

# **Karahnjukar 690 MW HEP, Iceland**

## **Hydropower Sustainability Assessment Protocol**

### **Partial Trial Assessment**

#### **Assessment Team and Owner's Representative**

Ragnheidur Olafsdottir, Environmental Manager at Landsvirkjun, Iceland. In charge of the “Sustainability Initiative” for the Karahnjukar Project in Iceland.

Sigurdur Arnalds, Director of Energy at Mannvit Engineering, Iceland. Former Project Manager for the EIA/SIA/Planning process for the Karahnjukar Project and subsequently in charge of Public Relations for the Project during construction. Member of IHA Reference Group for the HSAF Protocol.

Gunnar Gudmundsson, Consultant at 7.is, Iceland. Consultant to Landsvirkjun on Management Systems and introduction of ISO standards. Auditing experience.

Gudni Johannesson, Director General of Orkustofnun (National Energy Authority), Iceland. Member of the HSAF - observer.

#### **Trialling Report Part 1 – Introductory Information**

##### **Company**

Landsvirkjun (the National Power Company), Iceland. Landsvirkjun is State owned and is the main producer of electricity in Iceland, mainly hydroelectric but also geothermal. Total installed power is around 2000 MW. See [www.lv.is](http://www.lv.is).

##### **Project**

Karahnjukar 690 MW HEP, see also [www.karahnjukar.is](http://www.karahnjukar.is). The project is located in East Iceland and is primarily built by Landsvirkjun to provide power to an aluminium smelter owned by Alcoa, USA.

##### **Current Status of Project, and Protocol Section Applied**

The Karahnjukar Project underwent thorough consultation during the EIA, SIA and Planning processes during 2000 and 2001. Construction started in 2002, operation commenced in 2007 and all works were completed in 2009. A special “sustainability initiative” was initiated in 2004 to identify with a broad range of stakeholders the main concerns and establish indicators for future monitoring of sustainability aspects (see [www.lv.is](http://www.lv.is)).

The trial applied Section II as the main reference but the other sections were also considered with regards to commenting.

## **Motivation for and Purpose of Assessment**

Landsvirkjun has previously participated in assessments for two projects using the earlier version of the Protocol (version July 2006), the Karahnjúkar 700 MW HEP in East Iceland, then under construction, now in operation, and Blanda 150 MW HEP in North Iceland, in operation since the early nineties.

The Karahnjúkar assessments were in accordance with Section B (New Hydro Projects), one internal self assessment and one made by DNV, Norway. The Blanda assessment was in accordance with Section C (Operating Hydropower Facilities) and was made as a part of a University of Cambridge thesis by Mr Pravin Karki, ex-staff of IHA.

The previous version was not considered to be overly complex and time consuming to apply but several comments and questions were raised.

The latest version of the Draft Protocol was reviewed through partial test assessment by the team listed above with the purpose of evaluating the changes from the previous version and identifying main concerns for the new version being developed.

## **Disclaimers and Confidentiality Agreements, if any**

Not required.

## **Schedule of the Assessment**

All the participants had previously frequently visited the Project Site.

The partial trial assessment was performed as a desk study at the Landsvirkjun Head Office on several part day meetings in late November 2009.

## **Trialling Report Part 2 – Assessment Results from the Draft Protocol Trial – General**

### **Objectivity and replicability.**

*How robust do you feel the Protocol is in terms of assessment teams arriving at consistent and unbiased results?*

As is now, the guidance is very general and leaves much to objectivity. For each aspect the auditor needs an improved description of what makes the aspect score high or score low.

We feel that 3 should represent "Good Practice" meaning that all legal and regulatory requirements are met as well as the quality and management standards of the project owner.

It is very important that the score of 5, considered to be "Best Practice", is achievable for projects by all companies that have the ambition and quality performance to do so.

### **Understandability.**

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

As mentioned by the WWF representative (J. Hartmann) during his presentation of the Draft Protocol at the Hydro conference in Lyon recently, statements are better understood if they are phrased as simple questions. Auditors operate on answers to questions.

The English phrasing of the protocol is pretty sophisticated for a person who is not from an English speaking community. This is solved by translations, but all the same the original English version should be simple to read.

To take one example, it needs more than one round of reading for a Scandinavian language person to understand the following long sentence on Integrated Programme Management: “The intent is that the developer efficiently manages the interfaces and feedback loops across the various project components so that one does not progress at the expense of another, and that internal and external programme communications support the efficiency of managing the intercomplexities of the overall project implementation”.

### **Scope and comprehensiveness.**

*Do you feel the Section includes the right aspects? Which issues did the assessment team encounter that are not covered in the protocol, or that are duplicated unnecessarily?*

The current version of the Protocol is a radical modification to the previous version (July 2006), which had been tested by our company. We feel that this version is ambitious and now includes more topics in the attempt to reach an agreement with a broader circle of interest. As a consequence, the Protocol has expanded and it is currently in our opinion too complex to fulfil the requirement to be a practical assessment tool. As priority, Section II should be made more simple and easy to use and in the continuation it should be easy to modify the other Sections.

Suggestions for simplifications are made under “Ease of use” below.

### **Ease of use.**

*How practicable do you feel the Protocol is as an assessment tool? Is any information required to apply the Protocol not available or only with undue cost or effort?*

It should be aimed at to reduce the number of aspects, either by eliminations or merging. It should be looked at very closely which aspects really are important for each section, considering the actual stage of the project. For each aspect, there are too many attributes and sub-attributes, which is confusing and overwhelming and results in the loss of focus on the most important points. A maximum of 2 - 3 attributes should apply to each aspect with a clear focus on what matters most.

During the preparation phase of the project (Section II) the focus is on “Assessment” and “Effectiveness”, while during construction (Section III) and operation (Section IV) the focus is

on the “Management” of the construction and operation and “Compliance” (with regulations) and “Conformance with plans” (goals, targets etc.).

“Consultation” and “Stakeholder support” is very difficult to assess aspect by aspect and these attributes only apply to a few aspects. Consultation for a project is in our experience performed on the project as a whole through reports, project web, community meetings, stakeholder meetings etc.

Support of stakeholders is very difficult to assess and document, except when agreements are made. For most of the aspects, evaluation of this attribute is very difficult as documentation would not be available for an auditor. For the Karahnjukar Project, Gallup surveys on general project support were made on a national and regional basis but does that reflect “stakeholder support”?

There are opportunities to combine aspects in the different sections e.g. by considering the relative importance of aspects at different stages of a project. It is also felt that some overlapping of aspects occurs. We see some of the opportunities and the reasoning as follows:

Examples for Section II:

- During the preparatory phase, very limited purchasing takes place with the exception of engineering and research. Construction has not started with the eventual exception of some infrastructure. Therefore aspects 10 (Integrated Programme Management & Communications), 11 (Construction Management) and 12 (Procurement) can be merged.
- We do not have the experience of issues with indigenous people but we do not see the reason why Aspect 15 (Indigenous People) is not a part of Aspect 14 (Project Affected Communities). In fact the communities are also dealt with in a SIA (Aspect 13) and could even be included there.
- Aspect 18 on Labour and working conditions appears to be premature since construction has not started.
- Benefit sharing can be a part of another aspect, as benefits are addressed as part of Economic Viability (5) and SIA (13).

Section III:

When the implementation or construction phase has been reached, various assessments and regulatory issues have been dealt with.

- Economic Viability (2) and Financial Viability (3) can be united into one aspect.
- Regulatory approval (6) would be an ongoing monitoring of compliance and can be part of Public Sector Governance (4) and Corporate Governance (5) as one aspect.
- Again, Benefit Sharing (14) is odd as a separate aspect, particularly during construction.
- Again, Indigenous People (12) are Affected Communities (11).

- Catchment Management (20), Reservoir Management (21) and Environmental Flows & Downstream Sustainability (22) have a more reasonable proportional weight as one aspect in this Section.

#### Section IV:

Considerable merging is possible in light of the fact that many of the aspects are history. During operation the common goal of a respectable operator is to conform and comply and in general to be a valuable part of the community with good relations to stakeholders.

#### **Impact and effectiveness.**

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

The proposed protocol is very ambitious and attempts to provide a universal approach. The usefulness of such a concept is great and a global approach is attractive in the current energy situation. However it is not easy to use. It is very demanding for auditors, on the verge of the impossible for producing comparable results. At least it would require extensive training and collaboration to ensure fairly uniform results.

The Protocol must resolve conflicting goals:

- Be abstract enough to provide open framework for different situations
- Be focused to provide a uniform results and ease of use

In spite of impressive work the second goal does not seem to have been achieved. The model as a whole is too extensive and complex. There are too many attributes and aspects. Guidelines for rating or scoring of aspects are in many cases not sufficient.

A score of 3 is intended to reflect “basic good practice”. A score of 5 reflects “best practice”. The references for scoring or benchmarks are vague.

#### **Applicability to a range of scale and regions.**

*Did the assessment team identify any special problems in applying the Protocol in relation to project scale, region, developed versus developing economy, type of project, etc? How did the assessment team make its scoping decisions with respect to aspect relevance, and considerations relevant to project context or scale?*

Since the Protocol is currently very comprehensive, we do not feel that important points are missing, rather that eliminations and combinations should be made. In some parts of the world or at different sites, some of the aspects do not apply, and it is important that such non-applicability does not reflect negatively in the scoring.

### **Adequacy of implementation guidance.**

*How did you find the introductory section and the auditing guidance notes? Where would additional implementation guidance be helpful to the assessment teams?*

For an auditor, more specific guidelines would improve the model, focused on the actual aspects of each section.

Data collection checklists could be provided with the assessment protocol. That would provide further guidance on the characteristics of the aspects and help establish proof of the information received.

It would be advisable that persons with auditing experience would refine the Protocol before it is launched.

### **Presentation of Results.**

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

If it is not intended that the final result is a single average or total figure, a single graphical presentation remains as an option. It is important that the presentation is easy to understand by everyone without special skills. There are many possibilities, one is a radar chart (wind-rose, spider chart, polar chart) which gives a single visual impression for a quick comparison of results for different projects.

## **Trialling Report Part 3 – Assessment Results from the Draft Protocol Trial – Aspect by Aspect**

The trial resulted in general comments on the Protocol as shown above under Part 2.