


**F-CDM-REG**

 <p align="center"><b>CDM Project Activity Registration and Validation Report Form</b> <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>	
<b>Section 1: Request for registration</b>	
<b>Name of the designated operational entity (DOE) submitting this form</b>	SGS United Kingdom Ltd.
<b>Title of the proposed CDM project activity (Section A.2 of the attached CDM-PDD) submitted for registration</b>	Switching fossil fuels in an industrial facility by Indorama Cement Limited
<b>Project participants (Name(s))</b>	Indorama Cement Limited
<b>Sector in which project activity falls</b>	1. Energy industries (renewable - / non-renewable sources)
<b>Is the proposed project activity a small-scale activity?</b>	<u>Yes</u> / <del>No</del> (underline as applicable)
<b>Section 2: Validation report</b>	
<b>List of documents to be attached to this validation report (please check mark):</b>	
<p><input checked="" type="checkbox"/> The CDM-PDD of the project activity</p> <p><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;</p> <p><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:</p> <p style="padding-left: 40px;"><input type="checkbox"/> (Attach a list of all Parties involved and attach the approval (in alphabetical order))</p> <p><input checked="" type="checkbox"/> Other documents, including any validation protocol used in the validation</p> <p style="padding-left: 40px;"><input checked="" type="checkbox"/> (comprehensive list of documents attached clearly referenced)</p> <p style="padding-left: 40px;"><input checked="" type="checkbox"/> List of persons interviewed by DOE validation team during the validation process</p> <p style="padding-left: 40px;"><input type="checkbox"/> Any other documents (list attached)</p> <p><input type="checkbox"/> Information on when and how the above validation report is made publicly available.</p> <p><input type="checkbox"/> Banking information on the payment of the non-reimbursable registration fee</p> <p><input checked="" type="checkbox"/> 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</p>	

**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**

The proposed CDM project activity is a fuel switch project in an industrial facility by Indorama Cement industry located in Village Khar kharvi, Taluka Pen, district Raigad in state of Maharashtra, India. The hot air is being generated in a hot air generator by using blast furnace gas as the fuel. The starting date of project activity was 12-02-2000 and the project has already commissioned and is in operation. The hot air generator is fitted with dual burner in which both Blast furnace gas (BFG) and LDO can be burned to generate hot air. The blast furnace gas is taken from nearby steel factory which is generating the blast furnace gas in its premises and it is being purchased by indorama cement limited. This generated hot air is used to dry the raw material purchased from out side. After drying the raw material is put in the process to make the cement.

Baseline Scenario:

The hot air generated by project activity using blast furnace gas would have otherwise been generated by using LDO in a hot air generator which is a fossil fuel and would have resulted in GHG emissions.

With Project Scenario:

The project activity is a fuel switch project which generates hot air in a hot air generator by using blast furnace gas as fuel. The project displaces the LDO that would have generated the GHG emissions. The blast furnace gas is taken from nearby steel factory which is generating the blast furnace gas in its premises and it is being purchased by indorama cement limited. The bills for the same are also seen by the local assessor and the copy of the same is also obtained.

Leakage:

No leakage is required as per methodology AMS IIIB version 9 dated 28<sup>th</sup> July 2006.

Environmental & Social Impacts:

According to local assessor, there is no negative environmental and social impact expected from the project activity. This was checked during site visit by meeting the local people of the village. The query were raised to the local villagers like how they came to know about the project activity and what are the benefits and negative impacts of the project activity. The villagers provided their feedback to the local assessor and based on the feedback received this was concluded by the local assessor that no negative comment reported. This is also mentioned in Annex1.

**Scope**

The scope of validation is the independent and objective review of the project design document, baseline study and monitoring plan and other relevant document of the switching fossil fuel in an industrial facility by Indorama Cement Limited at Village Khar kharvi, Taluka Pen, district Raigad in state of Maharashtra, India . The information in this document 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
Shivananda Shetty	Team Leader and Lead Assessor
Pankaj Mohan	Local Assessor
Irma Lubrecht	Technical reviewer
Sanjeev Kumar	Assessor

### 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 and interviews have been conducted and the results are summarized in Annex 7 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 a CDM project is expected to meet;
- It ensures a transparent validation process where the validator will document 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.

<i>Checklist Question</i>	<i>Means of verification (MoV)</i>	<i>Comment</i>	<i>Draft and/or Final Conclusion</i>
<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 means of verification are document review (DR) or interview</i>	<i>The section is used to elaborate and discuss the checklist question and/or the conformance to the question. It is further used to explain the</i>	<i>This is either acceptable based on evidence provided (OK), or a <b>Corrective Action Request (CAR)</b> due to non-compliance with the checklist question (See below). <b>New Information Request (NIR)</b> is used when the</i>

	<i>(I). N/A means not applicable.</i>	<i>conclusions reached.</i>	<i>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 5 to this report.

**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 also lead to a CAR.

**Observations** may 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 6). 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

The host Party for this project is India. India has ratified the Kyoto protocol on 26 August 2002. Initially, no Letter of Approval was provided and a CAR1 was raised. A Letter of Approval (F.No. 4/12/2006-CCC) dated 23<sup>rd</sup> August 2006, issued by the Indian DNA was provided subsequently.

The approval of the project was also verified from the original copy of LoA provided by Ministry of Environment & Forest, Government of India. Hence CAR1 was closed.

No Annex 1 Party has been identified in the PDD and therefore no further 'Letter of Approval' from an Annex I party was obtained. As registration of a CDM project activity can take place without an Annex 1 Party being involved at the stage of registration, this is not a mandatory requirement at this stage. However, it should be noted that before CER's can be transferred to an Annex I Party, a Letter of Approval should be submitted.

### Baseline and monitoring methodology

The project has applied the small scale methodology for Switching Fossil Fuels AMS - IIIB as per Appendix B of the simplified modalities and procedures for small-scale CDM project activities.

The applicability of methodology was checked by getting the IPCC document copy which clarifies that blast furnace gas is the derivative of fossil fuel and the applicability of methodology holds good and information on: <http://www.ipcc-nggip.iges.or.jp/public/gl/guidelin/ch1ri.pdf>.

The project is replacing LDO with blast furnace gas. The baseline emissions are calculated based on LDO saved by using blast furnace gas and the baseline emissions were calculated as per the approved methodology. The emission reduction was calculated on the saving of LDO and comes out to be 10600 tCO<sub>2</sub>eq annually. The database for the information regarding baseline calculations has been desk reviewed by the assessor to confirm that the emission reductions have been determined in accordance with the methodology described and there is no project emission.

The excel sheet was reviewed and the formula used were also checked and each figure calculated was questioned and after getting the satisfactory responses and verifying the references taken for calculations it was concluded that the emission reduction calculations are OK and determined in accordance with the methodology.

### Additionality

Technological barrier is used to demonstrate the additionality.

The technology used in the project activity is the hot air generator (HAG) with dual fired burner which can use both LDO and Blast furnace gas (BFG) as fuel. This is used for drying of raw material. The quantity and quality of blast furnace gas is not under the control of project proponent as it is being taken from steel industry nearby which is flaring the gas. This flaring has resulted in high emissions by the steel industry and the project proponent is using that blast furnace gas as fuel for the hot air

generator and reduced the emissions.

A CAR8 was raised to know about the investment barrier, technological barrier in which production loss was not quantified due to the quantity and quality of blast furnace gas and in barrier due to prevailing practices it was mentioned that it is the only plant of its kind in Maharashtra.

The project proponent replied by saying that the investment barrier was not due to the investment but due to the operational and technological barriers. This was accepted by seeing the PDD as this was not been referred for proving the additionality and PDD was rephrased.

The technological barrier quantification was replied by saying that indorama cement limited (IRCL) faced problem of stable and reliable combustion of BFG in hot air generator due to its low calorific value, presence of particulate matter in the gas, presence of moisture in BFG is carried over from the scrubbing system which further lowers its calorific value and also due to fluctuations in BFG pressure at HAG inlet. The BFG used is a secondary fossil fuel taken from steel plant and maintaining the combustion quality and quantity is beyond the control of IRCL. A monthly account of hours lost due to these problems was also provided and the production loss is the perceived production loss in the absence of alternative due to either non-availability or problems with BFG use. This was accepted as the hours lost report was received and the problems mentioned were also visible during site visit and above all the Project proponent considered that the CDM benefits will help in mitigating the risks involved with the project activity. The emission reductions are calculated only on the LDO saved by use of BFG by the project proponent in the project activity.

In barrier due to prevailing practices the evidence that it is the only plant in Maharashtra was replied by saying that the technological supplier has installed about 40 HAG and 20 are in cement plants and IRCL is the only plant which has provision to use BFG as fuel (refer to site mentioned as [http://www.coenbharat.com/installations/i\\_install.htm](http://www.coenbharat.com/installations/i_install.htm)). IRCL is the only PSC producing cement plant in state of Maharashtra. (The CMA website address <http://www.cmaindia.org/industry.html>) this was accepted after the documentary evidence and website addresses mentioned were reviewed and found to be in order.

After verifying all the documentary evidences and based on site visit the replies were accepted and hence CAR8 was closed out.

Based on the evidences, calculations and the findings above, it was concluded that the project activity was not a likely baseline scenario and hence additional to any which would have been used in the absence of project activity.

### **Monitoring plan**

The data to be collected in order to monitor emissions from the project activity is detailed in the project design document and the desk review showed that the monitoring plan is OK and the monitoring plan is following the approved methodology.

### **Environmental Impacts**

In order to ascertain whether the project activity results in any adverse environmental impacts, it was confirmed that project activity is having the consent to operate from Maharashtra Pollution Control Board (MPCB). EIA is not required as per law.

### **Comments by local stakeholders**

The list of stakeholders mentioned in the PDD was not clear and media used was also not mentioned so CAR2 was raised seeking clarification on the issue. Responding to CAR2, client informed that the

stakeholders include local people, gram panchayat and office of district authorities. Letters sent to the concerned and minutes of meeting were also provided. This was accepted after reviewing the rephrased PDD and obtaining copies of letters sent. Hence CAR2 was closed out.

A CAR3 was raised on the summary of stake holder comments which were not mentioned in the PDD clearly. The project proponent replied by saying that minutes of stakeholder consultation was given to DOE and also mentioned in PDD. This was accepted after reviewing the minutes of meeting dated 21-01-2006 and found to be OK. No negative comment was reported and the rephrased PDD was also reviewed. This was found to be OK hence CAR3 was closed out.

CAR4 was raised as there was no mention of how due account of comments received were taken. The project proponent replied by rephrasing the PDD and providing minutes of meeting of Stakeholder consultation. This was accepted after reviewing the rephrased PDD and no negative comments reported or seen by the local assessor during validation process. Hence CAR4 was closed out.

Stakeholder consultation process is not required by regulations/laws in the host country. The client obtained "Consent to establish and operate" from Maharashtra Pollution Control Board which is an indication of regulatory acceptance. The host country approval has been accorded to project activity by Ministry of Environment and Forests, the host country approval confirms that the project leads to sustainable development in India (annex4). These documents were desk reviewed and found to be OK.

#### **Other requirements**

The project was listed for comments on the UNFCCC website from 12/04/2006 till 11/05/2006 No comment was received during the subsequent period of web hosting.

A NIR5 was raised for technological specifications. The project proponent replied by telling that the technological specifications of hot air generator and allied systems have been provided to DOE. The documentary evidences of the technological specifications were received from project proponent and after reviewing and physical verification and site visit this was accepted and hence NIR5 was closed out.

A NIR6 was raised to ensure the training requirements for project activity. The project proponent replied by saying that training by the equipment supplier was provided to the plant personnel during erection and commissioning of the project plant. The training part is mentioned in purchase order provided by the project proponent and local assessor met the people who were trained by the equipment supplier. This was accepted and hence NIR6 was closed out.

A CAR7 was raised for project starting date. The project proponent replied by rephrasing the PDD. This was reviewed and found to be OK so CAR 7 was closed out.

#### **Final comments and validation opinion**

SGS has performed a validation of the project "Switching fossil fuels in an industrial facility by Indorama Cement Limited". The validation was performed on the basis of the UNFCCC criteria and host country criteria, as well as criteria given to provide for consistent project operations, monitoring and reporting.

Using a risk based approach, the review of the project design documentation and the subsequent follow-up interviews have provided SGS with sufficient evidence to determine the fulfilment of the stated criteria. In our opinion, the project meets all relevant UNFCCC requirements for the CDM and all relevant host country criteria. The project will hence be recommended by SGS for registration with

the UNFCCC.

SGS has received confirmation by the host Party that the project activity assists it in achieving sustainable development.

By utilizing blast furnace gas (BFG) for drying the raw material the project results in reductions of greenhouse gas emissions that are real, measurable and give long-term benefits to the mitigation of climate change. A review of the technological barrier, demonstrates that the proposed project activity is not a likely baseline scenario. Emission reductions attributable to the project are hence additional to any that would occur in the absence of the project activity. If the project is implemented as designed, the project is likely to achieve the estimated amount of emission reductions.

The validation is based on the information made available to SGS and the engagement conditions detailed in the report. The validation has been performed using a risk based approach as described above. The only purpose of this report is its use during the registration process as part of the CDM project cycle. Hence SGS can not be held liable by any party for decisions made or not made based on the validation opinion, which will go beyond that purpose.

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.

M. van der Linden

Name of authorized officer signing for the DOE

Date and signature for the DOE

25-10-2006



**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