protocol: B18 - Environmental flows and reservoir management

II-22.1 Assessment of Downstream Flow Objectives

3 – Key interests and stakeholders in relation to flows downstream of project infrastructure are identified and engaged, and flow-related objectives are articulated based on relevant scientific and other information.

5 – In addition, review of the downstream flow objective-setting process is undertaken by an appropriately qualified third party.

II-22.2 Planning for Delivery of Downstream Flows

3 – Planned downstream flow regimes are able to be implemented upon project commissioning, and take into consideration environmental, social and economic objectives.

5 – In addition, the planned downstream flow regimes represent an optimal fit amongst environmental, social and economic objectives.

II-22.3 Stakeholder Involvement in Downstream Flow Regime Planning

3 – The downstream flow regime planning process is consultative and iterative.

5 – In addition, the downstream flow regime planning process is highly inclusive and responsive to the inputs of key stakeholders groups.

II-22.4 Likelihood of Effectiveness of Downstream Flow Regime

3 – Plans for downstream flow regimes include a corporate commitment to implementation, compliance, monitoring achievement of objectives and targets, and periodic review of those objectives and targets.

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5 – In addition, downstream flow regime commitments are public, formal, legally enforceable, and embedded into an on-going process of adaptive management.

Interviewees: e.g. project manager; hydrologist; project environmental and social issues managers; aquatic ecologist; independent environmental flows expert

Evidence: e.g. assessment of downstream flows in relation to flow-related objectives; downstream flow regime plans; system operations plans; design documents in relation to release mechanisms; records of consultation and stakeholder involvement; records of response to stakeholder issues; third party review report; commitments and agreements

Cross-cutting issues: communication

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II-23: Biodiversity & Invasive Species

This topic addresses ecosystem values, habitat and specific issues such as threatened species and fish passage in the catchment, reservoir and downstream areas, as well as potential impacts arising from pest and invasive species associated with the planned project.

The intent is that biodiversity and high conservation value areas are addressed with the priority of approaches being avoidance, followed by, minimisation, mitigation or compensation, and opportunities for enhancement are identified.

IHA 2004 Guidelines:

- 3 - Developers should make every effort to avoid, or reduce to a minimum, alteration to sites of exceptional national and international value (*section 4.2, p.9*).
- 3 - Priority should be given to protecting or restoring higher quality habitats (*section 4.2, p.9*).
- 3 - Significant damage to areas of high conservation value (including critical habitat for endangered species) should be avoided when adequate mitigation or compensation is not feasible (*section 4.2, p.9*).
- 3 - Habitats of critical importance should be identified (within a wider regional context) and impacts to these avoided or minimized as much as possible during the design stage (*section 5.1, p.15*).
- 3 - Targeted management plans need to be developed for species of conservation significance (*section 5.1, p.15*).
- 3 - The passage of fish is an issue that must be considered during the design and planning stage of proposed developments (dam site selection) and adequate consideration should be given to appropriate mechanisms for their transfer. Appropriate and feasible options for facilitating passage are also an issue for existing developments (*section 5.1, p.15*).
- 3 - Identifying the risk of [pest species] infestation prior to development (*section 5.1, p.16*).
- 5 - Consideration of the creation of alternative habitats or the protection of adjacent areas should be considered as part of any mitigation program (*section 4.2, p.9*).

IHA 2006 Protocol: B17 - Aquatic biodiversity

II-23.1 Terrestrial Biodiversity Assessment and Planning

3 – Key project issues and risks for terrestrial biodiversity, including risks of invasive species, are identified and evaluated, and plans are developed to avoid and mitigate impacts during construction and operation using appropriate expertise and local knowledge.

5 – In addition, terrestrial biodiversity plans outline adaptive management processes, opportunities for positive impacts are thoroughly identified and addressed as far as practicable, and plans are reviewed by an appropriately qualified third party review.

II-23.2 Aquatic Biodiversity Assessment and Planning

3 – Key project issues and risks for aquatic biodiversity, including risks of invasive species, are identified and evaluated, and plans are developed to avoid and mitigate impacts during construction and operation using appropriate expertise and local knowledge.

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5 – In addition, aquatic biodiversity plans outline adaptive management processes, opportunities for positive impacts are thoroughly identified and addressed as far as practicable, and plans are reviewed by an appropriately qualified third party review.

II-23.3 Likely Biodiversity and Invasive Species Outcomes

3 – Planned biodiversity and invasive species management plans include a corporate commitment to implementation, compliance, monitoring, achievement of objectives and targets, and periodic review of those objectives and targets.

5 – In addition, the biodiversity and invasive species management plans are public, formal, and legally enforceable.

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

Evidence: e.g. assessment of terrestrial biodiversity; assessment of aquatic biodiversity; fish studies; fish passage technical feasibility assessments; third party review reports; biodiversity management plans; invasive species management plans; commitments and agreements

Cross-cutting issues:

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II-24: Erosion & Sedimentation

This topic addresses the management of potential impacts arising from sedimentation and erosion associated with the planned project.

The intent is that reservoir and downstream impacts related to sedimentation and erosion are addressed with the priority of approaches being avoidance, followed by where avoidance is not possible, minimisation, mitigation or compensation.

IHA 2004 Guidelines:

3 - Sites and options should be assessed for sedimentation and erosion risks, both for the reservoir and downstream (*section 4.2, p.9*).

3 - Operational or physical mitigation measures to reduce erosion downstream should be considered for both proposed and existing developments and appropriate objectives set (*section 5.1, p.14*).

IHA 2006 Protocol: B19 - Reservoir and downstream sedimentation and erosion risks

II-24.1 Erosion and Sedimentation Assessment and Planning

3 – Baseline erosion and sedimentation condition and key project issues and risks are identified and evaluated, and plans are developed to avoid and mitigate erosion and sedimentation impacts during construction and operation using appropriate expertise.

5 – In addition, erosion and sedimentation plans outline adaptive management processes, opportunities to pro-actively address erosion and sedimentation issues are thoroughly identified and addressed as far as practicable, and plans are reviewed by an appropriately qualified third party review.

II-24.2 Likely Erosion and Sedimentation Outcomes

3 – Erosion and sedimentation issues during construction and operation are likely to present moderate and essentially manageable problems for environmental, social and economic values associated with project affected areas; where practicable, some opportunities for positive impacts to erosion and sedimentation issues are likely to be realised.

5 – The impacts of erosion and sedimentation are likely to present very minor problems for environmental, social and economic values associated with the reservoir and downstream areas, and any opportunities for positive impacts are likely to be realised.

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

Evidence: e.g. erosion and sedimentation assessment reports; erosion and sedimentation management plans for construction and operation

Cross-cutting issues:

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II-25: Water Quality

This topic addresses how water quality issues are addressed during the preparation stage of a project.

The intent is that water quality issues are understood and addressed.

IHA 2004 Guidelines:

- 3 - Adequate data collection and an EIA process that identifies potential problems prior to dam design are critical (*section 5.1, p.14*).
- 5 - Design and operational systems that minimize as much as possible the negative [water quality] impacts within the storage and downstream (*section 5.1, p.14*).
- 5 - Some removal [of vegetation in the reservoir area] should be considered (*section 5.1, p.14*).
- 5 - Working with local communities and regulatory authorities in improving catchment management practices can have significant water quality benefits for hydro reservoirs (*section 5.1, p.14*).

IHA 2006 Protocol: B20 - Water quality

II-25.1 Water Quality Assessment and Planning

3 – Baseline water quality condition and key project issues and risks are identified and evaluated, and plans are developed to avoid and mitigate water quality impacts during construction and operation using appropriate expertise.

5 – In addition, water quality plans outline adaptive management processes, opportunities to pro-actively address water quality issues are thoroughly identified and addressed as far as practicable, and plans are reviewed by an appropriately qualified third party review.

II-25.2 Likely Water Quality Outcomes

3 – Water quality issues during construction and operation are likely to present moderate and essentially manageable problems for environmental, social and economic values in the project affected areas; where practicable, some opportunities for positive impacts to local water quality issues are likely to be realised.

5 – Water quality outcomes during construction and operation are likely to present only very minor problems for environmental, social and economic values in the project and downstream areas, and any opportunities for positive impacts to local water quality issues are likely to be realised.

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

Evidence: e.g. water quality monitoring reports; water quality management plans for construction and operation

Cross-cutting issues:

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ATTACHMENT 1 – SUMMARY OF STATEMENTS OF 3 SCORES

II-1.1 Directly affected people and key internal and external stakeholders are fully identified, and linked to the issues of most relevance to them.

II-1.2 A plan for communications and consultation is implemented and periodically reviewed to support assessment and management planning for project issues.

II-2.1 The relationship of water and energy needs, and relevant policies and plans to the project are assessed.

II-2.2 The strategic fit of the project with water and energy needs, and relevant policies and plans can be demonstrated.

II-3.1 High level information on environmental and social issues, risks and opportunities is identified at an early stage and analysed alongside technical, economic, financial and regulatory considerations in order to develop preliminary project designs for alternative sites.

II-3.2 A process of analysis of preliminary project designs at alternative sites is undertaken which iteratively draws on emerging information from the environmental and social impact assessments alongside technical, economic and financial information, with the objective of arriving at a final site and design.

II-3.3 The siting and design optimisation process is consultative and iterative.

II-3.4 The final project site and design is optimal for avoiding and/or minimising negative project impacts, and delivers on some opportunities for enhancement.

II-4.1 An understanding of hydrological resource availability has been developed utilising all available data, field measurements, appropriate statistical indicators, and a hydrological model.

II-4.2 A plan for system operations has been developed, based on analysis of the hydrological resource availability alongside social, environmental and economic considerations, which will ensure delivery of the project's planned power generation.

II-5.1 An assessment has been undertaken of dam and other infrastructure safety risks during project preparation, construction and operation, which covers seismic, geotechnical, dam or generation unit failure, electric shock, drowning, road accidents, and accidents arising from community interactions with project activities.

II-5.2 A dam and other infrastructure safety management plan has been developed in conjunction with relevant regulatory authorities and stakeholders, and includes signage, exclusion zones, emergency preparedness, monitoring, inspections, training, incident response, communication, and allocation of responsibilities.

II-6.1 Opportunities for project financing are identified and evaluated, and financial viability of the project is analysed and optimized with recognized models including some scenario testing, risk assessment, and sensitivity analysis.

II-6.2 The project can pay for all social and environmental plans and commitments, can service its debt, and is highly likely to be commercially viable.

II-7.1 Opportunities to increase the development contribution of the project through initial investments and/or an ongoing sharing of benefits have been identified and

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evaluated, and a commitment to implement some of them has been incorporated into project plans.

II-7.2 The project benefit planning process is consultative and iterative.

II-7.3 The project is likely to deliver notable benefits to the local population, with commitments made public and fully funded, and accountabilities clear.

II-8.1 As part of an assessment of economic viability, all positive and negative impacts of the project are identified and either valued in monetary terms or documented in qualitative or quantitative dimensions.

II-8.2 The project benefits can be demonstrated to outweigh project costs under a wide range of circumstances.

II-9.1 An analysis has been undertaken of the relevant public sector legal, judicial, and institutional structures important to hydropower project development, as well as the potential for political or public sector corruption risks.

II-9.2 The business vision, policies, business structures and processes are clearly identifiable and communicated internally and externally, and include commitments in culturally appropriate forms to ensure social and environmental responsibility, ethical business practices, management of risks, compliance, and transparency.

II-9.3 Processes are in place to ensure ethical business practices at the company and project level appropriate to the level of identified risk.

II-9.4 Processes are in place to ensure documentation of and compliance with all relevant laws, policies, permits, agreements, and codes of practice.

II-10.1 Transboundary project issues both upstream and downstream of the project, and the degree of project influence, are assessed, and plans developed to manage these.

II-10.2 Governments of all affected jurisdictions are involved in consultation processes around development of project transboundary agreements.

II-10.3 Transboundary arrangements are supported by cross-jurisdictional monitoring and information sharing.

II-11.1 Responsibilities are assigned for all preparation and implementation aspects of the project including design, construction, communications, environmental, social, finance and procurement to appropriately qualified personnel.

II-11.2 An integrated project management plan takes into account all project activities, and includes scheduling, interface targets, critical path analysis, communications and cost control with the objective of adhering to the project timetable and budget.

II-11.3 A Construction Management Plan details and outlines processes that contractors and others are required to follow to manage specific construction-related issues, including chemical and waste storage and handling, pollution, land disturbance, health, safety, community relations, and site zoning for special area protection.

II-12.1 An assessment has been undertaken of the major project supply needs for works, goods and services, as well as of supply sources, relevant legislation and guidelines, and supply chain issues and corruption risks.

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II-12.2 Plans are in place for fair, efficient, transparent and timely procurement processes including anti-corruption measures.

II-12.3 Fair, efficient, transparent and timely procurement processes can be demonstrated across major project components, as well as processes for timely response to bidder complaints.

II-13.1 Project environmental and social impact assessments cover baseline conditions, positive and negative impacts, and risks covering project-affected communities, livelihoods, cultural heritage, public health, aquatic and terrestrial biodiversity, water quality, and erosion and sedimentation throughout the project affected area, using appropriate expertise and local knowledge.

II-13.2 An environmental and social issues management planning process is based upon environmental and social impact assessment outputs, addresses both environmental and social issues, includes measures to manage risks and enhance opportunities, and provides for scheduling, change management, and allocation of resources and responsibilities.

II-13.3 The environmental and social assessment and management planning process is consultative and iterative.

II-13.4 Environmental and social plans avoid, minimise, mitigate and compensate major negative impacts, and some practicable opportunities for positive impacts are likely to be achieved.

II-14.1 An assessment has been undertaken utilising local knowledge and identifying all project affected communities, their livelihoods prior to project development, the nature of the impacts of the project on their livelihoods, the degree of economic displacement, and options to address livelihoods and economic displacement issues.

II-14.2 Mitigation and compensation measures for project affected communities, and opportunities for improvement to livelihoods, are developed in a consultative manner and built into project plans.

II-14.3 There is general agreement for compensation measures from most affected community groups, and no major ongoing opposition.

II-14.4 Project plans ensure livelihoods of project affected communities are sustained and in some cases improved, and economic displacement is fairly compensated.

II-15.1 The project social impact assessment includes specific assessment of the representation of indigenous peoples in the project affected community, their rights, risks and vulnerabilities, and any cultural sensitivities and needs, and is based on utilisation of local knowledge and expertise.

II-15.2 Project social management plans include specific plans that address indigenous peoples issues, risks and opportunities.

II-15.3 A consultative approach is taken to assessment of indigenous issues that is culturally appropriate, timely, two-way and iterative, and there is general agreement for the management planning for indigenous peoples from most affected groups and no major ongoing opposition.

II-15.4 Major negative impacts of the project to indigenous peoples and their associated culture, knowledge and practices are identified, avoided, mitigated and/or compensated, and opportunities for positive impacts have been identified and some practicable opportunities are likely to be achieved.

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II-16.1 The social impact assessment includes specific assessment of the physical resettlement implications of the project early in the project preparation stage, and establishes the socio-economic baseline including analysis of community structures, gender, vulnerable social groups, living standards and livelihoods for those potentially physically displaced.

II-16.2 A Resettlement Action Plan has been developed in a timely manner, which includes an up-to-date socio-economic baseline, compensation framework, budget and implementation schedule, organisational responsibilities, monitoring and evaluation, and grievance mechanism components.

II-16.3 A consultative approach is undertaken with resettlee and host communities to assessment of physical resettlement issues that is timely, iterative, and two-way, and there is general agreement for the Resettlement Action Plan from most affected groups and no major ongoing opposition.

II-16.4 The Resettlement Action Plan is likely to result in timely improvement in living standards for resettlees and host communities.

II-17.1 Human resource and labour management systems are well established, addressing equity, OH&S, workforce planning, staff development and training, and including monitoring and management responses consistent with national and international labour standards.

II-17.2 An assessment has been undertaken of occupational health and safety issues, risks, and mitigation / management measures, and an OH&S plan has been developed for project construction and operation consistent with national and international standards and with responsibilities clearly allocated and resourced.

II-18.1 Cultural heritage has been identified and recorded, and plans ensure that high value artefacts are documented, protected and conserved.

II-18.2 There is general agreement for the cultural heritage management plan from most key cultural heritage stakeholder groups, and no major ongoing opposition.

II-18.3 The level of protection represented by the cultural heritage management plan is consistent with national and international standards.

II-19.1 In collaboration with local health officials, public health risks and opportunities have been identified, prioritised, and communicated to affected communities; and public health management measures have been incorporated into plans.

II-19.2 The level of protection provided by the public health management plan is consistent with national and international standards.

II-20.1 Potential catchment impacts from the project and actual catchment impacts of other activities have been identified and assessed, and plans are developed to manage project impacts and in accordance with the degree of proponent influence to address other catchment impacts based on a consultative process.

II-20.2 Project design has focussed on minimising disturbance associated with all project construction activities, and plans have been developed to effectively rehabilitate disturbed sites.

II-21.1 Plans for reservoir filling identify other critical activities (e.g. resettlement, cleaning up of contaminated sites, clearing of reservoir vegetation, relocation of cultural heritage items and/or wildlife, slope stability) and outline timely and coordinated implementation.

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II-21.2 Plans for reservoir operation include consideration of debris management, multiple uses, safety, flood management, erosion/sedimentation, and water-borne diseases, and outline management responses.

II-22.1 Key interests and stakeholders in relation to flows downstream of project infrastructure are identified and engaged, and flow-related objectives are articulated based on relevant scientific and other information.

II-22.2 Planned downstream flow regimes are able to be implemented upon project commissioning, and take into consideration environmental, social and economic objectives.

II-22.3 The downstream flow regime planning process is consultative and iterative.

II-22.4 Plans for downstream flow regimes include a corporate commitment to implementation, compliance, monitoring achievement of objectives and targets, and periodic review of those objectives and targets.

II-23.1 Key project issues and risks for terrestrial biodiversity, including risks of invasive species, are identified and evaluated, and plans are developed to avoid and mitigate impacts during construction and operation using appropriate expertise and local knowledge.

II-23.2 Key project issues and risks for aquatic biodiversity, including risks of invasive species, are identified and evaluated, and plans are developed to avoid and mitigate impacts during construction and operation using appropriate expertise and local knowledge.

II-23.3 Planned biodiversity and invasive species management plans include a corporate commitment to implementation, compliance, monitoring, achievement of objectives and targets, and periodic review of those objectives and targets.

II-24.1 Baseline erosion and sedimentation condition and key project issues and risks are identified and evaluated, and plans are developed to avoid and mitigate erosion and sedimentation impacts during construction and operation using appropriate expertise.

II-24.2 Erosion and sedimentation issues during construction and operation are likely to present moderate and essentially manageable problems for environmental, social and economic values associated with project affected areas; where practicable, some opportunities for positive impacts to erosion and sedimentation issues are likely to be realised.

II-25.1 Baseline water quality condition and key project issues and risks are identified and evaluated, and plans are developed to avoid and mitigate water quality impacts during construction and operation using appropriate expertise.

II-25.2 Water quality issues during construction and operation are likely to present moderate and essentially manageable problems for environmental, social and economic values in the project affected areas; where practicable, some opportunities for positive impacts to local water quality issues are likely to be realised.

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