# Hydropower Sustainability Assessment Forum

# Trialling of the Draft Hydropower Sustainability Assessment Protocol August 2009

# Trialling Outcomes Report

# Final 5 March 2010

This Report is based on the Draft Hydropower Sustainability Assessment Protocol August 2009 (the "Draft Protocol"). It is intended to provide feedback to the Forum on practical experiences with the Draft Protocol. This feedback will be used as input to the final revision of the Draft Protocol.

## Contents

# 1. OVERVIEW OF DRAFT PROTOCOL TRIALLING PROCESS AND REQUIREMENTS

## 1.1 Introduction - The Draft Hydropower Sustainability Assessment Protocol

The Hydropower Sustainability Assessment Forum (the "Forum") aims to establish a broadly endorsed sustainability assessment tool to measure and guide performance in the hydropower sector. Following release of the Draft Hydropower Sustainability Assessment Protocol (the "Draft Protocol") in August 2009, the Forum has undertaken a 15-week period of trialling (1 September – 11 December 2009) to systematically test the Draft Protocol. This happened alongside a period of public consultation.

The Draft Protocol consists of four separate documents, relevant to different stages of the project life cycle. These documents are Section I – Strategic Assessments, Section II – Project Preparation, Section III – Project Implementation, and Section IV – Project Operation. In a trial, only the section most appropriate to that stage of the project life cycle was used. Most trials assessed the section that was most relevant to their project development stage. Some trials, however, were done using multiple sections, and many auditing reports provided thoughts on the applicability of all sections of the Draft Protocol.

This document makes frequent reference to the Draft Protocol, and to specific tables, figures or sections within this. The Draft Protocol can be downloaded by visiting the IHA website[1] . The four separate documents of the Draft Protocol, relating to the four sections, each have a common 20-page Introduction.

## 1.2 Objectives of the Trialling Program

The **primary objective** was to validate the Forum's progress by providing feedback on how well the Draft Protocol measures sustainability, and to inform the final revision. It was therefore emphasised that trials were most primarily trials of the Draft Protocol, not trials of the project on which they were applied. Trial teams could chose to produce two reports: one assessing the Draft Protocol and one providing feedback to the project owner/operator on the project's sustainability performance.

Trials assessed and provided recommendations for improvement on:

- **Objectivity and replicability.** To understand how robust the Draft Protocol is in terms of field testers arriving at consistent and unbiased results.
- **Understandability.** To identify parts of the proposed Draft Protocol that field testers find hard to understand.
- **Scope and comprehensiveness.** To obtain views on the appropriateness of the set of aspects and assessment criteria included in the Draft Protocol. To identify issues that field testers

[1] www.hydropower.org/sustainable_hydropower/HSAF_Hydropower_Sustainability_Assessment_Protocol.html

encounter but that are not covered in the Draft Protocol, or that are duplicated unnecessarily.

- **Ease of use.** To assess the level of practicability of the Draft Protocol as an assessment tool. To assess the burden of applying the Draft Protocol: for instance, whether information required to apply it is not available or available only with undue cost or effort.
- **Impact and effectiveness.** To assess to what extent field testers find application of the Protocol a useful exercise in terms of identifying weaknesses/opportunities, encouraging dialogue, and encouraging improvement of performance.
- **Applicability to a range of scale and regions.** To identify any special problems in applying the Draft Protocol that arise for field testers in relation to project scale, region, developed versus developing economy, type of project, etc. Also to find out how the field testers make their scoping decisions with respect to aspect relevance, and considerations relevant to project context or scale.
- **Adequacy of implementation guidance.** To obtain views on the usefulness of the introductory section and the auditing guidance notes. To identify where additional implementation guidance would be helpful to the field testers.
- **Presentation of Results.** To obtain views on the usefulness of the Auditor Worksheet and the suggestions for summary presentation of results, both of which are provided in the Draft Protocol introduction to each section.

## 1.3 Structure of a Typical Project Trial

### 1.3.1 Participants in a Trial

Trial teams undertaking the assessment varied in composition depending on the approach chosen by the project owner. However, it was emphasised that there should always be one individual with sustainability assessment and/or auditing experience. Other participants were Forum members or alternates, and if possible in the interests of transparency and cross-sectoral engagement one or more external stakeholder (e.g. a representative from an NGO, civil society, or government).

Apart from the trial host, there was always a lead company representative available to the trial team so that he/she could be made aware of the information gaps and needs of the trial team and how best to address them. The trials were undertaken in the native languages. To facilitate this, the Draft Protocol was translated into Mandarin, Portuguese, Russian and Spanish. The trial host also made an interpreter available to the trial team if necessary.

In the trial, interviewees often varied with aspects, and included company representatives, government representatives, community representatives and experts with particular knowledge about the aspect under focus.

### 1.3.2 Trial Schedule

For the trial itself, a typical itinerary was as follows:

- **First Day** - Initial meeting, presentations by trial team, project owners and others (such as government agencies), tour of scheme (including downstream impacted areas and resettlement areas).
- I**ntermediate Days** - Interviews on technical, economic, social and environmental aspects. The number of intermediate days may be 2 to 3 depending on size and complexity of the project, and also travel times.
- **Final Day** - Close out meeting involving presentation on key assessment findings and agreement on main outcomes.

### 1.3.3 Preparation and Support Provided by Project Owners

An "Instructions for Conducting a Trial of the Draft Hydropower Sustainability Assessment Protocol" document was available for downloading from the IHA website in English, Portuguese, Russian and Spanish[2]. The following preparation and support activities were undertaken by the project owners:

Prior to the arrival of the trial team:

- provision of a lead company representative to be the main point for coordination in arranging the trial;
- identification of internal staff or external individuals who could provide information to support assessments on particular aspects, and prior briefing of those individuals;
- review of the Draft Protocol by the participants;
- identification of objective evidence that could be brought to the interviews to support ratings for each aspect;
- preparation of an agenda and interview schedule for the visit; and
- preparation of project overview presentation.

During the trial:

- availability of the lead company representative at all times;
- provision of an interpreter;
- relevant staff attending meetings and interviews;
- provision of site tour;
- provision of relevant documentation for viewing;
- provision of room where initial and close out meetings could be held and interviews conducted, and documentation viewed; and
- provision of local transport, accommodation and meals during the trial, as appropriate.

[2]www.hydropower.org/sustainable_hydropower/HSAF_Trialling_of_the_Draft_Hydropower_Sustainability_Assessment_Protocol.html

### 1.5 Provision of Scoring Information

The credibility of the individual trials and the Forum process as a whole was enhanced by assessments that were as inclusive and transparent as possible; however it was up to the project owner how much information they wanted to disclose. The standard reporting template did not require submission of information on project scores. However, the assessments should have been undertaken in as realistic a manner as possible, in which scores would be assigned.

A generic Auditor Worksheet was provided in the Draft Protocol introduction. The owner had the option of submitting these worksheets for each aspect as appendices with the trial report. Alternatively the owner could provide a summary table of scores, as presented in the introduction to the Draft Protocol.

The project owner was free to compose two separate reports, one on feedback to the Forum with recommendations on the Draft Protocol, and an internal report on project performance. The intent of the Forum was for all trial reports to be made publicly available, or at a minimum a report to the Forum with recommendations on the Draft Protocol.

## 2. CHARACTERISATION OF THE DRAFT PROTOCOL TRIALS UNDERTAKEN

Trials were primarily conducted by hydropower project developers, owners, and operators from amongst the IHA membership. Trials were often observed or in some cases conducted by Forum members. Project owners were also encouraged to participate in trialling through project self-assessments, or assessments involving invited external experts and partners.

More than 30 trials of the Draft Protocol were identified to be undertaken during this period across North and South America, Africa, Europe, India, China, Southeast Asia and Australia. By the close of the trial period, reports were submitted for 20 trials, covering six continents and 16 countries. These included three Section I trials, six Section II trials, eight Section III trials, and seven Section IV trials (these total to more than 20 trials because for some projects more than one section was utilised). Additional trials are known to have been undertaken, the experience of which has undoubtedly enriched the consultation feedback on the Draft Protocol, but the Forum did not receive any formal documentation of these trials.

Table 1 provides a summary of the trials undertaken for which reports were received and are included in this Trialling Outcomes Report.

Table 1: Overview of Draft Protocol Trials Summarised in this Report

| Country | Project Name | Size (MW) | Specification of Project | Protocol Sections | Participants (excl. Interviewed Stakeholders) |
|---|---|---|---|---|---|
| Australia | Upper Lake | 8.4 | Redevelopment of | III | HSAF Forum members and |

| | | | | | |
|---|---|---|---|---|---|
| | Margaret | | decommissioned power station after 92 yrs of operation | | technical experts from operator |
| **Australia** | Lower Lake Margaret | 3.2 | Redevelopment of decommissioned power station after 60 yrs of operation | II | HSAF Forum members and technical experts from operator |
| **Brazil** | Sinop | 460 | Reservoir area will be 330km$^2$ | I,II | HSAF Forum member and technical experts from operator |
| **Brazil** | São Salvador | 243 | Reservoir area: 100km$^2$ | III | External auditors experienced in environmental audits and technical experts from operator |
| **Brazil** | Xanxere | 21 | | I | Self-assessment |
| **Chile** | Aysén Hydroelectic Power Project | 2,750 | Five plants are built on the Baker and Pascua rivers with a combined capacity of 2,750MW | II | Self-assessment as well as assessment involving HSAF members |
| **China** | Shuibuya | 1,840 | Multi-year regulating storage reservoir, went into operation fully in 2008 | IV | HSAF Forum member and technical, social and environmental experts from operator |
| **Canada** | Wuskwatim | 200 | Less than 0.5km$^2$ of reservoir area, developed in partnership with aboriginal communities | II,III | Self-assessment with internal auditors |
| **Canada** | Keeyask | 695 | Reservoir area: 45km$^2$, developed in partnership with aboriginal communities | II | Self-assessment with internal auditors |
| **Colombia** | Sogamoso | 820 | Reservoir: 70km$^2$, planned to enter operations in 2010 | III | HSAF Forum members and technical experts from operator |
| **Germany** | Waldeck I | 70 | Pumped Storage, Rehabilitation after 75 yrs of operation, lower dam at river, upper basin was artificially created | III | HSAF Forum members, IHA staff and technical experts from operator |
| **Ghana** | Akosombo | 1,020 | Largest reservoir worldwide with 8400km$^2$ area | IV | HSAF Forum members, IHA staff and technical experts from operator |
| **Iceland** | Karahnukar | 690 | Project is in operation since 2007, previous IHA Protocol assessments done | Partial II, III, IV | External auditor and technical staff of operator both with experience of reviewing previous versions of the Protocol |
| **India** | Teesta V | 510 | Run-of-River | IV | HSAF Forum member and technical experts from operator |
| **Lao PDR** | Nam Theun II | 1,070 | Co-owned by Lao PDR government and private shareholders | III | HSAF Forum member and technical experts from operator |
| **Lao PDR, Cambodia, Thailand, Vietnam** | 3S Basin | n/a | Transboundary river basin with 43 HP dams in operation | I | HSAF Forum members, international experts and 4 Country groups with experts from Government Fisheries and Electricity Departments and Environmental Consultants |
| **South Africa** | Palmiet | 200 | Pumped Storage Plant is joint venture with government, 21 yrs of operation, 2 dams at rivers | IV | HSAF Forum members and technical experts from operator |

| | | | | | |
|---|---|---|---|---|---|
| **South Africa** | Drakensberg | 250 | Pumped storage with 4 dams, 28 yrs of operation | IV | HSAF Forum members and technical experts from operator |
| **South Africa** | Ingula | 1,332 | Pumped Storage with 2 dams and underground waterways | III | Technical and environmental experts from operator |
| **Zambia** | Itezhi-tezhi | 120 | 32 yrs of operation, 350km$^2$ reservoir | IV | HSAF Forum member and technical experts from operator |

# 3. GENERAL ASSESSMENT RESULTS FROM DRAFT PROTOCOL TRIALS

This part of the trial report provides general observations on the assessment results, while the following section provides aspect-by-aspect results and observations. The headers used below follow the areas of insight on the Draft Protocol that were identified as objectives of the trialling, listed in Section 1.2).

## 3.1 Objectivity and replicability

How robust is the Draft Protocol in terms of assessment teams arriving at consistent and unbiased results?

In order to test replicability of the audit process, ideally repeat audits would be conducted at the same project by different auditors. This was not able to be done during the Draft Protocol trialling. However, assessments of different projects were done with similar auditing team members (e.g. Joerg Hartmann, Andrew Scanlon) and at the same projects with the same auditors as for the previous protocol (e.g. DNV at Karahnjukar). At Waldeck, two assessment teams concurrently assessed the same project. This allowed some comparability of results and diverse viewpoints with regards to replicability and applicability.

Some assessment teams arrived at different interpretations of aspects (e.g. 'River Basin & Transboundary Issues', 'Public Sector Governance', 'Social Management Plan', 'Benefit Sharing', 'Environmental Flows & Downstream Sustainability', 'Water Quality'). Due to this misunderstanding, some companies did not always provide the most relevant documentation as evidence for assessment of particular aspects.

At several trials (e.g. Akosombo, Sinop, Waldeck) assessment teams arrived at different results with the same evidence. More frequently, it was mentioned that trialling teams encountered difficulty in interpreting aspect and attribute requirements, and experienced loss of time on internal interpretation debates (e.g. Akosombo, Palmiet-Drakensberg, Sinop, Waldeck, Wuskwatim).

While this was partly due to the inclusion of non-professional auditors and different levels of experience and insight into the project and sustainability issues, it was noted that replicability depends on a level of consistency in the approach to evidence collection and testing. It was felt that more guidance should be given in the protocol on scoring bases for basic good practice and best practice, including the necessary examples of evidence for the scoring. It was also often highlighted that replicability could be facilitated if attributes were more directly worded.

It was felt that the rating descriptions and Guidance Notes need to be updated and expanded in the final revision phase to ensure that experiences from this trialling phase can be integrated and used to

ensure objectivity and replicability. The following difficulties and issues were identified during the assessments:

### 3.1.1 Loose Criteria Language Leading to Definition Difficulties and Subjective Scoring

The criteria language was perceived as loose, making objective findings difficult. Terms such as "closely, promptly, regularly, frequently and periodically" were used without definition. A frequent attribute wording was "suitable, adequate and effective", which left wide room for interpretation. For example, for aspects where certain projects have no issues (e.g. 'Water Quality', 'Erosion & Sedimentation') companies might not choose to take any measures, which is adequate; however there was uncertainty whether this was then a score of 5 or a score of 3.

It was recommended to clearly define scoring criteria and terms in the final assessment tool. It was also mentioned that fewer points of assessment would enable more time to be spent on each aspect within the audit process, and also more space for specific instructions and scoring guidance.

While the scoring instructions in the aspect tables were often perceived as vague or subjective, the indications of examples of evidence were perceived as objective, comparable, and understandable for the auditor and auditees in all languages. If well refined and suited to a many national legislative environments, the examples of evidence could increase comparability of projects world-wide.

### 3.1.2 Superseding of More or Less Refined National Regulations

National regulations for environmental issues in developed countries are generally advanced and demanding (e.g. Canada, Germany). Therefore the trial at Waldeck raised the question whether a project, which respects all national legislations and therefore has an excellent environmental record, should score 5 on the relevant aspects or 3, because the company did nothing beyond what was absolutely necessary. At the trials in Canada, it was noted that some of the evidence requirements of the Draft Protocol for some aspects exceeded the strict Canadian legislative requirements. Conversely, trials in Asia and Africa demanded that the Draft Protocol give more guidance on good and proven best practice in cases where a regulatory environment is weak or absent.

Therefore, while there were concerns whether the current definitions of scoring would penalize operators in developed countries with high obligations by scoring only 3s, the developing country trials often has difficulty with scoring aspects and especially the compliance attribute in the absence of regulations to comply with.

### 3.1.3 Superseding of International Standards

Most existing projects are regularly audited by officially accredited auditing bodies on safety, environment and quality (e.g. NOSA, ISO 14001, ISO 9001). Guidance was missing on how to integrate these documents into scoring, and possibly utilize similar language for scoring.

### 3.1.4 Too Many Definitions of Scores 3 and 5

Definitions for scores of 3 and 5 were given at four places in the Draft Protocol: (1) under the paragraph on scoring in the introductory section; (2) in the guidance notes on scoring of standardised attributes; (3) in the definitions of Scores 1-5 table in the introductory section; and (4) in the individual aspect scoring tables, which then had individual aspect-relevant guidance notes specified. Far from providing clarity on scoring, this led to confusion among assessment teams, and led to subtle differences of understanding of scores.

While the Draft Protocol defines a score of 3 as "basic good practice, with a particular consciousness of what is achievable in countries with minimal resources or capacities or with projects of smaller scales and complexities", trialling teams perceived basic good practice as a project that meets all legal and regulatory requirements as well as the quality and management standards of the project owner. Similarly, the Draft Protocol defines a score of 5 as "proven best practice, but conscious of the global applicability of this tool. So this it is not only attainable by the largest projects with the most resources at their disposal." Trialling teams suggested that proven best practice should be achievable for projects by all companies that have the ambition and quality performance to do so (see Karahnjukar, Keeyask and Wuskwatim) and that there should be documented cases in different parts of the world demonstrating this. In order to make scoring easier, several trialling reports proposed to include examples of good and proven best practice in the guidance notes of the aspects.

It was also noted (Keeyask and Wuskwatim) that best practices often refer to processes, but not necessarily to results. It was cited that a proponent can use best practices to design and implement a consultation process but cannot ensure a particular social dynamic in a community. It was recommended that this difference has to be made clear in the Draft Protocol.

### 3.1.5 Contestable Stakeholder Support Scores

Scoring stakeholder support was seen as problematic because it will always be dependent on the selection of stakeholder views that the assessor has access to and can take into consideration during a limited auditing period. Ultimately there will be a level of assessor judgement involved in scoring this attribute, and limitations in terms of methodology.

Furthermore, stakeholder support is infrequently documented, except when agreements are made, while documentation on opposition is more easily found. The trialling reports from Canada state that in democratic contexts consensus as it is required by the Draft Protocol for certain aspects cannot be a goal, because individuals are granted a right to freely express their perspectives; developed democratic systems have institutional mechanisms to include controversies in decisions on infrastructure projects. However, the same cannot be said for all countries and there will need to be guidance on examples of evidence for scoring.

There are also cases (e.g. Germany) where the government identifies and consults with stakeholders before issuing a permit to the hydropower project, and therefore this will not need to be done by the operator. Therefore, even in a project that has no stakeholder opposition, the project might be presented in a light of not having consulted with stakeholders, because this was done by the regional government during the project preparation.

There was also uncertainty on the definition of the relevant stakeholders. The Karahnjukar trialling report mentions that favourable external surveys on a regional and national level have been done, but it is uncertain whether a broad survey can be seen as stakeholder support.

## 3.2 Understandability

Which parts of the Draft Protocol did the assessment team find hard to understand?

It was a frequent impression that the current Draft Protocol is complex, challenging in its wording, difficult to read, and hard to interpret and to translate (e.g. HidroAysén, Karahnjukar, Keeyask and Wuskwatim, Lake Margaret, Nam Theun II). Other trialling teams refer to internal debates on

interpretation of aspects, especially in the light of overlap of aspect scopes (e.g. Akosombo, Ingula, Palmiet-Drakensberg, Teesta V, Waldeck). HidroAysén advised that multidisciplinary teams had to be trained in order to apply the Protocol, and NHPC Limited requested and arranged a preliminary visit by the assessor to advise and prepare them for the trial assessment.

The following difficulties and issues were identified during the assessments:

### 3.2.1 Language Difficulties for Non-English Speakers

The English was found to be difficult for assessors who were not native English speakers. This made it difficult in some trials to achieve clarity on the meaning and purpose of aspects and on evidence needed for the assessment. Especially, the fine differences in the attribute scoring levels lost clarity in translations or simultaneous interpretation.

### 3.2.2 Attribute Phrasing as Descriptions Rather than Questions

Attribute scoring frequently depended on the assessor's interpretation of the wording. Particularly the scoring instructions for the effectiveness measures of several aspects were difficult (Teesta V). It was advised that attributes would be better understood if they were phrased as questions, since auditors tend to answer questions. The Mekong trialling team suggested that there should be a "to do list" for Section I, with yes/no answers.

Recommendations for questions have been included in the aspect-by-aspect analysis in part 4 of this report.

### 3.2.3 Too Broad a Definition of Stakeholders

The stakeholder definition of the Draft Protocol introduction is very broad. It was often found difficult to determine which stakeholders would be relevant for which aspect. To resolve this, two suggestions were developed in the trialling reports: (1) include one stakeholder support aspect, which specifies how stakeholders are chosen and involved; or (2) define aspect per aspect in the guidance notes who are the relevant stakeholders for the aspect.

It was also advised that stakeholder support and consultation are not relevant for some aspects and can be excluded from these. Recommendations on exclusion of the Stakeholder Support and the Consultation attribute have been included in the aspect-by-aspect analysis in part 4 of this report.

### 3.2.4 Inconsistent Terminology

Throughout the Draft Protocol the aspects refer to hydropower projects with five different terms namely "project", "plant", "hydropower station", "hydropower facility" and "hydropower project" and it was advised to decide on one term.

The aspect 'Social Management Plan' is inconsistently named 'Social Impact Assessment & Management' on page 6 of the Draft Protocol introduction; similarly for 'Environmental Management Plan'. To some assessment teams the titles on page 6 were however more appropriate. The term "plan" caused confusion and gave the impression that a formal plan was necessary in order to be effective for that aspect. Thus, even good environmental and social performers (e.g. Palmiet, Waldeck) would have scored badly on these aspects in the absence of a formal plan.

It was not clear to all trialling teams how the definitions for river "basin" and river "catchment" differ. This was further accentuated when translating the protocol into languages where these terms are the same.

## 3.3 Scope and Comprehensiveness

> Does the Draft Protocol Sections include the right aspects? Which issues are not covered or duplicated unnecessarily?

Comprehensiveness of the Draft Protocol was perceived as one of its main strengths. Generally it was noted that aspects on specific technical, social or environmental topics were not missing. Rather, it was felt that the Draft Protocol could be slimmed down to fewer aspects. Proposals for merging, removal, splitting or inclusion of aspects have been included in the aspect-by-aspect review in part 4 of this report.

The following difficulties and issues were identified during the assessments:

### 3.3.1 Overly Comprehensive

Many trialling teams highlighted that the Draft Protocol is very complex, contains many aspects and attributes, and is impracticable for hydropower project assessments within an average timeframe of 3-5 days. Trialling teams who had experience with the previous IHA Sustainability Assessment Protocol (July 2006)[3] (e.g. 3S Basin, Karahnjukar, Lake Margaret) felt that the new version is more ambitious, includes more topics, and attempts to reach agreements with a broader circle of interest. Consequently, it was felt the Draft Protocol has too much content (i.e. is overly comprehensive) to fulfil the requirement to be a practical assessment tool.

### 3.3.2 Aspects Not Adjusted to the Relevant Project Stages

It was noted that the current Draft Protocol Section II is closest to industry practice, whereas Sections III and IV will need further refinement to be appropriate for the respective project stages (e.g. Karahnjukar, Keeyask and Wuskwatim). It was advised to shift the assessment focus from section to section. During the preparation of the project (Section II), the focus should be on assessment and likely effectiveness. During construction (Section III) and operation (Section IV), the focus should be on management of the construction and operation, and compliance with regulations, and conformance with plans, goals and targets.

### 3.3.3 Lack of Clarity on Assessment Purpose and Object

The purpose and object of the assessment was not always clear. It was often questioned whether the protocol assesses the project or a wider context on which the project operator might have a lack of or limited influence. For example, does the protocol assess the proponent or the project? How are multi-purpose projects dealt with when a more complex set of actors such as municipal administrations are in charge of issues such as water supply? How are projects within cascades

[3] http://www.hydropower.org/sustainable_hydropower/IHA_Sustainability_Assessment_Protocol.html

assessed, especially if the neighbouring project belongs to a different owner? More guidance on these questions was requested.

It was recommended to determine the purpose prior to assessment. For example, if an assessment serves hydropower project comparison, benchmarking or award purposes, it may be better to exclude non-electricity generating activities and corporate aspects. If the owner is intending to use the assessment to obtain funding for extensions or new projects, the assessment of the corporate body would be important and the non-electricity generating activities could be excluded. Only for comparison or benchmarking of other multi-purpose projects would the third party also be assessed, but it would have to be clarified if the third party's economic and financial aspects should also be assessed.

HidroAysén proposed to explicitly state the objective to be assessed in each aspect, in addition to identifying the sustainability issue on which the assessment should focus (i.e. environmental, social, technical, or economic sustainability).

### 3.3.4 Duplications and Irrelevant Aspects

Opinions within trial teams varied with regard to duplications. Some trialling teams (e.g. São Salvador) felt that duplications were necessary in order to cover all aspects and to structure the discussions. Others advised that environmental and social issues could frequently be covered under the environmental or social management aspects. This was found especially relevant for Sections III and IV where comprehensive management plans for social and environmental topics were in place. The Teesta V report suggested that 'Social Management Plan' and 'Environmental Management Plan' could also be combined to one aspect focussed on the management systems for social and environmental topics, since these are in most cases dealt with in a common business management system and also the considerations are often closely interrelated.

It was noted that aspects which the Draft Protocol described as always relevant, were sometimes not applicable. Examples include 'Financial Viability' for pumped storage, 'Corporate Governance' for multi-nationals, and 'Environmental Management Plan' and 'Social Management Plan' for projects that have no over-arching "plans" but act on the individual issues.

Guidance will be needed on the inclusion and scoring of duplicated and non-relevant aspects. It was questioned whether projects with aspects that are deemed to be non-relevant could be compared objectively to other projects.

More detailed comments on duplications are covered in the aspect-by-aspect review in part 4 of this report.

### 3.3.5 Not Appropriate for Addressing Decommissioning

The trialling team at Palmiet-Drakensberg noted that the decommissioning of a hydropower project might not be possible to comprehensively assess with the currently available sections, as decommissioning has very specific aspects that need to be addressed.

#### 3.3.6 Stakeholder Management and Communication Not Adequately Addressed

The Consultation and the Stakeholder Support attributes were perceived as unnecessarily duplicated and difficult to assess for every aspect (Keeyask and Wuskwatim, Teesta V), one of the main issues being that they were too highly disaggregated. Stakeholder management and internal communications often have their own procedures, strategies and processes centralised within a business and/or a project, and some assessment teams proposed to create a new aspect covering this. It was proposed to create an aspect 'Consultation & Communication' and to pick up specific components in relevant aspects, e.g. grievance mechanisms under 'Resettlement & Land Acquisition', 'Indigenous Peoples', and 'Labour & Working Conditions'; or community input into 'Environmental Flows & Downstream Sustainability'. Examples of evidence of involvement with stakeholders could be databases and participation in local forums.

Aspect-specific recommendations on the Consultation and the Stakeholder Support attributes are given in Part 4 of this report.

#### 3.3.7 Gender Difficult to Assess

At the Akosombo trial it was felt that the gender issues were not properly addressed in the aspects. Scoring cross-cutting issues seemed difficult due to the already existing complexity of the scoring criteria.

#### 3.3.8 Instream Biota and Fisheries Inadequately Emphasised

At the Itehzi-Tehzi, Mekong and Teesta V trials it was noted that a stand-alone aspect on the impact on fish species was necessary to give this more emphasis. In the Mekong region especially, a strong emphasis on viability of fisheries was seen as essential due to the importance of fish for local livelihoods.

## 3.4 Ease of use

How practicable is the Draft Protocol as an assessment tool? Has information required to apply the Draft Protocol been unavailable or available only with undue cost or effort?

It was generally felt that the Draft Protocol is comprehensive, covering all important topics and encouraging discussion on a diversity of subjects. However, it was noted that the complexity gave a very ambitious scope of work and it was not always possible to cover all aspects in sufficient detail during a typical trial of less than one week. Several trialling teams (e.g. Akosombo, Keeyask and Wuskwatim, Sinop) concluded that an assessment undertaken with the current Draft Protocol would take approximately 2 weeks.

It was stated that the protocol would be more likely to be adopted by industry, and to make a significant contribution to encouraging dialogue and to improving sustainability performance in hydropower projects, if it was modified to be easier to use.

The following difficulties and issues were identified during the assessments:

### 3.4.1 Too Much Time Required for Preparation and Assessment

Most trialling teams had difficulties to complete the assessment within an average auditing period of 3-5 days. It was also found that the preparation of the documentation was time-consuming. It was recommended to include two check-lists in the introductory section: one on relevant stakeholders for the aspects and one on recommended examples of evidence. This should make the preparation of the audits easier and speed up the assessment. The HidroAysén and the Teesta-V reports documented the amount of person-hours required for the preparation and participation in their respective trials.

### 3.4.2 Not the Most Logical Ordering of Aspects

It was noted that the aspects were grouped logically on page 6 of the Draft Protocol introduction, but then ordered differently in the assessment part of the Draft Protocol documents. The logical grouping on page 6 was felt to help preparations for the trial and scheduling of stakeholder interviews according to common types of aspects.

There were two conflicting views on the logical ordering of aspects, and their consistency across sections. While the trialling team at Lake Margaret proposed that the same aspects in the same order should be used in Sections II-IV in order to provide continuity and comparability, the Keeyask, Wuskwatim and Karahnjukar trialling teams felt that aspects could be merged and reduced considerably in Sections III and IV, since assessment should be done and the focus should shift to compliance and community integration. At the Keeyask and Wuskwatim trials it was considered inappropriate to use the same group of attributes across Sections II-IV, since the nature of these stages in the life cycle of a project, the role of the developer and operator, and the role of regulation are different.

More detailed proposals on grouping of aspects have been included in the aspect-by-aspect review of part 4 of this report.

### 3.4.3 Aspect Scoring Tables Too Bulky

The aspect scoring tables were often perceived as too bulky and wordy. Feedback was obtained that assessments were difficult to do by reading every box of the scoring table. Furthermore, due to complicated language, the differences between the scores were vague and difficult to translate or to explain to stakeholders. The listing of scale 1-5 was perceived as repetitive and contributing very little. It was proposed to include the content into the guidance notes and to keep the scoring table minimal. Some assessment teams asked to merely cite proven examples of scores of 5 and 3.

### 3.4.4 Too Many Attributes and Sub-Attributes

For the scoring of each aspect, the Draft Protocol requires 3 process and 4 performance attributes to be assessed and backed by individual examples of evidence. Often these attributes are divided into sub-attributes (i.e. multiple bullet points). This means that an auditor has to assess, discuss and score a high number of attributes or sub-attributes with associated examples of evidence: 61 for Section I, 270 for Section II, 271 for Section III, and 242 for Section IV.

It was feared that this would be unrealistic and discourage application of the protocol. Some trialling reports recommended the deletion of sub-attributes and the reduction of attributes. Some felt aspects could have just two attributes as in the previous IHA Sustainability Assessment Protocol (July

2006), one process attribute and one performance attribute. Other proposals were made to abandon the labelling of the attributes as process and performance, as well as labelling of the standardised attributes, and to instead include two to four aspect-relevant scoring attributes, possibly phrased simply as questions in each aspect such as "How was something done?" and "What was the result?" (e.g. Karahnjukar, Nam Theun II, Waldeck).

The trialling teams at Palmiet-Drakensberg and Ingula discussed methods for scoring attributes with more than one sub-attribute and it was proposed to take the lowest sub-attribute score. For example if a score of 2 and 4 are attained for sub-attributes, then 2 would have to be taken as the score, since taking the average of 3 would imply that no critical gaps have been identified and this would be faulty.

### 3.4.5 Need more Clarity on Conformance and Compliance Attributes

At the Sogamoso trial it was highlighted that the attributes Conformance with Plans and Compliance caused problem with application because they seemed rigid, confusing and not self-explanatory.

### 3.4.6 Too Prescriptive to be Broadly Applicable

According to the experiences of the Keeyask and Wuskwatim trials, the Draft Protocol is too prescriptive to allow broad worldwide application, because it does not adequately reflect the diverse methodologies and approaches for hydropower performance assessment. The nature of each project and its environment determines the selection of a portfolio of methodologies and approaches a developer or operator may use. Therefore from an auditing perspective, it would not be practical for a sustainability assessment protocol to be prescriptive of methodologies (e.g. cost-benefit analysis, multi-criteria for project siting, nature of financial systems, natural flows in e-flows).

### 3.4.7 Difficulties with Assessing Older Projects with Section IV

At several trials of Section IV or of refurbishments (e.g. Akosombo, Palmiet-Drakensberg) there was uncertainty on the assessment process for older projects. Since rules and regulations may have been very different in the past, should the original assessment process be scored, or the current understanding of the issues? Projects may not have done certain assessments in the past because they were not required or operators may have made sustainability efforts without formally documenting them. Akosombo illustrated this with the cultural heritage aspect: Would the score relate to the cultural heritage assessment process as conducted in the 1950s/60s during project planning and implementation, or does the score relate to today's understanding of operator, government agencies, communities and other stakeholders on what today's cultural issues are in relation to operation of the project? Therefore apart from making scoring in the absence of written evidence challenging, it could be difficult to compare projects that have been in operation for 25 years to projects that have been in operation for 6 months.

There were also sometimes difficulties for current staff to be knowledgeable about former efforts. Without appropriate knowledge management and documentation, a project may score badly even though the effort was done in the past and the performance is now good. At Palmiet-Drakensberg, this raised the question to what extent Section IV should be evaluating process and it was recommended to focus on performance attributes.

## 3.5 Impact and effectiveness

To what extent did the assessment team find the application of the Draft Protocol a useful exercise in terms of identifying weaknesses/opportunities, encouraging dialogue, and encouraging improvement of performance?

It was often noted that the Draft Protocol encouraged dialogue within the company on sustainability issues and raised awareness on certain subjects. The Akosombo trial resulted in the company realisation that social issues need to be part of the company's corporate governance. At the São Salvador trial it was felt that the breadth of considerations along with the assessment guidelines and the constant surveys in different aspects of the protocol allowed the trialling team to reach a high level of accuracy in the assessment unless there is a lack of interest, transparency or unwillingness from the parties involved in the process. The great number of aspects covering social, economical, technical, governmental and environmental considerations was seen to provide opportunities for negotiation and improvement of project performance. The Teesta V report highlighted that the protocol can be a vehicle to communicate and disseminate information on best practice and, in cases where external agencies are not meeting their requirements, the protocol can help put pressure on those agencies.

However, it was noted several times (e.g. Lake Margaret, Sinop) that while the protocol is a welcome tool for sustainability assessment in the hydropower industry, at its current complexity, it can be daunting to use and might take too long to do a proper assessment. The Manitoba Hydro trialling team concluded that, although the Draft Protocol initiated a lot of dialogue about sustainability and the possible interpretation and requirements, in its present form it did not provide an effective tool to assess sustainability of the projects.

## 3.6 Applicability to a Range of Scale and Regions

Is the Draft Protocol widely applicable in relation to project scale, region, developed versus developing economy, type of project, etc.? How did the assessment teams make their scoping decisions with respect to aspect relevance, and considerations relevant to project context or scale?

As it is shown in part 2 of this report, the Draft Protocol was trialled for all four Sections representing the different project development stages as well as in several country contexts and at projects of varying scales. Generally, the Draft Protocol was perceived to be applicable to different scales or regions, with the ability to designate aspects or attributes not relevant providing a high degree of flexibility. In its full usage, the Draft Protocol is clearly designed for large or more complex stand-alone projects. At the trial at Nam Theun II it was noted that the coverage of aspects was particularly suited to the size and complexity of this project. With other contexts, recommendations were for better guidance on how to tailor it to suit situations that arose during the assessments.

The following difficulties and issues were identified during the assessments:

### 3.6.1 Uncertainties Assessing Environmental Aspects with Multiple Influences

There was uncertainty on how to assess projects that do not have sole responsibility for many of the environmental aspects (e.g. 'Catchment Management', 'Reservoir Management', 'Water Quality'). In many cases these conditions were coordinated with or the responsibility of a public regional administration as well as other industrial or public users of the catchment and water body.

### 3.6.2 Uncertainties Assessing Financial Viability and Corporate Governance for Large Companies

Questions arose around whether the aspects 'Financial Viability' and 'Corporate Governance' are scored for the project or the company. If it is the company, how is this dealt with for projects that are parts of companies, which themselves are part of larger even international companies with distant headquarters? Many projects do not have their own financial viability assessments or corporate governance plans and are part of a bigger ensemble and have no control over financial and governance plans. Pumped storage plants may even choose to operate at a loss but are valuable for the company as a provider of peak-demand electricity.

### 3.6.3 Need More Clarity on Applicability to Pumped Storage

The trials in Germany and in South Africa were done at pumped storage schemes, which are not necessarily located in one river basin. They also have small reservoirs and are not always connected to a river, or they may pump water from a river and not influence the environment the same way or to such a degree as a reservoir hydro project. It was felt that this context may need to be considered more explicitly in the protocol.

Furthermore, it was noted that pumped storage schemes have the purpose to provide back-up energy, when electricity demand is high. Their financial viability cannot be assessed independently from the company, since the project itself may even be operating at loss. It was felt that guidance was missing in the document, especially on which aspects a pumped storage operator can be held accountable for and which are not applicable (e.g. 'Financial Viability', 'Catchment Management', 'Water Quality', 'Environmental Flows').

### 3.6.4 Need More Clarity on Applicability to Small Hydro and Mini Hydro

At the trial of Lake Margeret, a rather small power generation scheme, it was noted that in order to assess small and mini hydro some of the aspects that are now marked as always relevant cannot be judged relevant, and guidance on this was missing.

### 3.6.5 Uncertainties with Assessing Projects within a Cascade

At the Akosombo, Teesta V and Waldeck trials there was uncertainty on how to deal with cases where more power plants are located up- or downstream. This is especially challenging if the neighbouring project is owned by a different company.

### 3.6.6 Uncertainties with Assessing Refurbishment and Redevelopment

At the Waldeck trial, a refurbishment of a pumped storage plant, there was uncertainty on how far back the assessment should date since many of the aspects were not altered by the refurbishment.

### 3.6.7 Issues with Comparability of Scores under Different Regulatory Environments in Developed and Developing Countries

The global comparability of aspect scores was perceived as problematic in some trials, since it is questionable whether the same judgement criteria can be applied to developed and developing countries alike. The scoring tables and the requested examples of evidence were not explicit and objective enough to achieve comparable scoring. Furthermore, trialling teams in Canada and in Germany felt that it might be easier to achieve a score of 5 in a developing country where the regulatory environment is so low that any effort made by the project outweighs the situation at hand, whereas in a developed country the regulatory environment is strict enough to assure that the project developer, without making any additional effort, complies and has environmentally and socially acceptable results. However, at the trial in Germany the question was raised whether this would then be enough to justify a score of higher than 3.

On the other hand it was noted by trials in developing countries (e.g. Akosombo, Nam Theun II), that certain aspects and especially the compliance attributes are difficult to score in absence of relevant legislation. It was also frequently felt that it would not be appropriate for an industry tool to assess public legislation neither in cases where a strong set of regulations exists or where these are absent.

### 3.6.8 Issues with Consistency with National Legislation and Policies in Different Countries

The report of the Section I trial of the 3S Basin in the Lower Mekong submitted that the protocol should be consistent with relevant laws, regulations and decrees of each country. At the Sinop trial in Brazil, it was noted that the national Brazilian project stages do not fit exactly with the described project stages of the protocol. There were particular differences in regulations for concessions. Therefore the initial planned Section II trial for Sinop was shifted to a Section I trial in practice.

### 3.6.9 Issues with Expectations for Public versus Private Developers

In the Teesta-V trial there were questions raised about expectations for public versus private developers in terms of good and best practice, particularly with respect to provision and maintenance of social services such as health and education. Assessment of financial viability also requires some clarity on how to deal with for public versus private developers.

## 3.7 Adequacy of Implementation Guidance

How were the introductory section and the auditing guidance notes perceived? Where would additional implementation guidance be helpful?

The implementation guidance in the introductory section as well as the aspect-by-aspect guidance notes were perceived as very useful to inform scoring. Recommendations were to expand the examples of evidence, to make the language easier and to provide even more diagrams.

The following difficulties and issues were identified during the assessments:

### 3.7.1 Draft Protocol Introduction – Make a Separate Document

While the introduction was seen as useful, it was recommended not to include it in front of every Draft Protocol section document, but rather as a stand-alone document to avoid bulky scoring sections.

### 3.7.2 Draft Protocol Introduction – Remove Standardised Attributes

It was proposed to abandon the standardised attributes in order to avoid leafing through the document and to make the auditing questions more aspect and section relevant.

### 3.7.3 Draft Protocol Introduction – Missing Checklists

It was frequently stated that the Draft Protocol introduction helped prepare the trials with regard to providing documentation and stakeholder interviews. Especially the choice, overview and description of the aspects were seen as helpful. It was proposed to extend this with two preparatory checklists: one checklist for relevant stakeholders per aspect, one checklist with relevant example of evidence and documentation needed per aspect.

### 3.7.4 Draft Protocol Introduction – Missing Guidance on Composition of Auditing Team

It was noted that the protocol introduction should give more guidance on the composition of the trialling team, which should reflect expertise in the main relevant areas, and should reflect a range of perspectives.

### 3.7.5 Draft Protocol Introduction – Missing Guidance on Length of a Typical Trial

At the Sinop trial it was felt that more guidance would also be needed for the length of a typical assessment. Five days or less were not seen as sufficient for the assessment of a complex project.

### 3.7.6 Draft Protocol Introduction – Missing Guidance on Potential Users

In the Section I trial in the Lower Mekong it was noted that a clarification on the potential users of the protocol would be helpful. It was felt that in order to be practical the tool needs to be more suited to developers, independent auditors, governments or NGOs.

### 3.7.7 Draft Protocol Introduction – Missing Guidance on Hydropower in the Sustainability Context

In the Section I trial in the Lower Mekong it was noted that the protocol introduction should include some information on the sustainability concept and hydropower.

### 3.7.8 Draft Protocol Introduction – Modifications Required to Stakeholder Figure (p.19)

There were modifications proposed to the stakeholder schematic (figure 6, page 19): (1) add Regulators and Developer/Operator as two key Directly Affected Stakeholders in addition to Resettlers; and (2) show Indigenous Peoples as wedge cutting across the circles, as not all Indigenous Peoples will be directly affected stakeholders.

### 3.7.9 Aspect-Specific Guidance Notes – Missing Guidance on Examples of Evidence

In many trials, the examples of evidence were perceived as the most useful for objective aspect assessment. In some trialling reports it was requested to develop these more, in order to help auditors and project owners to prepare the assessment and to reach objective and comparable results. It was proposed that these should be complemented with examples of proven best practice in the aspect guidance notes (e.g. Waldeck).

### 3.7.10 Aspect-Specific Guidance Notes – Target More Clearly to Auditing Needs

The Teesta V report suggested that the aspect-specific guidance notes are educational but do not clearly assist scoring. The report proposed to separate the educational parts into another document in order to keep the protocol more directly focussed on instructions for auditors/auditees.

For an auditor, more specific guidelines would be needed. It was advised that an experienced auditor reviews, or even edits and refines the protocol before finalisation.

## 3.8 Presentation of Results

How useful did you find the auditor worksheet and the suggestions for summary presentation of results provided in the Introduction?

The reports unanimously stated that the Draft Protocol would be challenging to be used by an external auditor due to its very different format from generalized auditing tools. This is caused by too much given information, multiple scoring tables and guidance, and two formats for scoring and evidence collection (scoring tables and auditor's worksheet). It was advised that an experienced auditor edits and refines the protocol before finalisation.

The following difficulties and issues were identified during the assessments:

### 3.8.1 Limited Usage of the Auditor's Worksheet

It was questioned whether the auditor would be obliged to show that he or she filled in a worksheet for each aspect. This would generate a lot of paperwork and large files and, with regard to the presentation of results, an overview table was often preferred. The worksheet was rarely used in assessments and scoring was usually done in tables. One trial however, stated that the auditor's worksheet was very useful for tracking, recording and filing collected evidence.

### 3.8.2 Need for Consistent Approaches to Presentation of Results

The presentation of results in a radar-chart or a bar chart was welcomed since it provides a visual and comparable quick overlook over the assessment of the protocol. However, the final version should decide on one approach. Some trials (e.g. 3S Basin, Shuibuya, Sinop) felt that a circular graph might work better visually.

It was proposed to provide scoring sheets as an electronic file, which will allow the assessor to fill in the scores directly and draw the corresponding graphs. An explanation could be added to the final scores to clearly state what was missing for a good score and to give operators reasons and guidance for improving their practice. This may also serve to reduce fears by the operator that they will be seen as responsible for areas of poor performance, while responsibility could lie with other parties, such as government agencies. A total score in percentage was recommended by some because it would be easy to understand.

## 4. Assessment Results from the Draft Protocol Trials – Aspect by Aspect

Within each Draft Protocol section, the set of aspects provides the basis for systematic project assessment and scoring. Aspects, when taken together, are intended to provide the list of topics that must be considered to confidently form a view on the overall sustainability of a hydropower project at a particular point in its life cycle.

Table 2 presents the aspects included in the Draft Protocol. These are grouped so that the relationships amongst the aspects can be better seen. The grouping and selection of the aspects varied in the Draft Protocol sections according to what was considered relevant at the different project stages. However, there are many different ways that the aspects can be grouped, as there is overlap and not always sharp delineations in aspect boundaries.

This part of the trial report provides for each aspect a list of the difficulties and issues that arose in the trials, and recommendations on how they might be better addressed. The comments have deliberately been listed as bullet points as they have been received in the trialling reports, with no paraphrasing or interpretation made. Therefore recommendations under the same aspect may be contradictory, but serve to portray the whole spectrum of received feedback. The order follows that in Table 2.

| Perspective | Aspect Name | Occurring in Draft Protocol Sections |
|---|---|---|
| Development Perspective | - Demonstrated Need & Strategic Fit | I, II |
| | - Options Assessment | I |
| | - Regional Policies & Plans | I |
| Governance Perspective | - Political Risk | I |
| | - Institutional Capacity | I |
| | - Public Sector Governance | II, III |
| | - Regulatory Approvals | II, III |
| | - Corporate Governance | II, III, IV |
| | - Integrated Programme Management & Communications | II, III |
| | - Construction Management | II, III |
| Technical Issues Perspective | - Technical Issues & Risks | I |
| | - Hydrological Resource Availability & Management | II, III, IV |
| | - Project Siting & Design Optimization | II |
| | - Asset & Community Safety | II, III, IV |
| | - Asset Reliability & Efficiency | IV |
| Financial & Economic Issues Perspective | - Economic & Financial Issues & Risks | I |
| | - Economic Viability Incl. Additional Benefits | II, III, IV |
| | - Financial Viability | II, III, IV |
| | - Procurement | II, III, IV |
| | - Markets, Innovations & Research | IV |
| Social Issues Perspective | - Social Issues & Risks | I |
| | - Social Impact Assessment & Management | II, III, IV |
| | - Project Affected Communities | II, III, IV |
| | - Indigenous Peoples | II, III, IV |
| | - Resettlement & Land Acquisition | II, III |
| | - Benefit Sharing | II, III, IV |

| | | |
|---|---|---|
| | - Labour & Working Conditions | II, III, IV |
| | - Cultural Heritage | II, III, IV |
| | - Public Health | II, III, IV |
| **Environmental Issues Perspective** | - Environmental Issues & Risks | I |
| | - Environmental Impact Assessment & Management | II, III, IV |
| | - Biodiversity & Invasive Species | II, III, IV |
| | - Erosion & Sedimentation | II, III, IV |
| | - Water Quality | II, III, IV |
| | - Waste, Noise & Air Quality | III |
| **Geographic / Spatial Perspective** | - River Basin & Transboundary Issues | II, III, IV |
| | - Catchment Management | II, III, IV |
| | - Reservoir Management | II, III, IV |
| | - Environmental Flows & Downstream Sustainability | II, III, IV |

Table 2 Aspects in the Draft Hydropower Sustainability Assessment Protocol August 2009

## Demonstrated Need & Strategic Fit (Sections I, II)

### Difficulties or Issues

- The scope of consultation needed is difficult to define (Sinop).
- The Effectiveness attribute seems to be relevant for governments and not for developers (Sinop).
- Confusion if the aspect is applicable to developers and if these should have the right to judge government studies (Sinop).
- The guidance notes for the Assessment attribute are more detailed than the four bullet points in the scoring table (3S Basin).
- This aspect links apparently unrelated issues (HidroAysén).
- Regarding the consultation, it is difficult to argue in favour of transparency of the assessment process: it is unclear who should participate in the consultation and who requires transparency and examples of how to achieve it (HidroAysén).
- The assessor may be swamped with too many sources of direction for assessment (3S Basin)
- It is unclear how scoring is done if the pertinent stakeholders fail to reach an agreement with the project developer, even though the developer has adequately performed all the necessary consultation processes and efforts to reach an agreement.
- In order to prove the demonstrated need of the project, the current and projected energy matrix to justify whether additional hydro power is required should be included (HidroAysén).

### Recommendations

- The Stakeholder Support and the Consultation attributes are not needed in this aspect, or there should be clear definition of who the relevant stakeholders would be.
- It should be made clearer whether this aspect concerns developers or governments, and in the latter case how to deal with this when scoring a project.
- The Protocol should include indications on how to weigh the opinions of each stakeholder group. It should also define who the stakeholders are and who determines the degree to which a project is strategic, based on typical market structures around the world.

## Options Assessment (Section I)

### Difficulties or Issues

- This aspect is very comprehensive but some of the required information may not be available at early stages of the project (Sinop).
- In the auditing guidance notes, how is a tributary stream and a mainstream river defined?
- It was not clear to all participants what should be expected in an options assessment and how detailed it should/could be.

## Regional Policies & Plans (Section I)

### Difficulties or Issues

- This aspect is very comprehensive but some of the required information may not be available at early stages of the project (Sinop).
- Since policy and plans vary from country to country it will be difficult to consider this without getting even more complex.
- This aspect has duplications with the 'Demonstrated Need' aspect, since governments will judge the need based on policies and plans.

### Recommendations

- Merge with 'Demonstrated Need' in Section I.
- There is no difference between bullet points 1 and 2 of the Assessment attribute, and the two should be merged.

## Political Risk (Section I)

### Difficulties or Issues

- Finding evidence for this point is difficult and it would be more a personal feeling (Sinop).

### Recommendations

- Bullet point 1 of the Effectiveness attribute should read "For governments, level of likelihood of **NO** political risks".

## Institutional Capacity (Section I)

### Difficulties or Issues

### Recommendations

- Revise the examples of evidence since they did not make sense in the project context (Sinop).

## Public Sector Governance (Sections II, III)

### Difficulties or Issues

- The second Assessment sub-attribute refers to notes that are incorrect.
- This aspect was misunderstood as assessing the company's compliance with the national regulations or with the company's internal corruption risk.
- Raised question whether assessing the public sector governance should be part of an industry assessment (Keeyask and Wuskwatim, Waldeck) and was noted as being unable to do "planning to compensate for public sector capacity shortfalls", since this would appear to be corruption (HidroAysén).
- The aspect description states that the aspect aims to assess the capacity of the legal, judicial and institutional structures. However, under the Effectiveness attribute, only the avoidance of shortfalls is scored.
- When would a project realistically assess and address governance shortfalls?
- How can government corruption be measured in a project specific manner? If it is systemic, this would affect any infrastructure and generation project equally (Keyaask and Wuskwatim).
- How can process be evaluated if the output is "understanding"?

### Recommendations

- Since the project is to be evaluated in the context of the regulatory environment, the aspect description should state that this aspect addresses the effective avoidance of regulatory shortfalls.
- Assessment of public sector governance can refer to the Transparency International Index, which is more neutral. The aspect should then be more specific on actions that the project owner could take to mitigate public sector shortfalls.
- It was felt that the 'Public Sector Governance' and 'Corporate Governance' aspects could be combined to one aspect, since public sector governance had already been assessed prior to section II as a risk to manage.
- The Stakeholder Support and the Consultation attributes are not needed in this aspect.

## Regulatory Approvals (Sections II, III)

### Difficulties or Issues

- Since the 'Public Sector Governance' aspect was misunderstood, the same examples of evidence were brought forward for both 'Public Sector Governance' and 'Regulatory Approvals'.
- In Section III, it is stated that the Effectiveness attribute is not relevant during the Implementation stage. However, this was felt not to be the case as there needs to be compliance with approvals during implementation/construction.
- This aspect is difficult to assess without insight into the full development application and even correspondence (i.e. a lot of documentation is needed). It also needs to be stated which regulators need to be interviewed in the assessment.
- A problem is that a lot of compliance work for this aspect is done undocumented, and there are typically no auditable proofs.

- In some countries, the government cannot publicly support a given project for risk of corruption. The only thing that a company can state is that it is in full compliance with the law and that the project has been approved.

#### Recommendations

- In Sections III and IV, this would be an ongoing monitoring of compliance, and can be part of 'Public Sector Governance' and 'Corporate Governance', so not needed as its own aspect.
- It was proposed to delete this aspect, since it is part of an earlier risk assessment in Section I.
- The Stakeholder Support and the Consultation attributes are not needed in this aspect, since the stakeholders are the authorities.
- Proposed questions for Section II: Do you know what the process is and do you have a plan to get regulatory approval?

## Corporate Governance (Sections II, III, IV)

#### Difficulties or Issues

- The aspect states that it should be assessed at the corporate level. Does this mean that the Effectiveness attribute should also be assessed at the corporate level? The aspect seems to jump back and forth between project and corporate level considerations without much guidance.
- The first sub-attribute score is 'robustness' and could be seen as referring to resiliency of business systems and structures in the face of staff-turnover and changing circumstances; 'overall effectiveness' is proposed as wording.
- Examples of evidence are too prescriptive: a code of ethics is required, which even enterprises with good corporate governance do not always have (Waldeck).
- How should stakeholder support be measured for this aspect, externally or internally?
- How can the avoidance of corruption be addressed if there is no explicit plan to do so but also no corruption (Waldeck).
- This aspect requires significant work to collect evidence as the level of conformance with vision, values, policies and systems is required. It also asks for too many things, some of which are inherently difficult to assess.
- The aspect assesses only the operators´ corporate governance, but not the environment/circumstances an operator is operating in, especially the political risks in case the operator is owned by government.

#### Recommendations

- Combine the 'Public Sector Governance' and 'Corporate Governance' aspects.
- Example of evidence should include ethics codes, operation licenses and codes for commitment to sustainable development but allow for cultural or historical differences.
- The Stakeholder Support, the Consultation and the Conformance with Plans attributes are not needed and are too detailed and too difficult to assess in any practical way.
- Address all compliance related issues in a concise way. This should be the focal point for the business monitoring and reporting on compliance obligations.

- Remove assessment of robustness of business systems and structures as an effective measure. There is no practical way to score this.
- Political risks should be integrated in this aspect (Akosombo).
- Proposed questions for Section II: Do you have a process? Is it verifiable?

## Integrated Programme Management & Communications (Sections II, III)

### Difficulties or Issues

- This aspect could be grouped with other management aspects, e.g. 'Construction Management', 'Social Impact Assessment & Management', and 'Environmental Impact Assessment & Management' (Lake Margaret).
- Difficulty in determining which communication is meant; external or internal? This would need very different documentation as examples of evidence.

### Recommendations

- Split 'Communications' and include as a separate aspect. The rest should be covered under 'Corporate Governance' (Keeyask and Wuskwatim).
- Include knowledge management of sustainability issues.
- Merge the 'Integrated Programme Management', 'Construction Management' and 'Procurement' aspects in Section II, since construction has not yet started and very limited purchasing takes places with the exception of engineering and research.
- The Stakeholder Support attribute is not needed in section II. In Section III and IV, the Stakeholder Support and the Consultation attributes are not needed.

## Construction Management (Section II, III)

### Difficulties or Issues

- This aspect is already adequately covered in other aspects (e.g. 'Social Management Plan', 'Labour & Working Conditions', 'Environmental Management Plan').
- This aspect does not provide for changes in the construction management plan, which occurs in most cases due to unforeseen soil conditions, weather conditions, accidents, safety issues, licensing issues, etc. How is compliance with plans scored in this case?
- How is it verified that situations with foreign workers were dealt with? Should one of the requirements for scoring be translated documents of safety instructions?

### Recommendations

- Merge the aspects 'Integrated Programme Management', Construction Management' and 'Procurement' in Section II, since construction has not yet started and very limited purchasing takes places with the exception of engineering and research.
- The Stakeholder Support and the Consultation attributes are not needed in this aspect.

## Technical Issues & Risks (Section I)

### Difficulties or Issues

- This aspect is very comprehensive but some of the required information may not be available at an early stage of the project (Sinop).
- It was not clear whether this aspect assesses the reliability of the hydrological resource, which includes an assessment of climate change impact (Sinop).

## Hydrological Resource Availability & Management (Sections II, III, IV)

### Difficulties or Issues

- This aspect is indicated on p.6 of the Draft Protocol introduction to be part of Section III, but it does not appear in the assessment.
- Under the Management attribute in Section IV, a guidance note would be needed to define the imprecise term "long-term hydrological management planning".
- Some formulations such as the reference to agriculture could be understood as intending multi-purpose use of the water, rather than stating facts of competing water demands that affect the availability of the hydrological resource in future (Akosombo).
- A wide range of stakeholders are represented under the Consultation attribute under this aspect, e.g. operator, water resource commission, several other governmental commissions, communities. More precise guidance on the most important stakeholders is needed.
- How can the Consultation attribute be scored if the auditor only has the chance to speak to one or few relevant stakeholders and can only obtain a limited impression of the situation?
- How can the Conformance with Plans attribute be scored if the plans are poor (Akosombo)?
- Uncertainty on which criteria have to be met (Keeyask and Wuskwatim).
- Overlap with River Basin & Transboundary Issues Aspect with respect to reliability and efficient utilisation of the water resource, and Reservoir Management with respect to operational rules. Needs to be better distinguished.
- Cascade efficiencies are difficult to address in the absence of a single owner. A solution needs to be found for this for scoring (Teesta V).
- The gap between scores of 2 and 3 are very wide in this aspect.
- It was perceived as subjective to ask for an analysis including climate change if there is no consensus on how this problem will affect hydrological resources in the long term. Proposal to rephrase: "... climate change risks" to "stability of water flows" (HidroAysén).

### Recommendations

- The Stakeholder Support and the Consultation attributes are not needed in this aspect. If stakeholders are included they need to be clearly defined and if a project has already obtained the necessary permits from the public authorities, the attribute should be given the maximum score (HidroAysén).

- The protocol introduction should clarify more explicitly how multi-purpose use of the water is or is not of relevance
- Give clear aspect scoping instruction at the outset.
- Give better guidance on the context for cascade projects with multiple owners and development timetables.
- Change the name of the aspect to "Availability of inflowing hydrological resources".
- Deletion of Compliance attribute could be considered in Section IV and be picked up under Corporate Governance.
- This aspect is not needed in Section III.
- Proposed questions for Section II: Do you have a process? Is it a reasonable benchmark against best practices and is it verifiable?
- This aspect should clearly state that the available resource is an inflow to the project; otherwise, the assessor will mistakenly consider the entire amount of water available, both inflowing and outflowing (HidroAysén).

## Project Siting & Design Optimization (Section II)

### Difficulties or Issues

- The Draft Protocol makes no reference to project site redevelopment and refurbishment, and the language was not directly relevant (Lake Margaret).
- The criteria for the Assessment and the Management attributes are not adequate for Section II (Keeyask and Wuskwatim).
- In requirement 2 of the assessment attribute, it is unclear whether the requirement is that optimisation methodologies should involve multiple criteria or whether there should be separate methodologies for multiple criteria. Examples of methodologies should be provided (HidroAysén).
- In the Effectiveness attribute examples should be provided on how to focus on generating benefits from project siting. It seemed more realistic to focus on minimizing negative impacts.

### Recommendations

- The Stakeholder Support attribute is not needed in this aspect or needs to be more defined as in technical experts (e.g. board).
- The prescription of methodologies should be eliminated.
- Proposed questions for Section II: Do you have a process? Is it s a reasonable benchmark against best practices and is it verifiable?

## Asset & Community Safety (Sections II, III, IV )

### Difficulties or Issues

- Interpretation difficulties: this aspect and the required documentation were understood as safety provisions during construction management, rather than showing evidence for provisions against asset and dam failure (Waldeck).

- Some projects did not have a traffic assessment and a site traffic management plan. It was questioned whether this is customary at many projects.
- How is this aspect scored if asset safety is good, but nothing is in place for community safety?
- How is the Conformance with Plans attribute scored if no plans or very poor plans are in place, but the operator complies with these plans (Akosombo)?
- How is the Effectiveness attribute scored if no plans are in place, but nothing happens and nobody is harmed? Need better guidance on how effectiveness can be measured.
- There is sometimes a fine line between community and occupational safety, e.g. with respect to disaster management planning (Teesta V).
- An external auditor might find it difficult to determine whether all the pertinent safety issues have been taken into account, beyond the issues that are common to all projects. The different scores for effectiveness need to be defined. What does "likelihood of excellent asset and community safety record" involve? Assessing a "likelihood" is rather subjective (HidroAysén).

#### Recommendations

- The Stakeholder Support attribute is not needed in Section II. In Sections III and IV, the Stakeholder Support and the Consultation attributes are not needed.
- Either separate asset safety and community safety into separate aspects, or cover in separate attributes (Akosombo).
- Include regular reports on plant safety under examples of evidence.
- Proposed Section II questions: Do you have a process and is it verifiable?
- Rename Aspect to 'Safety', and merge in occupational safety considerations which are presently in the 'Labour & Working Conditions' aspect.

## Asset Reliability & Efficiency (Section IV)

#### Difficulties or Issues

- Who are the relevant stakeholders for this aspect? Are they inside or outside of the company?
- A lot of information needs to be collected and reviewed before getting a confident result.

#### Recommendations

- In the Assessment attribute, delete "Quality of the process leading to" and leave "Understanding".
- A recommendation in a guidance note about the most important documents, and an outline about the most challenging issues, would be very helpful (Akosombo).

## Economic & Financial Issues & Risks (Section I)

#### Difficulties or Issues

- The consultation attribute is not very clear and should be reworded (Sinop).

### Recommendations

- Reword the Consultation attribute.

## Economic Viability Including Additional Benefits (Sections II, III, IV)

### Difficulties or Issues

- There is not always an additional benefit. Sometimes the operators provide for sport fishing or tourism, but the Draft Protocol seems to want more than this for good scoring. Therefore assessors were left uncertain as to whether assessing only one additional benefit is appropriate
- The Compliance attribute is described as generally not relevant. In South Africa, ESKOM's only shareholder is the government and the company has to comply with the Public Finance Management Act when it deals with economic viability.
- Economic viability is difficult to assess for pumped storage projects, but it is possible to focus on additional benefits (Waldeck).
- How is a regional socio-economic baseline defined?
- Even projects that can prove exceptional additional benefits might score low because of the absence of a cost-benefit analysis. Cost-benefit analyses are difficult when factoring in externalities like social and environmental costs, and can be contentious when attempted (Teesta V).
- It was often not clear what the difference between 'Additional Benefits' and 'Benefit Sharing' is and under which aspect to include positive impacts, positive externalities, CSR, etc. Mitigation measures and impact compensation should not be considered as benefits (HidroAysén).

### Recommendations

- For Sections III and IV, it was proposed to combine the 'Economic Viability' and 'Financial Viability' aspects, since assessment of both should have been done at earlier stages of the project and now viability of both can be assessed together.
- Delete this aspect since it is difficult to audit.
- Merge the 'Benefit Sharing' aspect in with additional benefits, since they are part of the same appraisal process and rename to Project Benefits.
- Remove references to cost benefit analysis.
- The Stakeholder Support attribute is not needed in this aspect or would need better guidance on who is a stakeholder and what evidence would be needed for scoring.
- This aspect is too prescriptive in terms of methodology requirement (cost-benefit analysis). The focus is on additional benefits, and should be reviewed to include economic viability or be split into two (Akosombo, Keeyask and Wuskwatim).

## Financial Viability (Sections II, III, IV)

### Difficulties or Issues

- In cases of multi-nationals, government-owned projects and pumped storage projects, this aspect caused discussion around the boundaries of the assessment. Does this aspect refer to the project, or to the operator?
- The aspect seems to be asking a lot more than might be necessary (Teesta V).
- A guidance note is needed to define the "directly relevant stakeholders" for the Consultation attribute.
- The guidance note 4 under the Effectiveness attribute is not sufficient for non-financiers. The term "debt service coverage ratio" is not universally known.
- This aspect is too prescriptive in terms of methodology requirements (Keeyask and Wuskwatim)
- Consultation and stakeholder support were difficult to determine. Who is a stakeholder? What evidence would be applicable? How to score?
- In Section II the aspect seeks deeper financial analysis than can be provided at this stage. Attribute requirements are usually confidential and would be difficult to be score by an external assessor (HidroAysén).

### Recommendations

- For Sections III and IV, it was proposed to combine the 'Economic Viability' and 'Financial Viability' aspects, since assessment of both should have been done at earlier project stages and now viability of both can be assessed together.
- Hone in more directly on the considerations that are most critical e.g. have financial targets been set based on a rigorous process, are they being met and regularly reported on, and are publicly available annual reports being produced.
- Could benefit from better guidance on considerations relevant to public sector versus private projects.
- This aspect could be deleted from Sections III and IV, since cost control is at these stages performed under the integrated management plan.
- The Stakeholder Support, the Consultation and the Compliance attributes are not needed in this aspect.
- Proposed Questions for Section II: Do you have a process? Is it verifiable?

## Procurement (Sections II, III, IV)

### Difficulties or Issues

- The guidance is not comprehensive as it does not offer direction on what are appropriate sustainability criteria to be incorporated in the procurement process. For example, under the effectiveness attribute, there is no definition of what a local contractor is. The guidance notes suggest that an unrealistic amount of considerations are taken into account than could realistically happen in practice.
- The Compliance with Plans attribute is difficult to score, as construction plans can change frequently in the typical project setting and are regularly being updated.

- It is difficult to evaluate the transparency of procurement when construction is done by external contractors.
- Trialled projects had problems showing that they considered the wider social and environmental dimensions of procurement, because standard procedures do not generally do this.
- This aspect should address green procurement and waste management.
- Is the auditor assessing the quality of the process or just the existence of a process? It is unclear what parameter the auditor will use to assess quality.
- It is unclear on what basis to assess "transparency and competiveness of the bidding...".

### Recommendations

- Formalize sustainability dimensions of procurement.
- Merge the 'Integrated Programme Management', Construction Management' and 'Procurement' aspects in Section II, since construction has not yet started and very limited purchasing takes places with the exception of engineering and research.
- The Stakeholder Support, the Consultation and the Compliance attributes are not needed.
- The requirement under Assessment should read "The procurement process complies with applicable national legislation and international regulations"(HidroAysén).
- Consultation should be improved to include more specific questions, such as: Does the company have a roster of internally validated suppliers? Does the procurement company have a signed regulation to regulate and control the procurement and awarding processes? Does the company promote and carry out private acts to examine all bids submitted for contracts? Are minutes drawn up and signed indicating the prices offered in the examination of bids? Does the company implement a process of approval of bids? Once the bids have been approved, is the contract awarded to the lowest bidder? Does the company notify the participating companies of the outcome of the bidding process (HidroAysén)?
- The Stakeholder Support should specify more precise requirements; e.g. (a) Agreements covering works, services or supplies between the company and the suppliers are formalised by means of contracts signed by the parties. (b) Assessments are conducted on the degree of annual compliance (from 0% to 100%) by contractors. (c) Internal assessments are conducted on the degree of satisfaction (from 0% to 100%) with the procurement area (HidroAysén).
- Delete this aspect from Section IV, since it is at this stage integrated into the 'governance' aspect.
- Under the Effectiveness attribute, in scoring on the first sub-attribute the phrase "fair, transparent and timely across all / most / some project streams" has the emphasis on the wrong terms. A better approach to gradation would be on the terms "fair, transparent and timely", because procurement processes might e.g. be fair and transparent, but not timely (Lake Margaret, II-III).

## Markets, Innovations & Research (Section IV)

### Difficulties or Issues

- It was seen as difficult to score the Conformance with Plans attribute if there is no plan in place.

- It was questioned whether network assets should be part of the hydropower project sustainability assessment. In practice they will often be in the hands of another company, and the issues are not unique to hydropower by to any electricity generation infrastructure development.
- Not sure how to score effectiveness measures.

#### Recommendations

- Delete this aspect since it is not an essential criteria of sustainability.
- Delete the Consultation, the Stakeholder Support and the Compliance attributes.
- A guidance note on the term "compliance with market requirements" is needed.
- Reference to network assets should be removed.
- Provide better guidance on how to score effectiveness measures.

## Social Issues & Risks (Section I)

#### Difficulties or Issues

## Social Impact Assessment & Management (Sections II, III, IV)

#### Difficulties or Issues

- The assessor is asked to consider the extent to which positive social benefits are identified and likely to be achieved. The key social benefit is tourism which is also addressed in the 'Economic Viability including Additional Benefits' aspect – this reflects ongoing issues with the matrix approach, there is 'double-counting' where a score is the same for an attribute across all aspects.
- For refurbishment projects, this aspect is not relevant because there are no social impacts.
- In the absence of plans this aspect did not seem always relevant. I was also unclear if the Planning attribute referred to internal company planning (management) to design social plans or if it refers to determining whether social plans are adequate (performance) (HidroAysén).
- It was unclear at the Akosombo trial why the Effectiveness attribute focuses on community partnerships, and what the definition of community partnerships would be.
- There is overlap between the 'Project Affected Communities' and this aspect, and there were issues on how to distinguish between the two.
- This aspect covers many of the issues that are addressed in other aspects and the requirements to score this aspect are imprecise. For example, it calls for data collection and analysis but fails to specify a minimum standard and which data are relevant (HidroAysén).
- It is necessary to specify when and under what parameters a plan will need to be implemented and its required minimum standards. For instance, is a management plan needed for each of the impacts identified (HidroAysén)?
- Social impact assessments & management are in practice often embedded in environmental impact assessment & management except where there are specific plans (e.g. resettlement, public health). It was difficult to know how to address this diversity of considerations for this aspect (Teesta V).

### Recommendations

- For the line which addresses considerations for the aspect to be not relevant, better phrasing would be: "This aspect is always relevant; at least a screening of potential impacts should be done as a minimum".
- Some of the main intents at the operational stage are to ensure that social commitments have been met, compensation fully paid, and there is a process for ongoing monitoring and adaptive management. Should consider having 'Social Management Plan' and 'Environmental Management Plan' integrated to look at the delivery of commitments and the ongoing monitoring and management systems.
- Since Resettlement is not an aspect in Section IV, this issue needs to be covered in this aspect. Or, since the topic is still important for ongoing projects, 'Resettlement & Land Acquisition' should be a separate aspect.
- A difference should be made between the different groups of stakeholders and their level of acceptance should be gauged since the degree of acceptance may differ among stakeholder groups.
- The Stakeholder Support attribute is not needed in this aspect in Section II. In Sections III and IV, the Stakeholder Support, the Assessment, and the Consultation attributes are not needed.
- Guidance note 3: in addition to "previous" add "long-outstanding issues", because a project can have long-outstanding issues which were not yet addressed.
- In the Management attribute, "planning" seems redundant in a Section IV project, or does it refer to the already existing plans?
- Guidance note is needed on the distinction between the Social Management Plan' and the 'Project Affected Communities' aspects, or merging these two aspects is recommended.
- Proposed questions: Do you have a process and is it verifiable?

## Project Affected Communities (Sections II, III, IV)

### Difficulties or Issues

- The aspects 'Social Management Plan' and 'Project Affected Communities' overlap and are duplicated in some characteristics.
- The main discussion point under this aspect is human rights, which are already covered under specific aspects (e.g.'Labour & Working Conditions') (Teesta V).
- A sub-attribute of the Management attribute describes the difference between a score of four and five as "Formed for many..." and "Formed for most...". It is difficult to distinguish between the words "most" and "many". It is recommended to replace the word "most" with "all".
- This aspect addresses "the rights, risks and opportunities of the project with respect to project affected communities, including those economically displaced by means not related to land acquisition." This excludes people affected by land acquisition and, since Resettlement and Land Acquisition does not occur in Section IV, the land acquisition is neglected completely.
- The quality of the assessment process required the following: (1) Data collection on population and income, education levels, etc. (2) Land characteristics and value; and (3) Other issues (HidroAysén).

- In section II this aspect considers the existence of a resettlement plan as given by referring to its quality without clearly stating what aspects such a plan should involve to qualify as "adequate". Guidelines on the contents, aspects addressed, and stages involved are required.
- The assessment attribute is highly subject to interpretation. For instance, it refers to establishing agreements, but it is not obvious under which circumstances they should be established and which are the relevant issues (HidroAysén).
- The purpose of assessing the management attribute is incomprehensible, particularly in the reference to community representative structures. It does not specify whether the project is expected to foster them, identify them and interact directly with them nor does it specify the mechanisms to achieve such a goal. The attribute is unclear in its reference to "respect for human rights" (the scope is too broad). Examples are also confusing given that it fails to state the topic for plans and agreements. It should be clearly defined if the aspect involves the need to establish relationships with the community through formal community organizations and to what extent they should be involved in the processes for the management process to be "good" (standards) (HidroAysén).
- In the Consultation attribute, the affected community lacks the necessary knowledge or organisation to design the consultation processes but it can state its opinions on the project and the developer can gather those opinions. A few minimum standards should be established. For instance, the attribute should indicate whether a specific support mechanism is needed or desirable, such as personal assistance, to what extent and specifically for whom (HidroAysén).
- Conformance with plans is an attribute that should specify who is required to "conform" and the corresponding parameters. One aspect of conformance involves the authorities while another involves the affected stakeholders. This should be specific clearly particularly for this aspect (HidroAysén).
- Gender issues do not come out strongly.

#### Recommendations

- A guidance note is recommended on the distinction between the 'Social Management Plan' and the Project Affected Communities' aspects, or merging of these two aspects is recommended
- There needs to be the verification of a process to identify the project affected communities.
- If human rights are adequately covered under other aspects, project affected communities can be covered under 'Social Impact Assessment & Management' and this aspect can be deleted.
- In Section III and IV the Assessment, the Management and the Consultation attributes are not needed.

## Indigenous Peoples (Sections II, III, IV)

#### Difficulties or Issues

- Indigenous peoples are already covered under the 'Project Affected Communities' or the 'Social Management Plan' aspects.

- The intent of this aspect is mainly to ensure that the project adopts measures to verify whether any indigenous peoples inhabit its area of influence and identify their rights. Nevertheless, the attributes focus merely on having indigenous peoples understand the project and the advantages and benefits that the project may bring them (HidroAysén).
- The Protocol assumes that indigenous peoples will support the project, and therefore, it seeks their approval as a *conditio sine qua non.*
- The aspect does not intend to study the indigenous peoples themselves, or their specific features in the project's area of influence. This is a crucial issue because the culture of indigenous peoples, their customs and traditions are attributes that need to be safeguarded when implementing projects that can affect their way of life and their traditional beliefs.
- This aspect should focus on preparing a depiction of indigenous peoples and their specific traits, based on the same attributes addressed by aspects II-13 and II-14, so as to have a proper understanding of their culture, customs, traditions and rights.
- The protocol should make it explicit that archaeological indigenous heritage is addressed under the 'Cultural Heritage' aspect, although this can be a very artificial distinction for many indigenous peoples.

#### Recommendations

- The use of consent for indigenous peoples as best practice could specify the focus for the consent, such as consent for arrangements associated with impacts and benefits.

## Resettlement & Land Acquisition (Sections II, III)

#### Difficulties or Issues

- Perceptions may differ in terms of improvement of standards of living for displaced persons (e.g. some may prefer to live in a less sophisticated manner).
- The method to measure the quality of the assessment attribute is not clear since the parameters and variables that should be part of a "quality" assessment are not provided. In this regard, the Protocol fails to provide clear guidance such as, for example: specify whether activities such as data collection on site was carried out, with their respective analysis scales or whether information needs to be collected on each family to be relocated. The documents listed as examples of evidence are not adequate; to specify the existence of analytical reports is too (HidroAysén).
- The aspect takes it as a given that there is resettlement plan in place by referring to its quality, without clearly specifying what aspects this plan should include in order to be deemed "adequate". Guidelines on the contents of the resettlement plan are required, as are the issues to be addressed and the stages involved: e.g Preferences regarding resettlement locations, type of main support required by the population to be resettled (e.g. monetary support or production support), among others.
- It is highly unlikely that a favorable score will be attained if full authorization of all stakeholders is required.

- Conceptually, resettlement should be part of the analysis of the project affected community. Any adequate Social Impact Assessment should identify this issue.
- Free Prior Informed Consent does not seem pertinent, as industry should not decide if some groups have more rights than others.

#### Recommendations

- Use of "consent" for resettlement as best practice could specify the focus for the consent, such as consent for arrangements associated with impacts and benefits.
- The quality of the assessment process requires the following: (a) Data collection on: population, income, education levels, etc. (b) Main features of the land and its value; (c) Other issues (HidroAysén).
- In Section III and IV the Consultation attribute is not needed.

## Benefit Sharing (Sections II, III, IV)

#### Difficulties or Issues

- Difficulty of drawing the line between benefit sharing and additional benefits. Which benefits for the region can be considered as shared or as additional?
- Benefit sharing, with its current description, is difficult to apply in an industrialised country and with a private investor.
- The effectiveness of plans cannot be measured during a project's preparation phase, although it may be assumed beforehand. To this end, plans should include a high degree of adaptability to the interests of the affected stakeholders.
- The Effectiveness attribute is difficult because there is little written evidence of creation of workforce and apprenticeships for the area, increased tourism and fishing opportunities.
- The Effectiveness attribute is difficult with cascade projects, because how can the benefits be associated with a single project if the project is part of a larger plant or even, as in other cases, part of a cascade of projects?
- How far can a project developer and operator realistically go in order to create benefit sharing in the community? How should a score 5 be evaluated in a developed country where it is difficult to generate and redistribute benefits to project affected communities? This might raise expectations and oblige the project developer to high expenditures.
- At the Akosombo trial dam-affected communities had benefitted less than other communities in the project area, since there had been a misperception by the operators concerning his responsibilities. It was unclear how to score in this situation since objectively evaluating the operator's actions by his perceived responsibilities would exclude some dam-affected communities from scoring on benefit sharing.
- The protocol indicates that a benefit sharing approach is a tool and parameter of project sustainability. Benefit sharing can be part of project package of benefits, but it cannot be considered as an expected approach for all projects worldwide.
- The existence of a benefit sharing plan does not define if a project is sustainable.

- It was often not clear what the difference between 'Additional Benefits' and 'Benefit Sharing' is and under which aspect to include positive impacts, positive externalities, CSR, etc. Mitigation measures and impact compensation should not be considered as benefits (HidroAysén).

#### Recommendations

- In Sections II and III, make this aspect part of 'Economic Viability' and 'Social Impact Assessment', since it is odd as its own aspect during the preparatory and construction phase.
- Merge benefit sharing with additional benefits, since they are part of the same appraisal process. The new aspect could be called 'Project Benefits'.
- The Stakeholder Support attribute is not needed in this aspect in Sections II and III. In Section IV, the Stakeholder Support and the Consultation attributes are not needed.
- At the Akosombo Section IV trial, it was noted that in the Management attribute the terms "poor" and "very poor" seem very close to each other. "Absent" is recommended as a better term to replace "very poor".
- Guidance notes for this aspect should be reinforced and the object of evaluation should be defined more clearly to define whether: The company is the one that shares profits with the community; or the state or country, through taxes or the royalty charged to the company that owns the project, is responsible for sharing profits with the community.

## Labour & Working Conditions (Sections II, III, IV)

#### Difficulties or Issues

- This aspect covers a lot which makes it difficult to manage (Teesta V).
- Labour conditions apply more to fair treatment and working conditions than to safety issues.
- Some trials were unable to collect evidence for a recruitment policy aiming at workforce equity, opportunity and diversity. Such a policy may not be customary in all societies.
- At the Akosombo trial, it was felt that under the Consultation attribute more guidance is needed with whom to consult, e.g. workers of the operator only, or external workers from contractors as well?
- What is to be assessed must be clarified: current labour and working conditions or those to be implemented in the construction stage on site. The wording of the attribute points to the project to be implemented, i.e. the conditions under which the works will take place in future. However, further on there is a confusion with the current actions of the company in implementing the project (HidroAysén).
- A requirement for this aspect should be to identify the process whereby national or international agencies verify, supervise and monitor compliance with labour and working conditions (HidroAysén).
- During Implementation, equal job opportunities and safety are separate issues.
- Health and Safety is captured in community safety and public health.
- Questions that cannot be project specific are not relevant to assess project sustainability.
- It was pointed out that staff/workforce satisfaction levels would be difficult to score objectively without the existence of surveys (Sogamoso).

- In Section II it was not clear whether the requirements are for the project preparation or for later sections.

#### Recommendations

- Separate into two aspects (e.g. 'Health & Safety' and 'Working Conditions') or integrate the working conditions into a broader aspect on management plans.
- In Section III, address equal opportunities separately from safety issues.
- Health and Safety are extremely important aspects on any site as the aspect deals with people's lives and has its own processes and compliance requirements. Health and Safety should be separated from 'Labour & Working Conditions' aspect and be added as another aspect. This aspect could be called 'Safety' and cover occupational, asset and community safety.
- Delete this aspect from Section II, since it seems to be premature.
- Delete this aspect from Section IV, since at this stage the number of employees is considerably lower than during construction, and their working conditions will be covered under the 'Corporate Governance' aspect in an Human Resources policy.
- The Stakeholder Support and the Consultation attributes are not needed in this aspect.
- For Section IV trials the word "planning" under the Management attribute seems to be redundant.
- Redefine to only address equal opportunity and fair business practices.

## Cultural Heritage (Sections II, III, IV)

#### Difficulties or Issues

- At the Akosombo trial of Section IV, the Assessment and Management attributes have insufficient guidance on whether to assess today´s situation (e.g. some outstanding issues) or the former assessment process (which could have been conducted 40 years ago and which might be quite challenging to assess).
- Assessment guidance notes establish no guidelines or standards and, therefore, this attribute is subject to the personal interpretation.

#### Recommendations

- The Stakeholder Support attribute is not needed in Section II. In Sections III and IV, the Stakeholder Support and the Consultation attributes are not needed.
- Physical and intangible cultural heritage should be addressed as two separate matters.
- The assessment should be undertaken in Section II. In Section III the questions should be more about the compliance with regulations and management plan.
- Proposed Section II questions: Do you have a process to address Cultural Heritage and can it be verified?

## Public Health (Sections II, III, IV)

#### Difficulties or Issues

- The aspect is always considered relevant according to Draft Protocol. However, for plant refurbishment and in developed country settings this aspect may not be relevant (Waldeck)

- Opportunity to leave public health infrastructure behind should be part of additional benefits but not a goal per se.
- In Section II it was not clear whether the requirements are for the project preparation or for later sections.

**Recommendations**

- For the line which addresses considerations for the aspect to be not relevant, better phrasing would be: "This aspect is always relevant; at least a screening of potential public health issues should be done as a minimum".
- The Stakeholder Support attribute is not needed in Section II. In Sections III and IV, the Stakeholder Support and the Consultation attributes are not needed.
- Provide some guidance on how to deal with public versus private development with respect to public health. In the case of public projects the obligations for public health might greatly exceed those that can realistically be expected from a private developer.
- Redefine to exclude enhancement of opportunities as a requirement.

## Environmental Issues & Risks (Section I)

**Recommendations**

- The goal of a hydropower project is not to deliver environmental benefits. In some cases this might happen but it is not the reason why a project is built, and cannot be a criteria/requirement for a new project. Therefore bullet point 2 of the Effectiveness attribute should be deleted (Sinop).

## Environmental Impact Assessment & Management (Sections II, III, IV)

**Difficulties or Issues**

- Some companies do not have "plans" and deal with the issues individually.
- Feedback from several trials is that many questions (e.g. sedimentation issues) are repeated in other aspects concerning environmental issues.
- Land rehabilitation from construction scars, management of construction wastes, and ongoing waste management need particular focus (Teesta V).
- This aspect does not contribute to clarifying definitions of contentious issues: cumulative impacts, legacy issues (Keeyask and Wuskwatim).

**Recommendations**

- Consider creating an 'Environmental and Social Management Systems' aspect focussed on the management of processes and merge this aspect with 'Social Impact Assessment & Management'.
- The first sub-attribute under the Assessment attribute mentions the "social baseline", which should be replaced by "environmental baseline".
- The term "degree" should be changed for "depth" or "accuracy".

- Widen the definition of auditing guidance note 3 to note that legacy issues can be from previous projects, but also earlier unmitigated impacts from the project being assessed.
- Consider creating an aspect called 'Land Rehabilitation and Waste Management'.
- In order to make sure an Environmental Impact Assessment is at least done as a screening, the line for this aspect to be considered not relevant should read: "This Aspect is always relevant. At least a screening should of environmental impacts should be done". This should help the auditor to evaluate the relevance of Aspect III-19, as well as to assess the relevance of the following environmental aspects.
- The Stakeholder Support attribute is not needed in Section II. In Sections III and IV, the Stakeholder Support and the Consultation attributes are not needed.
- Clearly point out the differences between this aspect and the various other environmental aspects.
- Proposed Section II questions: Do you have a process and can it be verified?

## Biodiversity & Invasive Species (Sections II, III, IV)

### Difficulties or Issues

- The assessor is required to score the Consultation attribute, which is not always applicable, especially in the context of site redevelopment. Therefore there were uncertainties whether to score 1 because no consultation was undertaken, or whether this would not be relevant.
- It was unclear how an auditor would verify the degree to which negative impacts to biodiversity are identified, or the degree to which positive impacts are identified?
- Many questions in this aspect are repeated in other aspects concerning environmental issues, especially Environmental Management Plan.
- The Protocol fails to address issues such as forests and terrestrial vegetation and the impacts on the habitat of fauna.

### Recommendations

- Split biodiversity and invasive species into two aspects. Invasive species have an economic impact while biodiversity has an environmental impact. Biodiversity is a very broad field covering a large amount of issues. Invasive species have major resource and economic impacts. Environmental issues and risk factors should not be combined in the aspects.
- Could consider having terrestrial biota picked up under 'Catchment Management' and rename this aspect 'Aquatic Biota & Invasive Species' (Teesta V).
- The Stakeholder Support and the Consultation attributes are not needed in this aspect.
- Clearly point out the differences between this aspect and the various other environmental aspects, notably with the 'Environmental Management Plan' aspect.
- Proposed Section II questions: Do you have a plan to address biodiversity and is it verifiable?
- In Section III, this is normally part of an environmental management plan (monitoring plans). Therefore, the question should be: Is there a plan in place and is it in compliance?

## Erosion & Sedimentation (Sections II, III, IV)

### Difficulties or Issues

- Normally part of environmental management plan for Sections III and IV.
- The assessment attribute is imprecise about what data must be provided. It would be useful to specify what studies are required, such as, for example, an estimate of bed load discharge, measurement of erosion downstream of the reservoirs using simple models or a qualitative estimate, sedimentation calculated through simple models (HidroAysén).
- Sedimentation is not clearly defined. In general, sedimentation does not play a major role in defining the siting of a reservoir. The Protocol should clarify that management is a process based on determining the relationship between the assessment stage with whatever measures will be adopted (HidroAysén).

### Recommendations

- The Stakeholder Support and the Consultation attributes are not needed in this aspect.
- Given that sedimentation and erosion are long-term processes, predictive models should be prepared to be discussed with the authorities or academicians who specialize in the subject. Emphasis should be placed on the need to include monitoring plans for sedimentation and erosion to verify the proposed mitigation measures.
- Clearly point out the differences between this aspect and the various other environmental aspects, notably with the 'Environmental Management Plan' aspect. Proposed Section II questions: Do you have a plan to address Erosion and Sedimentation and is it verifiable?

## Water Quality (Sections II, III, IV)

### Difficulties or Issues

- There was misunderstanding on which documentation to provide. One project provided evidence that water quality would not harm the plant but not that the plant did not have an impact on the water quality. Which is more relevant for a sustainability assessment?
- The auditing guidance notes focus on the changes in quality that might occur in reservoirs or immediately downstream, but the assessment attribute does not include the potential effects on the estuarine area caused by the retention of sedimentation and nutrients (HidroAysén).
- What if no measures to improve water quality are implemented and no assessment or consultation is made, but water quality is not a problem or the water quality improved? How would the improvement of water quality be scored?
- Compliance should be added as an attribute given that it is related with compliance of applicable legal requirements and public commitments undertaken by the developer (HidroAysén).
- One of the Effectiveness sub-attributes in Section III asks a question about the operation stage which is not possible to answer at this stage of the project.
- Regarding effectiveness, to evaluate the "degree to which opportunities for positive impacts to local water quality issues are identified and are likely to be achieved" the criteria for the

highest score is based on a thorough identification "maximized as far as possible" whereas the lowest score states "none identified". In the HidroAysén case, no positive impacts on water quality were identified, but this does not mean that the assessment was not thorough.

- Normally part of environmental management plan for Sections III and IV.

#### Recommendations

- The last bullet point under Aspect III-25 could rather be a guidance note to additional benefits (the identification of waste and recycling measures beyond regulatory requirements might be one way of generating additional benefits).
- Clearly point out the differences between this aspect and the various other environmental aspects, notably with the 'Environmental Management Plan' aspect.
- The Stakeholder Support and the Consultation attributes are not needed in this aspect.
- Proposed Section II questions: Do you have a plan to address water quality and is it verifiable?

## Waste, Noise & Air Quality (Section III)

#### Difficulties or Issues

- Waste, Noise and Air Quality is in developed country cases taken care of by the government. Waste legislation requires procedures for waste treatment. However, the operator does not make the special effort to consult with the community how waste and noise was improved. Would this be necessary and relevant? Should scoring penalize the project operator for having very thorough pre-existing legislation and not needing to show as much initiative as the same project would require in a developing country context? Is the identification of additional initiatives beyond the strict regulatory requirements not rather additional benefits?
- Normally part of environmental management plan for Sections III and IV.

#### Recommendations

- The last bullet point under aspect III-26 could rather be a guidance note to additional benefits (the identification of waste and recycling measures beyond regulatory requirements, might be one way of generating additional benefits).
- The Stakeholder Support and the Consultation attributes are not needed in this aspect.

## River Basin & Transboundary Issues (Sections II, III, IV)

#### Difficulties or Issues

- In Section III, the Compliance attribute 'is described as generally not relevant in the Draft Protocol. In some countries however there are legal requirements where compliance is needed.
- If no changes were done to the river basin by rehabilitation, since they were not necessary, is the aspect considered to be non-relevant or should the scoring be very good since impacts were avoided, even though they were never intended?
- The Draft Protocol has insufficient guidance on what scale this aspect should be applied to.

- At the Akosombo trial it was felt that for the Effectiveness attribute scoring, there is quite a distance between "good" and "minimal", and more precision is needed.
- This aspect is not specifically relevant to Section III if under Section II the agreements are put in place.
- The expectation cannot be put on the developer that it would take a lead in developing basin plans.
- It is difficult to put the auditor in the position of judging likelihood of effective contribution to optimal utilisation of the water resources in the basin when for the vast majority of the world's basins such an understanding does not exist.
- Consultation and stakeholder support are difficult to determine for ongoing operations in Section IV. Who is a relevant stakeholder? What evidence would be applicable? How to score?

#### Recommendations

- Define the term "large river basin".
- More guidance on how to form views with respect to project sustainability in the absence of integrated basin plans or any process to develop these.
- Deletion of Compliance attribute could be considered in Section IV and be pickup up under corporate Governance.
- The Stakeholder Support attribute is not needed in this aspect in Section II. In Sections III and IV, the Stakeholder Support and the Consultation attributes are not needed.
- In Section IV, the word "developer" should be replaced by "operator".
- Combine this aspect with the 'Catchment Management' aspect.
- Proposed Section III questions: Is there an agreement / plan and are they in compliance with it?
- In the case of effectiveness, examples or parameters should be provided to measure the possibility of an effective contribution by the developer to the optimal use of the river basin.

## Catchment Management (Sections II, III, IV)

#### Difficulties or Issues

- Compliance is stated as generally not relevant, but it could be very relevant if regulations are in place.
- The examples of evidence for attributes involve a combination of several variables which makes them difficult to understand and, consequently, to answer.
- Often catchment management is a public responsibility.
- It was questioned whether this aspect is relevant for pumped-storage projects, which do not change the water management processes.
- The distinctions between "basin", "catchment" and "reservoir" are not clear.

#### Recommendations

- Delete this aspect since it is beyond the responsibility of the developer, and related impacts would be managed by the developer via sedimentation and water quality.

- Need guidance on how to deal with this aspect in the context where there is a private developer, or where catchment activities are not so closely linked to project operational activities (Teesta V, IV).
- In the assessment attribute, considerable data is requested and this makes it difficult to understand the attribute and its focus. The requirement should be re-phrased as follows: "The process includes an assessment of project interactions and the influence that it will have on the use of catchments, the users, the issues and the current and future opportunities that affect catchments". Provide definitions in the glossary or guidance notes to clarify the distinctions between "basin", "catchment" and "reservoir".
- The management attribute is not clearly set out: its focus is difficult to understand. The requirement should be re-phrased as follows: "The developer takes due account of its role and obligations in the proposal made for catchment management".
- Consultation is another attribute that is not worded clearly. It should be re-phrased as follows: "Catchment management planning includes a stakeholder participation process".
- This aspect should also address the role to be played by the state and cooperation mechanisms for catchment management.
- The Stakeholder Support attribute is not needed in this aspect.
- Under the Effectiveness attribute, the first sub-attribute should have more focus on "avoided, mitigated and/or compensated", because there are cases were opportunities are identified but no measures are taken.
- Combine with the 'River Basin & Transboundary Issues' aspect.
- Proposed questions for Section II: Is there a catchment management plan and can it be verified?

## Reservoir Management (Sections II, III, IV)

### Difficulties or Issues

- This aspect is difficult to assess for projects that are part of cascade operations, and influences might be with other projects, operators, municipalities or reservoir users.
- This aspect was not felt to be relevant for pumped storage schemes.
- The distinctions between "basin", "catchment" and "reservoir" are not clear.
- There was a lot of overlap for this aspect with discussions already held under social issue aspects, and multiple benefits. Having the environmental aspects organised in a matrix of issue-based and space-based definitions creates a lot of overlaps.
- This aspect is difficult to separate from that of water quality given that, in transforming a section of a river into a reservoir, the main impact is on water quality.
- Guidance on scoring the emerging concept greenhouse gas (GHG) emissions is needed where no inventory or plans are in place. While this topic is definitely of high importance it is by far not state of the art to assess the net GHG emissions (measurements before and after impoundment required). Furthermore the definition of minor or significant net GHG emission increases seems to be quite arbitrary and too strict. For a score of 5 a "reduction or no change" is required, which is not realistic in tropical regions. A qualitative assessment of the reservoir vulnerability to GHG

emissions is at this point in time and most probably also in the next few years is the maximum that can be required.

- The effectiveness measures are not very insightful for single-purpose projects with no ability to be used for multi-purpose.
- In general how shall we deal with emerging concepts such as GHG emissions when most projects might have nothing in place? Shall such concepts be handled as voluntary "additionality" in conducting such inventory? What about transition periods for such emerging concepts, e.g after a certain period of time it will be scored? In a number of trials, scoring GHG seemed premature in the absence of solid science (Keeyask and Wuskwatim, Shuibuya, Sinop, Teesta V).

#### Recommendations

- The Stakeholder Support and the Consultation attributes are not needed in this aspect.
- Provide definitions in the glossary or guidance notes to clarify the distinctions between "basin", "catchment" and "reservoir".
- For the Conformance with Plans and the Compliance attributes, change the reference to guidance notes in brackets.
- This aspect should always be considered relevant since even very small reservoirs associated with run-of-river projects can have issues that need to be addressed (Teesta V).
- If applied as it is, almost all projects would have high risk of GHG emissions. A baseline comparison of GHG emissions should be with alternative means of generation.

### Environmental Flows & Downstream Sustainability (Sections II, III, IV)

#### Difficulties or Issues

- There is the question of the definition of project affected area. In case of pumped storage, there may be no impacts on fish in one basin. However the lower lake is embedded in a larger river basin, where flows and downstream sustainability could become an issue.
- The aspect name is somewhat misleading and does not seem to match the intent, which is broader than environment.
- This aspect seems to imply that scientific studies are required for all operating projects where no issues are being raised with respect to downstream flows (Teesta V).
- It is not always clear where environmental flow should be measured – at the dam or diversion or at some point downstream? In the case of Teesta V, for example, there is considerable seepage and side channel input of flows which considerably augment the committed flow release at the dam.
- At the Akosombo trial there were uncertainties with the Assessment and Management attributes on how to proceed with scoring in cases where you find loose cascades (i.e. not immediately joined).
- The Draft Protocol wording is too prescriptive by suggesting that natural flows are the approach that should be in place.

### Recommendations

- The Stakeholder Support attribute is not needed in Section II. In Sections III and IV, the Stakeholder Support and the Consultation attributes are not needed.
- Rename this aspect to 'Flow Regimes' or to 'Downstream Flows'.
- Provide better guidance on how to deal with this aspect for older projects where no issues are apparent for the downstream flow regimes.
- Provide better guidance on the acceptance of zones of impact (very low flow or no flow) for the project, as zones of impact are an accepted norm for most large infrastructure projects.
- For the Effectiveness attribute, what does "objectives" mean in this context? "Objectives" need to be agreed in plans and monitoring systems, but this could be handled under the Conformance with Plans attribute. Clear guidance is needed in this context.
- Proposed questions: Is there a process in place that evaluates environmental flows, and is it verifiable?