

 <p style="text-align: center;">CDM Project Activity Registration and Validation Report Form <i>(By submitting this form, designated operational entity confirms that the proposed CDM project activity meets all validation and registration requirements and thereby requests its registration)</i></p>	
Section 1: Request for registration	
Name of the designated operational entity (DOE) submitting this form	SGS United Kingdom Ltd.
Title of the proposed CDM project activity (Section A.2 of the attached CDM-PDD) submitted for registration	Hapugastenne and Hulu Ganga Small Hydropower Projects
Project participants (Name(s))	1. Eco Power (Private) Ltd (EPL) 2. Sri Lanka 3. The Netherlands through the International Finance Corporation
Sector in which project activity falls	1 Energy industries (renewable - / non-renewable sources) 1.D Renewable Electricity Generation for a Grid.
Is the proposed project activity a small-scale activity?	<u>Yes</u> / No (underline as applicable)
Section 2: Validation report	
List of documents to be attached to this validation report (please check mark):	
<input checked="" type="checkbox"/> The CDM-PDD of the project activity <input checked="" type="checkbox"/> An explanation by the submitting designated operational entity of how it has taken due account of comments on validation requirements received, in accordance with the CDM modalities and procedures, from Parties, stakeholders and UNFCCC accredited non-governmental organizations; <input checked="" type="checkbox"/> The written approval of voluntary participation from the designated national authority of each Party involved, including confirmation by the host Party that the project activity assists it in achieving sustainable development: <input checked="" type="checkbox"/> (Attach a list of all Parties involved and attach the approval (in alphabetical order)) Host Party: <input checked="" type="checkbox"/> Sri Lanka Other Parties involved: <input checked="" type="checkbox"/> Netherlands <input checked="" type="checkbox"/> Other documents, including any validation protocol used in the validation <input checked="" type="checkbox"/> (comprehensive list of documents attached clearly referenced) <input checked="" type="checkbox"/> List of persons interviewed by DOE validation team during the validation process <input checked="" type="checkbox"/> Any other documents. Please refer to list of documents attached.	

- ☒ Information on when and how the above validation report is made publicly available.
- ☐ Banking information on the payment of the non-reimbursable registration fee.
- ☒ A statement signed by all project participants stipulating the modalities of communicating with the Executive Board and the secretariat in particular with regard to instructions regarding allocations of CERs at issuance

Executive Summary and Introduction, including

- **Description of the proposed CDM project activity**
- **Scope of validation process (include all documentation that has been reviewed and name persons that have been interviewed as part of the validation, as applicable)**
- **DOE Validation team (list of all persons involved in the validation, describing functions assumed in the validation)**

Description of the proposed CDM project activity

This project proposes to establish four small hydropower plants with a combined capacity of 13.15 MW. To qualify as a small scale CDM project a maximum output capacity equivalent of up to 15 megawatts is allowed.

Baseline Scenario:

Under the baseline scenario the Ceylon Electricity Board forecasts an addition of 2,690 MW in installed capacity between 2002 and 2016. The generation expansion takes into consideration contributions from existing and committed power facilities, and identifies additional capacity needs to meet future energy demands at the least possible generation costs, consisting mainly of thermal power plants. No small hydro is considered in CEB's expansion plan.

With-project scenario:

Installation of four small run-of-river hydropower plants. The electricity will be sold to the CEB through a standard power purchase agreements available to all renewable energy based power generators under 10MW, including small hydropower. Operation of the four small hydropower plants will result in a displacement of electricity from the highest marginal cost thermal power stations.

Leakage:

No leakage is anticipated.

Environmental and social impacts:

The project is not expected to result in any negative environmental impacts.

For social impacts the project is expected to result in opportunities for job creation.

Scope

The scope of the validation is the independent and objective review of the project design document, the baseline study and monitoring plan and other relevant documents of the Hapugastenne and Hulu Ganga Small Hydropower Projects. The information in these documents is reviewed against the criteria defined in the Marrakech Accords (Decision 17) and the Kyoto Protocol (Article 12) and subsequent guidance from the CDM Executive Board.

The validation is not meant to provide any consulting towards the Client. However, stated requests for clarifications and/or corrective actions may provide input for improvement of the project design.

Overview of documentation that has been reviewed and names of persons that have been interviewed as part of the validation

Please refer to Annex 2

DOE Validation team

Name	Role
Irma Lubrecht	Team leader / lead assessor
Dedigamage Dharmadasa	Local assessor
John Miles	Technical reviewer

Description of methodology for carrying out validation

- Review of CDM-PDD and additional documentation attached to it
- Assessment against CDM requirements (e.g. by use of a validation protocol)
- Report of findings by the DOE, e.g. by use of type of findings (e.g. corrective action requests, clarifications or observations). Please explain the way findings are "labelled" during validation.
- Include statements or assessments in the section "Conclusions, final comments and validation opinion" below.

Review of CDM-PDD and additional documentation

The validation is performed primarily as a document review of the publicly available project documents. The assessment is performed by trained assessors using a validation protocol.

In general, a site visit might be required to verify assumptions in the baseline. Sometimes additional information is required to complete the validation, which may be obtained through telephone and face-to-face interviews with key stakeholders (including the project developers and Government and NGO representatives in the host country). These may be undertaken by the local SGS affiliate.

In case of this project, a site visit has been conducted and the results of this visit are summarized in Annex 6 to this report.

Assessment against CDM requirements

The validation protocol used for the assessment is partly based on the templates of the IETA / World Bank Validation and Verification Manual and partly on the experience of SGS with the validation of CDM projects. It serves the following purposes:

- it organises, details and clarifies the requirements the project is expected to meet; and
- it documents both how a particular requirement has been validated and the result of the validation.

The validation protocol consists of several tables. The different columns in these tables are described below.

Checklist Question	Means of verification (MoV)	Comment	Draft and/or Final Conclusion
<i>The various requirements are linked to checklist questions the project should meet.</i>	<i>Explains how conformance with the checklist question is investigated. Examples of</i>	<i>The section is used to elaborate and discuss the checklist question and/or</i>	<i>This is either acceptable based on evidence provided (Y), or a Corrective Action Request (CAR) due to non-compliance with the</i>

	<i>means of verification are document review (DR) or interview (I). N/A means not applicable.</i>	<i>the conformance to the question. It is further used to explain the conclusions reached.</i>	<i>checklist question (See below). New Information Request (NIR) is used when the validation team has identified a need for further clarification.</i>
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The completed validation protocol for this project is attached as Annex 4 to this report

Difference between large scale and small scale projects and how this has influenced the methodology

This project is developed as a small scale CDM project. Small scale CDM projects have different requirements related to the project design. These include, among others, the use of the simplified baseline and monitoring methodologies specified for the project category and the use of the Simplified PDD for Small-Scale CDM Project Activities

Although the validation process is similar for small scale and large scale project, there are some different requirements related to the validation. The validator will need to ensure that the project complies with one of the small-scale project categories and qualifies to employ the baseline and monitoring methodology of this project category. Extra questions are added to the validation protocol taking into account the specific requirements for small scale projects.

Report of findings and use of type of findings.

As an outcome of the validation process, the team can raise different types of findings

In general, where insufficient or inaccurate information is available and clarification or new information is required the Assessor shall raise a **New Information Request (NIR)** specifying what additional information is required.

Where a non-conformance arises the Assessor shall raise a **Corrective Action Request (CAR)**. A CAR

is issued, where:

- I. mistakes have been made with a direct influence on project results;
- II. validation protocol requirements have not been met; or
- III. there is a risk that the project would not be accepted as a CDM project or that emission reductions will not be verified.

The validation process may be halted until this information has been made available to the assessors' satisfaction. Failure to address a NIR may result in a CAR. Information or clarifications provided as a result of an NIR may lead to a CAR.

Observations may also be raised which are for the benefit of future projects and future verification or validation actors. These have no impact upon the completion of the validation or verification activity.

Corrective Action Requests and New Information Requests are raised in the draft validation protocol and detailed in a separate form (Annex 4). In this form, the Project Developer is given the opportunity to "close" outstanding CARs and respond to NIRs and Observations.

Explanation by the submitting designated operational entity of how it has taken due account of comments on validation requirements received, in accordance with the CDM modalities and procedures, from Parties, stakeholders and UNFCCC accredited non-governmental organizations;

- **Description of how and when the PDD was made publicly available**
- **Description of how comments were received and made publicly available**
- **Explanation of how due account has been taken of comments received**
- **Compilation of all comments received (Identify the submitter)**

In accordance with the CDM modalities and procedures, the project design document of this proposed CDM project activity has been made publicly available and comments have been invited from Parties, stakeholders and UNFCCC accredited non-governmental organizations. This process is described in Annex 1 to this report which is available as a separate document.

Conclusions, final comments and validation opinion

- Provide conclusions on each requirement under paragraph 37 of the CDM modalities and procedures, describing how these requirements have been met. This shall include assessments and findings (e.g. corrective action requests, clarifications or observations) in relation to each requirement, including a confirmation that all issues raised have been addressed to the satisfaction of the DOE.
- Final comments and validation opinion

Participation requirements

Host Party: Sri Lanka is listed as the host Party. Sri Lanka has ratified the Kyoto Protocol 3rd September 2002. The DNA for Sri Lanka is the Ministry of Environment and Natural Resources.

A Letter of Approval was submitted to the validator but appeared to not to be in accordance with the guidance from EB17 and a new LoA was submitted 16th May 2005. This LoA was found to be satisfactory.

Annex I party: The Netherlands represented by its Ministry of Housing, Spatial Planning and the Environment acting through the International Finance Corporation, in its individual capacity and as a Trustee of the IFC-Netherlands Carbon Facility (INCaF). At time of the draft validation, no Letter of Approval from the Annex I Party had been provided. Consequently CAR 1 was raised.

A Declaration of Approval and a Letter of Authorisation have been provided by the Dutch Ministry of Housing, Spatial Planning and the Environment on 25th May 2005. CAR 1 has been closed out.

Eligibility as a small scale project activity

The project consists of four small-scale run-of-river hydropower plants with a combined capacity of 13.15 MW and an expected output of 56.7 GWh/y.

This activity confirms with category 1.D Renewable electricity generation for a grid. This category comprises renewable energy generation units that supply electricity to an electricity distribution system that is or would have been supplied by at least one fossil fuel or non-renewable biomass fired generation unit.

To qualify as a small-scale project as defined in paragraph 6 (c) of decision 17/CP.7 on the modalities and procedures for the CDM the project activity must meet the following criteria:

- Renewable energy project activities with a maximum output capacity equivalent of up to 15 megawatts (or an appropriate equivalent);
- Energy efficiency improvement project activities which reduce energy consumption, on the supply and/or demand side, by up to the equivalent of 15 gigawatt/hours per year;
- Other project activities that both reduce anthropogenic emissions by sources and directly emit less than 15 kilotonnes of carbon dioxide equivalent annually;

The capacity of the hydropower plant is 13.15 MW and therefore fully eligible as a small-scale project.

The UNFCCC website does not show another registered project with the same characteristics. Therefore, this project is not considered a debundled component of a larger activity.

No engineering details have been provided for the project design so it is not possible to assess whether it reflects current good practices. A clarification request was issued.

Baseline and monitoring methodology

The project activity is the installation of four small run-of-river hydropower plants with a combined capacity of 13.15 MW and an expected output of 56.7 GWh/y. All electricity produced will be sold to

the Ceylon Electricity Board (CEB). The project has installed only new equipment. Project boundaries are consistent with the physical site of the power plant. Coordinates of the power plants have been provided. The project activity meets the applicability criteria listed in methodology AMS I.D.

The baseline is expansion of power generation by (mainly) thermal power plants to cover the increase in energy demand. The generation expansion plan takes into account contributions from existing and committed power facilities, and identifies additional capacity needs to meet future energy demand at the least possible cost. There is no analysis why this is the most likely scenario and no other scenarios are considered. CAR 2 was raised. The revised version of the PDD contains a discussion of uncertainties and alternatives in defining the baseline in chapter B.5. CAR 2 has been closed out.

In the methodology, the simplified baseline is the kWh produced by the renewable generating unit multiplied by an emission coefficient calculated in a transparent and conservative manner as:
(a) the average of the "approximate operating margin" and the "build margin".

The simplified methodology does not foresee in calculation of project emissions. According to the methodology, leakage calculation is only required if the energy generating equipment is transferred from another activity or if the existing equipment is transferred to another activity. Still, a NIR (3) has been raised to highlight the fact that no project emissions have been calculated. In the revised version of the PDD, section E.1.2 contains an estimation of construction-related emissions, including diesel engines used on-site combined with diesel trucks transporting materials and equipment to the project sites. These project emissions have been reviewed and were found to be satisfactory. NIR 3 has been closed out.

Emission reductions for the total project are calculated as the difference between baseline emissions and project emissions.

No uncertainties in the baseline emissions have been assessed. CAR 5 was raised. The PDD baseline emissions calculations are based on Appendix B of the Simplified Modalities and Procedures for Small-Scale CDM project activities. Page 9 of Appendix B states how to calculate baseline emissions based on the weighted average of current thermal power plants serving the grid combined with the build margin of all recently added facilities. There is therefore no uncertainty in the emissions calculation per se.

Baseline uncertainties are addressed in Section B of the PDD which discusses alternative baseline scenarios. The basic conclusion of that analysis is that if the expansion plan were to be realized as foreseen, the addition of coal power plants in the future would drive emissions up, a change that is not accounted for in our calculations. Similarly, our calculations do not account for possible delays in the expansion plan which would also increase emissions because of longer reliance on the oldest, least efficient thermal power plants in the system. The calculations in the PDD therefore represent a conservative estimate of probable future carbon emissions offsets. CAR 5 has been closed out.

Additionality

The PDD identifies that the projects are additional since the CEB power expansion plan excludes hydropower projects less than 15MW. CEB controls access to, terms for power production and payment in Sri Lanka and as such limits the access of small-scale hydropower projects to access the market and introducing an investment barrier.

According to simplified methodologies, project participants shall provide an explanation to show that the project activity would not have occurred anyway due to at least one pre-defined barrier.

PDD identifies a number of options for the project participants and identifies an investment risk barrier, low market penetration/uncommon practice barrier and a barrier related to uncertainties in

power purchase agreement conditions.

No alternatives to the project activity have been identified. There are no legal restrictions on the identified alternatives or the project activity (confirmed by local assessor).

Monitoring plan

Monitoring shall consist of metering the electricity generated by the renewable energy. This monitoring methodology is in line with the monitoring methodology mentioned in category I.D. The data monitored in combination with an emission factor will give the opportunity to calculate the achieved emission reductions.

The monitoring plan for the project activity meets the applicability criteria for the simplified methodology.

The monitoring plan does not cover procedures and responsibilities. Consequently CAR 3 was raised. The revised version of the PDD includes a section in D.3 where additional information on monitoring procedures and responsibilities can be found. The additional information was found to be satisfactory. CAR 3 has been closed out.

Environmental Impacts

The project will replace electricity that would otherwise be generated by the most expensive thermal power plants. It is not expected to create adverse environmental or social effects.

The project will result in the following environmental and social benefits:

- Additional employment during construction and operation of the plants;
- New roads;
- During construction various additional work will be undertaken beneficial to the local communities;
- Annual budget for community development after commissioning of the plants; and
- Decrease in fuel imports.

Local assessor confirmed that all benefits described above are true. Further, it was observed that Sri Lankan Rupees 200,000 /- has been allocated for community development for each project. All projects inspected are in line with relevant legislations and plans. Environmental approvals for all projects have been verified.

Comments by local stakeholders

Local stakeholders have been consulted although no overview has been provided. CAR 6 was raised. The SGS local assessor responded that a meeting was held on 30th June 2003. Villagers attended this meeting. Project developer has consulted local stakeholders at various points of the development of the project.

CAR 6 has been closed out.

No summary has been provided but a statement that comments received were generally positive. CAR 7 was raised. Detailed information on the stakeholder consultations is available with the operator, EPL. The local assessor has been able to review the comments and confirmed that these comments were positive. CAR 7 has been closed out.

Satisfactory evidence was provided how stakeholder comments have been invited. CAR 8 has been closed out.

Other requirements

During the assessment, it was concluded that changes had been made to the CDM small-scale Project Design Document format: not all headings are according to the format (e.g. A.4.5 and B.3). A new PDD has been submitted to the validator and is in accordance with the SSC CDM PDD format.

The calculations are documented in a complete but not transparent way since not all calculations are correct, e.g. the values in Table 2 do not add up to the figures presented. Commission dates in Table 3 and Table E2 are not the same. Table E2 contains mistakes, e.g. in the calculation of J and therefore also in N and O. CAR 4 was raised. All discrepancies in figures have been addressed. Regarding the commission dates of older power plants, the discrepancy is related to the fact that these plants came on line in stages of power output over 1-3 years. Table E2 calculations are now corrected as well. The only error in "J" involved the Lakhdanavi diesel plant which was not linked to other table data. CAR 4 has been closed out.

No engineering details have been provided for the project design so it is not possible to assess whether it reflects current good practices (NIR 1). Our local assessor undertook a random examination of all of these drawings and confirms that best practises have been followed in the design of the projects. Details have been provided in the Annex 4 – Validation Protocol. NIR 1 has been closed out.

The project is not expected to result in a technology transfer to the host country (NIR 2).

Final comments and validation opinion

Steps have been taken to close out 10 findings. All findings have been closed out. On the basis of these findings, this report provides the justification for the recommendation of an Unqualified Validation Opinion. The Technical Reviewer has agreed to these findings.

The Validation Opinion is based on the current and emerging rules surrounding Article 12 of the Kyoto Protocol.

The DOE declares herewith that in undertaking the validation of this proposed CDM project activity it has no financial interest related to the proposed CDM project activity and that undertaking such a validation does not constitute a conflict of interest which is incompatible with the role of a DOE under the CDM.

By submitting this validation report, the DOE confirms that all validation requirements are met.

All validation requirements are met.

Name of authorized officer signing for the DOE

Date and signature for the DOE

27-06-2005 Irma Lubrecht

Section below to be filled by UNFCCC secretariat

Date when the form is received at UNFCCC secretariat

Date at which the registration fee has been received

Date at which registration shall be deemed final

Date of request for review, if applicable

Date and number of registration	Date	Number