

# VALIDATION REPORT



Document Prepared By

EPIC Sustainability Services Private Limited

<b>Project Title</b>	AAC Block/Panel Manufacturing unit at Krishna, Andhra Pradesh
<b>Version</b>	1
<b>Report ID</b>	ESSPL/VCS/2014/005

<b>Report Title</b>	AAC Block/Panel Manufacturing unit at Krishna, Andhra Pradesh
<b>Client</b>	Greenway Building Materials India Pvt. Ltd. (Service recipient) EnvironmentFirst Energy Services Pvt. Ltd. (Contractor cum invoice recipient) (Both parties are project proponents)
<b>Pages</b>	25
<b>Date of Issue</b>	18-July-2015
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<b>Summary:</b>
<p>EnvironmentFirst Energy Services Pvt. Ltd has engaged EPIC Sustainability Services Private Limited to undertake the validation of the project titled “AAC Block/Panel Manufacturing unit at Krishna, Andhra Pradesh” (hereinafter the project) under the VCS Standard Version 3.5, VCS Validation and Verification Manual version 3.1. The purpose of the validation is to perform an independent, third party assessment of whether the project activity confirms to the qualification criteria set in the VCS standard and related requirements to attain real, measurable, additional, and permanent emission reduction. The validation exercise was not meant to provide any consulting to the project participants. However, the stated requests for clarifications and/or corrective actions may provide input for improvement of the project design.</p> <p>The validation consisted of three phases;</p> <p>i) a document review of the project documents and preparation of validation protocol, ii) on-site visit to the project activity and interviews with the project developer and the project consultant, and, iii) resolution of outstanding issues and the issuance of final validation report and validation opinion</p> <p>The project activity involves construction of Autoclaved Aerated Concrete (AAC) block manufacturing unit replacing conventional fired (baked) clay bricks (baseline scenario) as construction material. The installed capacity of the plant at the end of complete implementation is 0.24 Million Cubic metre per year. The initial phase of 0.15 Million Cubic metre per year was commissioned on 1st August 2013 (Project start date) whereas expansion phase is expected to be completed soon. The proposed VCS project activity has correctly applied the baseline and monitoring methodology (AMS.III.Z Version 5.0). Coal used in the baseline scenario is replaced by rice husk in the project activity, which is related to the emission reductions. When fully implemented, the annual emission reduction by the project is 56,107 tCO<sub>2</sub>e. In summary, it is the opinion of EPIC that the proposed VCS project activity meets the relevant VCS Version 3 requirements and the estimated GHG reductions from the project would be real, measurable, permanent and additional.</p>

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## 1 INTRODUCTION

EnvironmentFirst Energy Services Pvt. Ltd has engaged EPIC Sustainability Services Private Limited (hereinafer referred to as EPIC) to undertake the validation of the project titled “AAC Block/Panel Manufacturing unit at Krishna, Andhra Pradesh” (hereinafter the project) under the VCS Standard<sup>/1/</sup> Version 3.5, VCS Validation and Verification Manual<sup>/1/</sup> version 3.1, CDM VVS 7.0<sup>/1/</sup>. This report describes the validation work undertaken.

### 1.1 Objective

The purpose of the validation is to perform an independent, third party assessment of whether the project activity confirms to the qualification criteria set in the VCS Version 3 standard to attain real, measurable, additional and permanent emission reduction. The validation statement / opinion is a written assurance that the project complies with all the applicable VCS requirements and has the ability to generate the emission reductions stated over the projects crediting period.

### 1.2 Scope and Criteria

The validation scope includes an independent and objective review of the Project VCS project description (PD), the project’s baseline study, monitoring plan and other relevant documents. Specifically, the objectives of the validation work involve:

To verify whether the project activity meets the requirements of VCS Version 3 standard<sup>/1/</sup> including additionality, proof of title and compliance with local laws. To assess whether the baseline and monitoring plan are in conformance with the methodology applied from the VCS approved GHG program. To certify that the information presented are complete, consistent, transparent and free of material error.

The Project Description was reviewed against VCS Version 3 standard and the VCS program guidelines and the applied CDM methodology, AMS.III.Z Version 5.0<sup>/2/</sup> (hereinafter referred to as applied meth). As per CDM website<sup>/2/</sup>, applied meth is valid upto 19<sup>th</sup> March 2016 for registration. EPIC has performed the validation based on a risk based approach focusing mainly on the significant risks to meet the qualification criteria and the ability to generate VCUs. The work carried out by EPIC is free from any conflict of interest.

### 1.3 Level of Assurance

In line with VCS Version 3 requirements and as per ISO 14064-3:2006 Para A.2.3.2, a reasonable level of assurance has been followed for the validation of the project. Based on the desired level of accuracy EPIC has established an internal quality control process and assures that the information given in the PD is materially correct and is a fair representation of the actual project details, and is prepared in accordance with the VCS requirements and the applied CDM methodology for information pertaining to additionality, GHG quantification, monitoring and reporting.

The validation report is carried out as per this requirement and details are presented in the Validation Statement in section 4 below:

## 1.4 Summary Description of the Project

The project activity involves construction of Autoclaved Aerated Concrete (AAC) block manufacturing unit replacing conventional fired (baked) clay bricks (baseline scenario) as construction material. The installed capacity of the plant at the end of complete implementation is 0.24 Million Cubic metre per year. The initial phase of 0.15 Million Cubic metre per year was commissioned on 1st August 2013 (Project start date) whereas expansion phase is expected to be completed soon. The coal used in the baseline scenario is replaced by rice husk in the project activity, which is related to the emission reductions. Annual emission reduction by the project is 56,107 tCO<sub>2</sub>e when fully implemented.

## 2 VALIDATION PROCESS

### 2.1 Method and Criteria

The validation process consists of the following phases:

- a document review of the project description and preparation of validation protocol;
- on-site visit to the project activity and interviews with project developer, project consultant; and relevant stakeholders
- resolution of outstanding issues and the issuance of final validation report and opinion.

In order to ensure transparency, a validation protocol was customised for the project according to the VCS Version 3 guidelines. The protocol describes criteria (requirements), means of verification, results from the validating and how the identified criteria, have been met in a transparent manner. The validation protocol serves the following purposes:

- it organizes, details and clarifies the requirements of a VCS 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 Appendix, where findings established during the validation were classified as non-fulfilment of validation protocol criteria or where risks to the fulfilment of project objectives were identified. Corrective Action Request (CAR) was issued, where:

- mistakes have been made that directly impact on the project results; or
- validation protocol requirements have not been met; or
- there was a risk that the project would not be accepted as a VCS project or that emission reductions will not be certified.

The validation team has also raised “Clarification” (CL), where additional information is needed to fully clarify an issue.

<b>APPENDIX : RESOLUTION OF CORRECTIVE ACTION AND CLARIFICATION REQUESTS</b>			
Draft report clarifications and corrective action requests by validation team.	Ref. to Section of the PD	Summary of project owner response	Validation team conclusion
If the conclusions from the draft Validation are either a CAR or CL, these should be listed in	Reference to the Section of the PD where the relevant CAR or CL is raised.	The responses given by the project participants during the communications with	This section should summarise the validation team’s responses and final

this section.		the validation team should be summarized in this section.	conclusions.
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EPIC has established an internal quality control process. A Technical Reviewer has been appointed to review the final draft validation report. The final draft report will also be tabled to the VCS Board after all findings have been resolved. After the completion of assessment by the validation team all the relevant documentation is submitted to a qualified, Independent Technical reviewer as part of EPIC' internal quality control system. A Technical reviewer team is appointed to review the draft final validation report (Draft FVR). The comments made by the Technical reviewer team are taken into consideration and incorporated in the final FVR. The technical reviewer team assesses whether all the reporting requirements have been fulfilled and whether all the issues raised were closed satisfactorily by the validation team with justification. The technical review process can also raise issues in this regard which is resolved further by the validation team to the satisfaction of the technical reviewer. The technical reviewer team either accepts or rejects the report made by the validation team. The final report (after resolutions of all findings) is then submitted to the Head-operations for review and approval.

## 2.2 Document Review

The first PD<sup>/3/</sup> version 1.0 submitted by the client and additional backgrounds documents related to the project design and baseline were reviewed as an initial step of the validation process. As a result of review and findings, PP had submitted the PD version 2.0<sup>/4/</sup> (hereinafter referred to as final version of PD). A desk review was further done to assess the following parameters:

1. Project details as per VCS PD template
2. Applicability and Appropriateness of methodology used
3. Compliance with relevance laws and regulation
4. Correctness of application of baseline and monitoring methodology
5. Demonstration of additionality
6. Monitoring Plan
7. Stakeholders' comment
8. Proof of title

A complete list of all the documents reviewed is attached to this report.

The following team members are involved in in the validation process.

Name	Role	Components reviewed
Mr. R. Vijayaraghavan	Lead Auditor	Completeness check, desk review, onsite inspection, Interview with project representatives & stakeholders, issuance of findings, report preparation
Mr. Arnab Deb	Auditor	Desk review, onsite inspection, Interview with project representatives, report preparation
Mr. G. Subramanyam	Technical Expert	Baseline, monitoring plan
Mr. A. Prabu Das Mr. R. P. Mohan	Technical Reviewer team	Technical Issues related to project

## 2.3 Interviews

After the review of the Project description and documents a site visit was carried out on 8<sup>th</sup> August 2014. During the site visit physical inspection of the project components followed by interviews with the on-site

personnel was carried out to verify the project details. A follow-up meeting was also conducted with the project representatives. The following persons were interviewed.

Name & Designation	Company	Details of Interview
Mr. Abishek Mazumdar Director	EnvironmentFirst	<p>Technical Details, Monitoring system, calibration frequency, Infrastructure. Loan Sanction Documents, Power Purchase Agreement, Land Ownership details, Purchase Order details, Overall Project management.</p> <p>Baseline, Additionality, Barrier analysis, CER calculations, Financial calculations, Proof of title.</p>

## 2.4 Site Inspections

After the review of the Project Description and documents, an on-site visit was carried out on 8<sup>th</sup> August 2014. During the site visit, the actual on-site practices adopted and followed for the operation of the project were compared with the description given in the PD. The process layout, energy consumption pattern, baseline, additionality and monitoring plan, calibration and level of accuracy were examined.

## 2.5 Resolution of Findings

The objective of this phase of the validation is to resolve the request for corrective actions and clarification and any other outstanding issues which needed to be clarified prior to the validation conclusion on the project design based on the site inspection and review of documents, such that the project activity meets the VCS Version 3.0 requirements. Four (14) Corrective Action Requests and twenty one (5) Clarification Requests were raised by the validation team and the same were resolved during communication between the client and the validation team. In order to ensure the transparency of the validation process, the concerns raised and responses that have been documented in Appendix of this report.

## 2.6 Forward Action Requests

No FAR raised in this validation process.

# 3 VALIDATION FINDINGS

## 3.1 Project Details

The Project identification, design & development and implementation were evaluated as per the requirements of VCS Version 3. The project activity involves construction of Autoclaved Aerated Concrete (AAC) block manufacturing unit in a greenfield replacing conventional fired (baked) clay bricks (baseline scenario) as construction material. The installed capacity of the plant at the end of complete implementation is 0.24 Million Cubic metre per year. The initial phase of 0.15 Million Cubic metre per year was commissioned on 1st August 2013 (Project start date) whereas expansion phase is expected to be completed in this year. The project is located in Paritala Village, Krishna District, Andhra Pradesh, India. Greenway Building Materials India Pvt. Ltd. (service recipient) and Environmentfirst Energy Services (P) Limited are the project proponents for this project activity. The proposed VCS project activity has correctly

applied the baseline and monitoring methodology (AMS.III.Z Version 5.0). By implementation of the project activity, the fossil fuel consumption under the hypothetical baseline scenario would be reduced which is related to the emission reductions. Annual emission reduction by the project is 56,107 tCO<sub>2</sub>e. The crediting period starts from 1<sup>st</sup> August 2013 to 31<sup>st</sup> July 2023.

The validation team has checked the technical specifications<sup>/5/</sup>, purchase orders of the major equipments and cross verified during the on-site visit. These were found to be correct and consistent. The location of the project activity was physically verified during validation site visit. During the on-site visit, the project supporting documents were verified. The validation team has reviewed the commissioning certificates<sup>/6/</sup> of the project activity. The validation team has checked all the statutory clearances<sup>/7/</sup> necessary for establishment and operation of the project such as no objection certificate from State Pollution Control Board, Licence for 'Establishment of work and factory' from State Commercial Tax office.

In line with the VCS requirements, proof of title of the individual investors was verified with the Purchase orders<sup>/5/</sup> and Commissioning certificates<sup>/6/</sup>. The project so far has not created any other form of environmental credit. But, the project will seek for registration under CDM separately in the near future. However, the VCUs revenue will be considered only for the period during which no CER benefits are claimed. The validation team has crosschecked the CDM website and GS website and found that this project is not webhosted or registered in CDM or GS.

To ensure that the environmental credits generated by the project are not double counted under VCS, an undertaking letter<sup>/8/</sup> was provided by the PP indicating that the project activity is not claiming other forms of GHG program. Even if the PP applies for CDM, the VCS credit will be terminated in such a way that no double counting is possible. The project has not been rejected under other GHG programme. The project meets the general requirements of VCS Version 3 with respect to project start date, project scope and crediting period according to clause 5.1, 5.2 and 5.3.

The validation team has also checked the VCS website<sup>/1/</sup> and found that the project was listed in the VCS pipeline on 14<sup>th</sup> July 2014 (Project ID: PL1342). The project status at the time of writing this report is 'Under validation' and EPIC being the validator.

## 3.2 Application of Methodology

### 3.2.1 Title and Reference

AMS III.Z. - "Fuel switch, process improvement and energy efficiency in brick manufacture" Version 5.0<sup>/2/</sup> (hereinafter referred to as applied meth)

### 3.2.2 Applicability

The below section details how the project activity fulfills the criteria of applied meth.

Applicability Criteria of the applied meth	Conclusion by the validation team
1. The methodology comprises one or more technology/measures listed below in brick production facilities: a) Shift to an alternative brick production technology/process; or	The project activity involves construction of Autoclaved Aerated Concrete (AAC) block manufacturing unit as construction material. Condition 'a' is complied with. Since AAC block can also be considered as brick in the context of

<p>b) Complete/Partial substitution of fossil fuels with renewable biomass (including solid biomass residues such as sawdust and food industry organic liquid residues); or c) Complete/partial substitution of high carbon fossil fuels with low carbon fossil fuels</p>	<p>the applied meth, the validation team has accepted. The compressive strength of the AAC block (3.5 N/mm<sup>2</sup>) is higher than that of baseline brick (3 N/mm<sup>2</sup>). Furthermore, it is confirmed that in the project region the most commonly used fuel in baseline brick manufacturing is fossil fuel (coal).</p> <p>Primarily, the project activity consists of process improvement. The validation team has understood that coal used in the baseline scenario wherein rice husk and electricity is used in the project activity. Hence it need not be considered as substitution of fossil fuels in the project activity, condition b or c are not relevant.</p>
<p>2.The measures may replace, modify, retrofit or add capacity to systems in existing facilities or be installed in a new facility.</p>	<p>The project activity is constructed in the greenfield facility where there is no existing brick manufacturing facility.</p>
<p>3. Complete or partial fuel substitution and associated activities may also result in improved energy efficiency of existing facility; however project activities primarily aimed at emission reductions from energy efficiency measures shall apply AMS-II.D “Energy efficiency and fuel switching measures for industrial facilities”. Thus, the methodology is applicable for the production of: a) Bricks that are the same in the project and baseline cases; or b) Bricks that are different in the project case versus the baseline case due to a change(s) in raw materials, use of different additives, and/or production process changes resulting in reduced use or avoidance of fossil fuels for forming, sintering (firing) or drying or other applications in the facility as long as it can be demonstrated that the service level of the project brick is comparable to that of the baseline brick (as per paragraph 11) Examples include pressed mud blocks (soil blocks) with cement or lime stabilization and other unburned” bricks that attain strength due to fly ash, lime/cement and gypsum chemistry.</p>	<p>The project activity is constructed in the greenfield facility where there is no existing brick manufacturing facility. Since there is no substitution of fossil fuels in the proeject activity, this condition is not relevant.</p>
<p>4. New facilities (Greenfield projects) and project activities involving capacity additions are only eligible if they comply with the requirements for Greenfield projects and capacity increase projects specified in the “General Guidelines for SSC CDM methodologies”.</p>	<p>General Guidelines for SSC CDM methodologies<sup>/9/</sup> version 21 (para 11) refers to the Project Standard<sup>/9/</sup> (version 9.0) requirement (Para 99). The annual emission reductions (56,107 tCO<sub>2</sub>e per year) from the project activity are less than 60 kt every year in the crediting period. Hence the necessary condition of the Project Standard (para 99) is satisfied.</p>
<p>5. The requirements concerning demonstration of the remaining lifetime of the replaced equipment shall be met as described in the General Guidance for SSC methodologies. If the remaining life time of the affected systems increases due to the project activity, the crediting period shall be limited to the estimated remaining</p>	<p>The project activity is constructed in the greenfield facility where there is no existing brick manufacturing facility and the project activity does not replacing any equipments. Hence this condition is not relevant.</p>

<p>lifetime, i.e, the time when the affected systems would have replaced in the absence of the project activity.</p>	
<p>6. For existing facilities, it shall be demonstrated, with historical data, that for at least three years immediately prior to the start date of the project implementation, only fossil fuels (no renewable biomass) were used in the brick production systems that are being modified or retrofitted. In cases where small quantities of biomass were used for experimental purposes this can be excluded.</p>	<p>The project activity is constructed in the greenfield facility where there is no existing brick manufacturing facility. Hence this condition is not relevant.</p>
<p>7. The biomass utilized by the project activity shall not be chemically processed (e.g. esterification to produce biodiesel, degumming and/or neutralization by chemical reagents) prior to the combustion but it may be processed mechanically (e.g. pressing, filtering)/thermally (e.g. gasification to produce syngas).</p>	<p>Rice husk is used for boiler for generation of steam but it is not chemically processed prior to combustion. Hence this condition is satisfied.</p>
<p>8. In cases where the project activity utilizes charcoal produced from biomass as fuel, the methodology is applicable provided that:</p> <p>a) Charcoal is produced in kilns equipped with a methane recovery and destruction facility; or</p> <p>b) If charcoal is produced in kilns not equipped with a methane recovery and destruction facility, methane emissions from the production of charcoal shall be considered.</p>	<p>No charcoal is required for the operation of the project activity and as observed at the onsite, no charcoal is used in the project activity. Hence this condition is not relevant.</p>
<p>9. In the case of project activities involving changes in raw materials (including additives), it shall be demonstrated that additive materials are abundant in the country/region according to the following procedures:</p> <p>Step 1: Using relevant literature and/or interviews with experts, a list of raw materials to be utilized is prepared based on the historic and/or present consumption of such raw materials.</p> <p>Step 2: The current supply situation for each type of raw material to be utilized is assessed and their surplus availability is demonstrated using one of the approaches below:</p> <p>i. Approach 1: Demonstrate that the raw materials to be utilized, in the region of the project activity, are not fully utilized. For this purpose, demonstrate that the quantity of material is at least 25% greater than the demand for such materials or the availability of alternative materials for at least one year prior to the project implementation.</p> <p>ii. Approach 2: Demonstrate that suppliers of</p>	<p>From the review of the process at the onsite, it is inferred that raw material used are fly ash, cement, Lime, Gypsum, Aluminium powder. Referring the clarification response<sup>10/</sup> (SSC_518), the validation team has understood that the underlying rationale regarding the requirement on demonstration of the availability abundance of the raw materials is that the alternative raw materials used in the manufacturing of alternative bricks are waste products. The assessment of these applicable criteria of the methodology is not intended for industrial products with commercial value used as raw materials or additives. Hence the validation team has accepted the argument of PP that surplus availability of raw materials which is waste products and not which is having commercial value is required to be demonstrated. As per the CEA report<sup>11/</sup>, fly ash production in 2008-2009 is 117 Million Tonnes per Annum whereas utilisation is 67 MTPA or 57%, indicating the abundance availability whereas the demand is</p>

<p>raw materials to be utilized, in the region of the project activity, are not able to sell all of their supply of these materials. For this purpose, project participants shall demonstrate that a representative sample of suppliers of the raw materials to be utilized, in the region, had a surplus of material (e.g., at the end of the period during which the raw material is sold), which they could not sell and which is not utilized.</p>	<p>only 0.13 MTPA (considering annual production of AAC block of 0.24 Million Cubic metre, fly ash content of 65%, bulk density of flyash of 860 kg/m<sup>3</sup>). Hence surplus availability of flyash is established and accepted by the validation team.</p>
<p>10. This methodology is applicable under the following conditions: a) The service level of project brick shall be comparable to or better than the baseline brick, i.e., the bricks produced in the brick production facility during the crediting period shall meet or exceed the performance level of the baseline bricks (in terms of for example dry compressive strength, wet compressive strength, density). An appropriate national standard shall be used to identify the strength class of the bricks, bricks that have compressive strengths lower than the lowest class bricks in the standard are not eligible under this methodology. Project bricks are tested in nationally approved laboratories at 6 months interval (at a minimum) and test certificates on compressive strength are made available for verification;</p>	<p>The compressive strength of the AAC block (3.5 N/mm<sup>2</sup>) is higher than that of baseline brick (3 N/mm<sup>2</sup>).  As per the monitoring plan, the Compressive strength test is proposed to be carried in line with IS code: 6441 Part V every 6 months interval and test certificates on compressive strength will be made available for verification through the crediting period. Hence accepted by the validation team.</p>
<p>10 b) The existing facilities involving modification and/or replacement shall not influence the production capacity beyond ±10% of the baseline capacity unless it is demonstrated that the baseline for the added capacity is the same as that for the existing capacity in accordance with paragraph 4 of the methodology.</p>	<p>The project activity is constructed in the greenfield facility where there is no existing brick manufacturing facility and the project activity does not replacing any equipments. Hence this condition is not relevant.</p>
<p>10 c) Measures are limited to those that result in emission reductions of less than or equal to 60 kt CO2 equivalent annually.</p>	<p>The annual emission reductions (56,107 tCO2e per year) from the project activity are less than 60 kt every year in the crediting period. Hence this condition is satisfied.</p>
<p>11. This methodology is not applicable if local regulations require the use of proposed technologies or raw materials for the manufacturing of bricks unless widespread non-compliance (less than 50% of brick production activities in the country comply) of the local regulation evidenced.</p>	<p>Based on the review of MoEF notifications<sup>11/</sup>, there is no regulation that mandates the use of any proposed AAC technology for brick manufacturing and there is widespread non-compliance of the regulation to use 50% of fly-ash for brick manufacturing within 100 km of a thermal power plant.</p>
<p>12. In cases where the project activity utilizes biomass sourced from dedicated plantations, applicability conditions prescribed in the tool “Project emissions from cultivation of biomass” shall apply.</p>	<p>The proposed project activity does utilize biomass (rice husk) but it is procured from biomass sellers and not cultivated in dedicated plantations as observed at the onsite. Thus the criterion under discussion is not applicable.</p>
<p>13. The following cases are exempted from ‘determining the occurrence of debundling’ as per the “Guidelines on assessment of debundling for</p>	<p>This is the first project for the service recipient; the project activity is not a debundled component from a large scale project activity. This criterion is not</p>

<p>SSC project activities”:</p> <p>(a) Project activities that aggregate brick units with holistic production cycles i.e. from raw material procurement to finished product, where each unit is not larger than 5 per cent of the Type III small-scale CDM project activity thresholds i.e. 3,000 t CO<sub>2</sub>e; or</p> <p>(b) Project activities that aggregate brick units, where each unit qualifies as Type III microscale CDM project activity and the geographic location of the project activity is a least developed countries/small island developing states (LDC)/ (SIDS) or special underdeveloped zone (SUZ) of the host country as identified by the government in accordance with the guideline on “Demonstrating additionality of microscale project activities”.</p>	<p>relevant to the project activity.</p>
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**3.2.3 Project Boundary**

As per para 19 of the applied meth<sup>2/</sup>, the project boundary is the physical, geographical site where the brick production takes place during both the baseline and crediting periods. It also includes all installations, processes or equipment affected by the switching. In cases where the renewable biomass is sourced from dedicated plantations it also includes the area of the plantations. In cases involving thermo-mechanical processing of the biomass (e.g. charcoal; briquettes; syngas) the sites where these processes are carried out shall be within the project boundary.

The project boundary includes AAC installation, processes, boiler that uses renewable rice husk, southern grid from where electricity is received by the project activity. Rice husk is sourced from a biomass seller and not cultivated. Rice husk is not processed prior to combustion. Baseline emissions include emission due to combustion of coal in the baseline scenario. Project emission includes emission due to electricity consumption in the AAC production. Leakage emission includes emission due to emissions occur 1) due to production of raw materials/additives 2) during consumption of raw materials/additives at the project site 3) during transportation of raw materials/additives to the site.

**3.2.4 Baseline Scenario**

As the project activity is of Type III and Greenfield, the validation team has checked whether PP has identified baseline in line with the “General guidelines for SSC CDM methodologies” version 21.0<sup>9/</sup> (hereinafter referred to as SSC guideline). The validation team checked if all the assumptions and data used by the project participants are listed in the PD, including their references and sources, all documentation used is relevant for establishing the baseline scenario and correctly quoted and interpreted in the PD, assumptions and data used in the identification of the baseline scenario are justified appropriately, supported by evidence and can be deemed reasonable, the SSC guideline has been correctly applied to identify the most plausible baseline scenario and the identified baseline scenario reasonably represents what would occur in the absence of the proposed project activity. The identification and validation of the baseline consists of four steps which are demonstrated as below.

**Step 1: Identification of various alternatives (including that of project activity without CDM) available to the project proponent**

The validation team has crosschecked the document<sup>11/</sup> titled “Strategies for Cleaner Walling Material in India” prepared by Enzen Global Solutions, supported by Shakti Sustainable Energy Foundation and coordinated by Ellen Baum, Clean Air Task Force, Boston, MA in November 2011. By reviewing the

document, the alternatives for the project activity are identified as 1) Project activity without CDM 2) common burnt Clay Bricks 3) Burnt clay Fly-ash bricks where coal is used as fuel 4) Cement Stabilized Soil Blocks (CSSB) 5) Concrete blocks 6) Fly Ash-Lime Gypsum (FaL-G) bricks. The validation team has accepted the alternatives as correctly identified by the project proponent.

### Step 2: Listing of the alternatives identified that are in compliance with local regulations

Based on documents<sup>11/</sup> referred above, fired clay bricks (including fly ash based fired bricks) dominate current use of walling material and account for 92.2% of 151.83 billion brick equivalent masonry units produced annually in the country in the year 2011. Concrete blocks have penetrated urban and rural markets over the past few decades and account for 5.9% of all brick equivalent masonry units. AAC and FaL-G blocks have also been gaining in popularity in certain regions across the country over the past decade and are estimated to have a share of 0.2% and 1.6% respectively. Other technology such as CSSB is having a 0.1% share only. Hence fired clay bricks can be considered as alternative to the project activity.

There is a local regulation on use of fly ash (one of the raw material for project blocks) for the manufacturing of bricks. The validation team has reviewed the MOEF Notification dated 14th September 1999 and its amendments dated 27th August 2003 and 3rd November 2009<sup>11/</sup> and understood that use of 50% fly ash in brick manufacturing units set up within 100 km of a coal or lignite based thermal power plant is mandatory. By reviewing the CEA annual report<sup>11/</sup> for the 2009 – 10, 57.11% utilization of fly ash generated annually, that consumed in bricks manufacturing is a meager 9% only. The non-compliance is further corroborated by reviewing the report<sup>11/</sup> on “Monitoring & Evaluation of Forest Area Diversions including the Status of Compliance Of Approval Conditionalities of Forest Diversion Cases & their Impact on the Forest & Wildlife - Thermal Power Plants” submitted jointly by Akanksha Tiwari and Anubhav Sogani to the regional MoEF office of the Western Region of India. Hence the validation team has accepted that flyash bricks cannot be considered as a credible alternative to the project activity.

Based on the above findings, there are only two alternatives remaining Project activity without CDM and common burnt Clay Bricks at the end of step 2

### Step 3: Barrier analysis

As per the SSC guideline, the remaining alternatives are subjected to barrier tests specified in the “Guidelines on the demonstration of additionality of small-scale project activities”. This guideline is changed into “Tool for Demonstration of additionality of smallscale project activities”<sup>12/</sup> version 10.0. PP has used Barrier due to prevailing practice. The validation of the barrier analysis is reported below

By reviewing the document<sup>11/</sup> titled “Strategies for Cleaner Walling Material in India”, the validation team has found that AAC blocks have low penetration in India which is to the tune of only 0.2% and fired clay bricks are currently prevalent in Indian walling industry and the scenario is expected to be same in future. Moreover, AAC block project activity technology requires recipe control of several main ingredients namely fly ash, cement, lime and water etc. at the mixing step. In case there are changes to the sources of the raw materials, the chemistry and hence the recipe needs to be reworked. Hence it requires the intervention of advanced technologies leading to much higher investments. Further it is a newer technology; skilled operators are required for operation of AAC block manufacturing unit and wherein the choice of AAC block as construction material is found to be negligible compared to clay bricks. The negative perception about the durability and quality of AAC blocks arises from low consumer awareness about the product.

Clay brick production is a simple commonly used technological practice and is practiced at the cottage industry level. The document referred above indicates that fired clay bricks (including fly ash based fired bricks) dominate current use of walling material and account for 92.2% of 151.83 billion brick equivalent masonry units produced annually in the country in the year 2011. Small fired clay brick producers have no incentives to introduce alternate technologies, which require new investments, training to stabilize the

operation, and a different business practice in long-term perspective. Burnt clay bricks are therefore the most prevalent technology which has no barriers.

Step 4: Identification of baseline

As the Manufacturing of fired-clay bricks through conventional fired clay brick production processes is the prevailing technology, hence forms the baseline scenario and coal is the baseline fuel. Coal is the main source of energy used for manufacturing burnt clay bricks in India. However the second choice of fuel is biomass, including fuel wood but one of the studies by the FAO<sup>11/</sup> the annual use of fuel wood in the entire brick industry in the country is reported to be only 300,000 tonnes, while the use of coal is reported to be about 14,000,000 tonne. Thus use of fuel wood represents less than 2% in terms of energy inputs of the total energy requirement of the brick industry in all of India. Hence coal forms the baseline fuel.

**3.2.5 Additionality**

PP has used project method to prove additionality. The validation of the same is demonstrated in the section 3.2.4 above.

**3.2.6 Quantification of GHG Emission Reductions and Removals**

The project activity uses the latest approved monitoring methodology AMS.III.Z Version 05<sup>12/</sup>, which is applicable to the project. The validation team has reviewed based on the onsite assessment the requirements of monitoring plan including the responsibility, authority, monitoring, measurement, reporting, archiving, the QA / QC procedures such as calibration, meter testing, internal audits, maintenance of monitoring equipment and monitoring plan implementation and able to confirm that all the requirements are complied with the methodology. Further to assessment of the monitoring plan indicated in the PD, the validation team is of the opinion that the project participant will be able to implement the monitoring plan as the monitoring plan is in line with the requirements of the methodology and the monitoring arrangements described in the monitoring plan are feasible within the project design. The detailed validation of monitoring plan including ex-ante and ex-post parameters is given below.

Parameter	Justification by the validation team
Emission reduction by the project activity (ER <sub>y</sub> )	As per para 33 of the applied meth, emission reduction achieved by the project activity shall be calculated as below $ER_y = BE_y - PE_y - LE_y$ <p>Where                      ER<sub>y</sub> – Emission reductions                      BE<sub>y</sub>-Baseline emissions                      PE<sub>y</sub>- Proejct emissions                      LE<sub>y</sub>-Leakage emissions</p>
Baseline emissions (BE <sub>y</sub> )	As per para 20 of the applied meth <sup>12/</sup> , the baseline emissions are the fossil fuel consumption related emissions (fossil fuel consumed multiplied by an emissions factor) associated with the system, which would have otherwise been used, in the brick production facility in the absence of the project activity. For projects involving the installation of systems in a new facility, the average annual baseline fossil fuel consumption value and the baseline brick production rate shall be determined as that which would have been consumed and produced, respectively, under an appropriate baseline scenario.  As per para 21 of the applied meth, Baseline emissions is calculated

	<p>as below.  <math>BE_y = EFBL \times PPJ_y</math>            Where EFBL –Annual production specific emission factor (tCO<sub>2</sub>e/m<sup>3</sup>)            PPJ<sub>y</sub> –Annual net production of the facility in year y</p>
Annual production specific emission factor (EFBL)	<p>As per para 23 of the applied meth, EFBL for installation of systems in a new facility shall be determined using one of the options below.            a) Using manufacturers’ specifications such as for brick production rate, energy consumption in the process;            (b) Using specifications of comparable units having similar techno-economic parameters;            (c) Using reference plant approach</p>
Annual production specific emission factor (EFBL) = 0.78 tCO <sub>2</sub> e/baseline brick	<p>As per the report<sup>117</sup> on “Small and Medium scale Industries in Asia-Energy and Environment”, Annual production specific emission factor (EFBL) is 0.78 tCO<sub>2</sub>e/baseline brick which is accepted by the validation team.</p>
Annual production specific emission factor (EFBL) in tCO <sub>2</sub> e/M3	<p>Annual production specific emission factor (EFBL) in tCO<sub>2</sub>e/M3 = Annual production specific emission factor (EFBL) (in tCO<sub>2</sub>e/brick)/ volume of baseline brick</p>
Volume of one baseline brick	<p>Volume of baseline brick = Weight of one brick/ Density of brick</p>
Weight of baseline brick =3.75 kg	<p>As per report<sup>117</sup> of “Energy Conservation and Pollution Control in Brick Kilns”, weight of baseline brick is 3.75 kg which is accepted by the validation team</p>
Density of baseline brick =1.92 kg/m <sup>3</sup>	<p>As per reade website<sup>117</sup>, density of brick is 1.92 kg/m<sup>3</sup> which is valid and hence accepted.</p>
Volume of one baseline brick	<p>Volume of baseline brick = Weight of one brick/ Density of brick  <math>= 3.75/1.92 = 1.953125 \text{ m}^3</math></p>
Annual production specific emission factor (EFBL) = 0.39936 tCO <sub>2</sub> e/m <sup>3</sup>  (ex-ante and fixed for the entire crediting period)	<p>EFBL in tCO<sub>2</sub>e/M3 = EFBL in tCO<sub>2</sub>e/brick)/ volume of baseline brick  <math>= 0.78/1.953125</math>  <math>= 0.39936 \text{ tCO}_2\text{e/m}^3</math></p>
Annual net production of the facility in year y = 2,40,000 m <sup>3</sup> /year  (monitored parameter)	<p>Ex-ante estimation:            As per the technical specifications, the Annual net production of the facility in estimated to be 240000 m<sup>3</sup>/year</p> <p>Ex-post calculation:            It is monitored continuously and recorded daily in the plant log sheet.</p> <p>QA/QC procedure:            It can be crosschecked with the sale data for correctness. The QA/QC procedure is accepted by the validation team.</p>
Baseline emissions =95,846 tCO <sub>2</sub> e/year (rounded down)	<p>As per para 21 of the applied meth, Baseline emissions is calculated as below.  <math>BE_y = EFBL \times PPJ_y</math>  <math>= 0.39936 \times 2,40,000</math>  <math>= 95,846 \text{ tCO}_2\text{e/year}</math></p>
Project emissions (PE <sub>y</sub> )	<p>As per para 24 of the applied meth, project emissions includes            1) emissions include electricity consumption (including auxiliary use) associated with the biomass treatment and processing (PE<sub>elec,y</sub>)            2) emissions include fossil fuel consumption (including auxiliary use) PE<sub>fossilfuel,y</sub> associated with the operation of the manufacturing process and the biomass treatment and processing (PE<sub>fossilfuel,y</sub>)            3) emissions from the transportation of the renewable biomass from</p>

	<p>its source to the manufacturing production site (PE<sub>transport,y</sub>)</p> <p>4) emissions from biomass cultivation In cases where the project activity utilizes biomass sourced from dedicated plantations (PE<sub>cultivation,y</sub>)</p> <p>5) methane emissions from the charcoal produced in kilns not equipped with a methane recovery and destruction facility and methane emissions from the production of charcoal (PE<sub>CH4,y</sub>)</p>
Emissions include electricity consumption (including auxiliary use) associated with the biomass treatment and processing (PE <sub>elec,y</sub> )	<p>As per para 25 of the applied meth, this emission calculated as per "Tool for calculate baseline, project and or leakage emissions from electricity consumption"<sup>/13/</sup></p> <p>As per the tool referred emission due to consumption of grid electricity = <math>EC_y \times EF_{EL} \times (1+TDL)</math></p> <p>Where EC<sub>y</sub> –Electricity consumption in the year y          FEEL- Emission factor          TDL-Technical transmission and distribution losses</p>
Electricity consumption in the year y	<p>Ex-ante estimation:          Electricity consumption in the year y = Specific electricity consumption per cubic metre x Annual net production of the facility in year y</p>
Specific electricity consumption per cubic metre =10 kWh/m <sup>3</sup>	<p>It is considered from the DPR which is accepted by the validation team.</p>
Annual net production of the facility in year y =2,40,000 m3	<p>The validation of this parameter is detailed above.</p>
Electricity consumption in the year y =2400 MWh/year  (monitored parameter)	<p>Ex-ante estimation:          Electricity consumption in the year y = Specific electricity consumption per cubic metre x Annual net production of the facility in year y          Electricity consumption in the year y = 10 x 240,000 =2400 MWh/year</p> <p>Ex-post calculation:          It will be calculated continuously and recorded every month in the electricity bills. Electricity consumption of the plant would be calculated as summation of the electricity imports from southern grid and electricity generated by captive diesel generator sets (750 kVA).</p> <p>QA/QC procedure:          The Internal meter reading is cross checked through meter reading at meter room on monthly recording basis for correctness. As per he onsite observation, the meter is in the control of state electricity board and not with the PP. Hence calibration procedure of the meter is not defined in the PD which is accepted by the validation team.</p>
Emission factor for electricity generation (FEEL) = 0.9593 tCO <sub>2</sub> e/MWh  (ex-ante parameter and fixed for the crediting period)	<p>As per the "Tool for calculate baseline, project and or leakage emissions from electricity consumption"<sup>/12/</sup> version 1.0, emission factor for electricity generation is the combined margin emission factor calculated as per latest version of "Tool to calculate the emission factor for an electricity system"<sup>/12/</sup> version 4.0 (emission tool). CEA database version 9.0 is based on emission tool hence accepted by the validation team.</p> <p>As per the emission tool, combined margin = 50% x weighted average simple operating margin + 50% x build margin for the latest year. As per CEA database version 9.0 for southern grid, operating margin = 0.9677 tCO<sub>2</sub>e/MWh and build margin = 0.9509 tCO<sub>2</sub>e/MWh for the year 2012-2013</p>
Emission factor for diesel based	<p>As per the PD, a part of electricity is also sourced from captive diesel</p>

<p>generation = 0.5984 tCO<sub>2</sub>e/MWh</p>	<p>generator set which is inside the boundary.  Emission factor for diesel = Specific Diesel consumption x NCV of diesel x CO<sub>2</sub> emission factor for diesel  Emission factor for diesel = 0.2 tonne of diesel/MWh x 0.04 TJ/tonne of diesel x 74.8 tCO<sub>2</sub>e/TJ =0.5984 tCO<sub>2</sub>e/MWh  The validation team has reviewed the manufacturer’s specification<sup>/13/</sup> and IPCC 2006<sup>/14/</sup> data and accepted the above parameters.  But since emission factor for diesel is less than that of imported electricity, the validation team has accepted the emission factor for imported electricity as conservative.</p>
<p>Technical transmission and distribution losses (TDL) =10%  (ex-ante parameter and fixed for the crediting period)</p>	<p>As per the “Tool for calculate baseline, project and or leakage emissions from electricity consumption”<sup>/12/</sup>, version 1.0, TDL is taken as 10% which is accepted by the validation team</p>
<p>Emissions include electricity consumption (including auxiliary use) associated with the biomass treatment and processing (PE<sub>elec,y</sub>) =2,533 tCO<sub>2</sub>e/year</p>	<p>As per para 25 of the applied meth, this emission calculated as per “Tool for calculate baseline, project and or leakage emissions from electricity consumption” version 1.0<sup>/12/</sup>  As per the tool referred emission due to consumption of grid electricity = EC<sub>y</sub> x EF<sub>EL</sub> x (1+TDL)  Where EC<sub>y</sub> –Electricity consumption in the year y  FEEL- Emission factor  TDL-Technical transmission and distribution losses</p>
<p>Emissions include fossil fuel consumption (including auxiliary use) associated with the operation of the manufacturing process and the biomass treatment and processing (PE<sub>fossilfuel,y</sub>) = 0 tCO<sub>2</sub>e/year</p>	<p>Since there is no emission due to the fossil fuel consumption, this parameter is considered to be zero.</p>
<p>Emissions from the transportation of the renewable biomass from its source to the manufacturing production site (PE<sub>transport,y</sub>) = 0 tCO<sub>2</sub>e/year</p>	<p>Ex ante estimation:  Rice husk is used in steam boiler for process, but since it is procured not more than 200 km, the leakage emissions due to rice husk usage are neglected. This is as per para 27 of the applied meth.   Ex-post calculation:  The transportation distance is monitored for every trip and recorded in the purchase bill.</p>
<p>Emissions from biomass cultivation in cases where the project activity utilizes biomass sourced from dedicated plantations (PE<sub>cultivation,y</sub>) =0 tCO<sub>2</sub>e/year</p>	<p>Since rice husk is procured and not cultivated in dedicated plantations, this emission is zero.</p>
<p>Methane emissions from the charcoal produced in kilns not equipped with a methane recovery and destruction facility and methane emissions from the production of charcoal (PE<sub>CH4,y</sub>) =0 tCO<sub>2</sub>e/year</p>	<p>Since there is no charcoal produced inside the project activity, these emissions is zero.</p>
<p>Project emissions (PE<sub>y</sub>) =2,533 tCO<sub>2</sub>e/year</p>	<p>PE<sub>y</sub> =PE<sub>elec,y</sub> + PE<sub>fossilfuel,y</sub> +PE<sub>transport,y</sub> +PE<sub>cultivation,y</sub> +PE<sub>CH4,y</sub></p>
<p>Leakage emissions (LE<sub>y</sub>)</p>	<p>As per para 30, 31 and 32 of the applied meth, Leakage emission</p>

	<p>consists of 1) emissions on account of the diversion of biomass residues from other uses (competing uses) shall be calculated as per the “General guidance on leakage in biomass project activities”<sup>12/</sup></p> <p>2) incremental emissions associated with the production/consumption and transport of those raw and/or additive materials consumed as compared to baseline in the case of project activities involving a change in the production process or a change in the type or quantity of raw and/or additive materials as compared to the baseline</p> <p>3) CO<sub>2</sub> emissions from the collection, processing and transportation of biomass residues to the project site in cases where the collection, processing and transportation of biomass residues is outside the project boundary and due to the implementation of the project activity biomass residues are transported over a distance of 200 kilometres</p>
Emissions on account of the diversion of biomass residues from other uses (competing uses) =0 tCO <sub>2</sub> e/year	As per the “Tool Leakage in biomass small-scale project activities” <sup>12/</sup> version 4.0 if PP is able to demonstrate via Draft project Report <sup>13/</sup> that quantity of available biomass in the region, is 25% larger than the quantity of biomass that is utilised including the project activity, this emission can be considered as zero. Since PP has demonstrated that quantity of available biomass in the region is 25% larger than the quantity of biomass that is utilised including the project activity, this emission is zero.
Incremental emissions associated with the production/consumption and transport of those raw and/or additive materials consumed as compared to baseline in the case of project activities involving a change in the production process or a change in the type or quantity of raw and/or additive materials as compared to the baseline	<p>By reviewing the process at the onsite, the production process involves the use of aerated concrete which is made by introducing air or other gas to a slurry of flyash, lime, cement and gypsum so that when the mixture is set hard after autoclaving, a uniform cellular structure is obtained. AAC blocks are manufactured from fly ash, lime, cement, gypsum and Aluminium powder.</p> <p>As per para 31 of the applied meth, leakage emissions due to</p> <ol style="list-style-type: none"> <li>1) production of these raw materials and additives</li> <li>2) consumption of these raw materials and additives</li> <li>3) transportation of these raw materials and additives to the project site.</li> </ol>
Leakage due to production of fly ash	Leakage due to production of fly ash = Quantity of fly ash consumed x Emission factor for fly ash production Or specific fly ash consumption x annual AAC production x Emission factor for fly ash production
Quantity of fly ash consumed	Quantity of fly ash consumed = Specific fly ash consumption x annual AAC production
Specific fly ash consumption =0.422 tonne of flyash/m <sup>3</sup>	The validation team has reviewed the proposal from Technology Provider for Standard raw material specification & Consumption values
Quantity of fly ash consumed =101280 tonne of flyash/year	<p>Ex-ante estimation: Quantity of fly ash consumed = Specific fly ash consumption x annual AAC production</p> <p>Ex-post calculation: It will be monitored every purchase and recorded the every month using purchase bills.</p>
Emission factor for fly ash production = 0 tCO <sub>2</sub> e/tonne of flyash	As per SSC_518 <sup>10/</sup> clarification, leakage emission due to waste material is not required to be considered, hence this emission is zero.
Leakage due to production of fly ash =0 tCO <sub>2</sub> e/year	Leakage due to production of fly ash = Quantity of fly ash consumed x Emission factor for fly ash production
Leakage due to production of	Leakage due to production of lime = Quantity of lime consumed x

lime	Emission factor for lime production
Specific lime consumption =0.059 tonne of lime /m <sup>3</sup> of AAC block	The validation team has reviewed the proposal from Technology Provider for Standard raw material specification & Consumption values <sup>/13/</sup>
Annual AAC production=2,40,000 m3/year	The validation of this parameter is already detailed above.
Quantity of lime consumed =14,160 tonne of lime/year	Ex-ante estimation: Quantity of lime consumed = Specific lime consumption x annual AAC production  Ex-post calculation: It will be monitored every purchase and recorded the every month using purchase bills.
Emission factor for lime production =0.4397 tCO <sub>2</sub> e/tonne of lime  (Ex-ante and fixed for the crediting period)	The validation team has reviewed the IPCC 2006 <sup>/14/</sup> database and accepted the value as correct.
Leakage due to production of lime = 6,227 tCO <sub>2</sub> e/year	Leakage due to production of lime = Quantity of lime consumed x Emission factor for lime production
Leakage due to production of cement	Leakage due to production of cement = Quantity of cement consumed x Emission factor for cement production Or specific cement consumption x annual AAC production x Emission factor for cement production
Specific cement consumption =0.149 tonne of cement /m <sup>3</sup> of AAC block	The validation team has reviewed the proposal from Technology Provider for Standard raw material specification & Consumption values <sup>/13/</sup>
Annual AAC production=2,40,000 m3/year	The validation of this parameter is already detailed above.
Quantity of cement consumed =35,760 tonne of cement/year  (monitored parameter)	Ex-ante estimation: Quantity of cement consumed = Specific cement consumption x annual AAC production  Ex-post calculation: It will be monitored every purchase and recorded the every month using purchase bills.
Emission factor for cement production =0.638 tCO <sub>2</sub> e/tonne of cement  (Ex-ante and fixed for the crediting period)	The validation team has reviewed the CSI Protocol <sup>/14/</sup> default emission factor of cement production for India and China and accepted the value as correct.
Leakage due to production of cement =22,815 tCO <sub>2</sub> e/year	Leakage due to production of cement = Specific cement consumption x annual AAC production x Emission factor for cement production
Leakage due to production of gypsum	Leakage due to production of gypsum = Quantity of gypsum consumed x Emission factor for gypsum production Or specific gypsum consumption x annual AAC production x Emission factor for gypsum production
Quantity of gypsum consumed	Quantity of gypsum consumed = Specific gypsum consumption x annual AAC production
Specific gypsum consumption =0.005 tonne of gypsum/ m <sup>3</sup> of AAC block	The validation team has reviewed the proposal from Technology Provider for Standard raw material specification & Consumption values <sup>/13/</sup>
Quantity of gypsum consumed	Ex-ante estimation:

=1,200 tonne of gypsum/year (monitored parameter)	Quantity of gypsum consumed = Specific gypsum consumption x annual AAC production  Ex-post calculation: It will be monitored every purchase and recorded the every month using purchase bills.
Emission factor for gypsum production =0 tCO <sub>2</sub> e/tonne of gypsum	Since gypsum is the by-product, it is Leakage due to production of gypsum is zero.
Leakage due to production of gypsum =0 tCO <sub>2</sub> e/year	Leakage due to production of gypsum = Quantity of gypsum consumed x Emission factor for gypsum production
Leakage due to production of Aluminium	Leakage due to production of Aluminium = Quantity of Aluminium consumed x Emission factor for Aluminium production
Quantity of Aluminium	Ex-ante estimation: Quantity of Aluminium = Specific Aluminium consumption x annual AAC production
Specific Aluminium consumption =0.149 tonne of Aluminium /m <sup>3</sup> of AAC block	The validation team has reviewed the proposal from Technology Provider for Standard raw material specification & Consumption values <sup>13/</sup>
Annual AAC production=2,40,000 m <sup>3</sup> /year	The validation of this parameter is already detailed above.
Quantity of Aluminium = 86.4 tonne /year  (monitored parameter)	Ex-ante estimation: Quantity of Aluminium = Specific Aluminium consumption x annual AAC production  Ex-post calculation: It will be monitored every purchase and recorded the every month using purchase bills
Emission factor for Aluminium production =1.89 tCO <sub>2</sub> e/tonne of Aluminium  (Ex-ante and fixed for the crediting period)	The validation team has reviewed the IPCC 2006 <sup>14/</sup> database and accepted the value as correct.
Leakage due to production of Aluminium =164 tCO <sub>2</sub> e/year	Leakage due to production of Aluminium = Specific Aluminium consumption x annual AAC production x Emission factor for Aluminium production
Leakage emissions due to production of the raw materials and additives = 29,206 tCO <sub>2</sub> e/year	Leakage emissions due to production of these raw materials/additives such as flyash, lime, cement, gypsum and Aluminium
Leakage emissions due to consumption of the raw materials and additives =0 tCO <sub>2</sub> e/year	It is observed at the onsite that there is no processing of raw materials or additives before using it production of AAC block, hence Leakage emissions due to consumption of the raw materials and additives is zero.
Leakage emissions due to transportation of the raw materials and additives to the project site.	Leakage emissions due to transportation of raw materials = Quantity of each raw material per year x Return trip distance between the origin and destination of freight transportation activity x Default CO <sub>2</sub> emission factor for freight transportation activity
Quantity of each raw material per year	The validation of the same is detailed above.

<p>Return trip distance between the origin and destination of freight transportation activity</p> <table border="1" data-bbox="188 319 579 480"> <tr> <td>Flyash</td> <td>40 km</td> </tr> <tr> <td>Lime</td> <td>3348 km</td> </tr> <tr> <td>Cement</td> <td>260 km</td> </tr> <tr> <td>Gypsum</td> <td>972 km</td> </tr> <tr> <td>Aluminium</td> <td>1022 km</td> </tr> </table> <p>(monitored parameter)</p>	Flyash	40 km	Lime	3348 km	Cement	260 km	Gypsum	972 km	Aluminium	1022 km	<p>Ex-ante estimation: As per the PP's recent experience, it is considered for the calculation which is accepted by the validation team.</p> <p>Ex-post calculation: It will be recorded for every trip. It will be determined once ex-ante for each freight transportation activity for a reference trip (actual purchase invoices) and using online map sources in the trip sheet</p>
Flyash	40 km										
Lime	3348 km										
Cement	260 km										
Gypsum	972 km										
Aluminium	1022 km										
<p>Default CO2 emission factor for freight transportation activity =0.000129 tCO2e/t-km</p> <p>(ex-ante and fixed for the entire crediting period)</p>	<p>The validation team has reviewed the tool for "Project and leakage emissions from transportation of freight"<sup>12/</sup> version 1.1.0 and accepted the value.</p>										
<p>Leakage emissions due to transportation of the raw materials and additives to the project site = 8,000 tCO2e/year</p>	<p>Leakage emissions due to transportation of raw materials = Quantity of each raw material per year x Return trip distance between the origin and destination of freight transportation activity x Default CO2 emission factor for freight transportation activity</p>										
<p>Leakage =37,206 tCO2e/year</p>	<p>As per para 31 of the applied meth, leakage emissions due to</p> <ol style="list-style-type: none"> <li>1) production of these raw materials and additives</li> <li>2) consumption of these raw materials and additives</li> <li>3) transportation of these raw materials and additives to the project site.</li> </ol>										
<p>Emission reduction (ERy) =56,107 tCO2e/year</p>	<p>As per para 33 of the applied meth, emission reduction achieved by the project activity shall be calculated as below  <math>ER_y = BE_y - PE_y - LE_y</math></p> <p>Where  ERy – Emission reductions  BEy-Baseline emissions  PEy- Proejct emissions  LEy-Leakage emissions</p>										
<p>Compressive strength of AAC blocks (monitored parameter)</p>	<p>As per para 11 of the applied meth, service level of project bricks to be tested in lab at six month intervals. PP have proposed to test the service level at an accredited lab with time interval of 6 months. Hene accepted by the validation team</p>										

### 3.2.7 Methodology Deviations

There is no methodology deviations identified.

### 3.2.8 Monitoring Plan

The validation of the parameters is detailed in section 3.2.6.

## 3.3 Non-Permanence Risk Analysis

For non-AFOLU projects this is not required.

### 3.4 Environmental Impact

The validation team has reviewed MoEF notification<sup>/11/</sup> dated 1<sup>st</sup> Dec 2009 and observed that the project activity does not fall under positive list of projects for which Environment Impact Assessment (EIA) is required. Hence, the project activity does not require Environment Impact Assessment to be conducted. The validation team has reviewed the approvals<sup>/7/</sup> given by Commercial Tax Department, Govt of Andhra Pradesh dated 2013 and licence to establish the plant given by Inspector of Factories. The validation team has also reviewed the no objection certificate<sup>/7/</sup> provided by Andhra Pradesh State Pollution Board for establishment & Operation of the AAC manufacturing unit. Based on the above findings, the validation team has concluded that the project activity satisfies the requirements related to Environment impact.

### 3.5 Comments by Stakeholders

A formal consultation process with the local stakeholders was carried out on 24<sup>th</sup> March 2014 at the project site. The identified stakeholders included villagers, officers from the Municipal Corporation, farmers around the project area, and representatives of project developers. All the identified stakeholders were communicated by written invitation on 15<sup>th</sup> March 2014 before the meeting.

The meeting discussed the environmental benefits of the project activity and the stakeholders were provided with an interactive presentation on the project activity, its local and global benefits to the environment, the process, and how the project would lead to sustainable development. The Queries / comments were summarized and adequately addressed / accounted for as evident from the minutes of the stakeholder meeting and the description provided in the PD. The validation team was able to confirm that PP had conducted the local stakeholder consultation process by reviewing the local stakeholder documents<sup>/15/</sup>

## 4 VALIDATION CONCLUSION

EPIC performed a validation of the proposed project “AAC Block/Panel Manufacturing unit at Krishna, Andhra Pradesh”. The validation was performed on the basis of the VCS standards, UNFCCC criteria for the Clean Development Mechanism and the 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 provided EPIC with sufficient evidence to determine the fulfillment of the stated criteria.

The project participants for this project activity are Greenway Building Materials India Pvt. Ltd. and Environmentfirst Energy Services (P) Limited. The party involved and the host country is India. The proposed CDM project activity has correctly applied the latest approved baseline methodology AMS.III.Z version 5.0 (Fuel switch, process improvement and energy efficiency in brick manufacture”.

The proposed VCS project activity has correctly applied the baseline and monitoring methodology (AMS.III.Z Version 5.0). The coal used in the baseline scenario is replaced by rice husk in the project activity, which is related to the emission reductions. Annual emission reduction by the project is 56,340 tCO<sub>2</sub>e. In summary, it is the opinion of EPIC that the proposed VCS project activity meets the relevant VCS Version 3 requirements and the estimated GHG reductions from the project would be real, measurable, permanent and additional.

The project capacity is fixed and no addition will be made in capacity during the crediting period. The project will result in the reduction of greenhouse gas emissions that are real, measurable and give long term benefits to the mitigation of climate change.

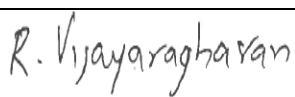

It is demonstrated that the in the absence of project activity, the baseline scenario would be to install burnt clay bricks system would have been continued and it is also proved that the project activity without VCS is additional. Emissions reduction from the project is hence additional to any that would occur in the absence of the project activity.

The GHG emissions calculations were documented in a complete and transparent manner. The formulae for accounting GHG emissions were appropriate. The total emissions reduction from the project activity as envisaged in the latest version of PD is 56107 tCO<sub>2</sub>e annually over the 10-year crediting period. The forecasted emission reductions have been checked and it is deemed likely that the stated amount is achievable on the basis that the underlying assumptions do not change.

The monitoring plan is line with the approved monitoring methodologies of AMS.III. Z version 5.0. The plan adequately addresses all necessary information for monitoring and reporting of emissions reductions due to the project activity. Responsibilities and authorities for project management, monitoring and reporting, and the data quality control and quality assurance procedures have been described in the PD are implemented.

An Environmental Impact Assessment (EIA) for the project activity is not required for these types of projects. The plant has been granted with the environmental clearances and consents as per the requirements of the regulatory authority of the India. The project is not likely to create any significant adverse environmental impacts. The project complies with all environmental regulations of Iran.

In summary, it is opinion of EPIC that the project activity titled” AAC Block/Panel Manufacturing unit at Krishna, Andhra Pradesh” as described in the latest version of PD meets all relevant UNFCCC requirements and VCS Standards, is eligible under scope 3 of the small scale VCS project activities and correctly applies the baseline and monitoring methodology specified in AMS.III.Z (version 5.0). As such, EPIC recommends the registration of the project as a VCS project activity.

Prepared by :	Approved by :
	
R. Vijayaraghavan	K. Sudheendra
(Validation Team Leader)	(DOE Representative)

## REFERENCES

Ref. No.	Document or Type of Information
1	VCS Version 3 Standard version 3.5 <a href="http://www.v-c-s.org/sites/v-c-s.org/files/VCS%20Standard%2C%20v3.5%280%29.pdf">http://www.v-c-s.org/sites/v-c-s.org/files/VCS%20Standard%2C%20v3.5%280%29.pdf</a> Program guidelines version 3.5 <a href="http://www.v-c-s.org/sites/v-c-s.org/files/VCS%20Program%20Guide%2C%20v3.5.pdf">http://www.v-c-s.org/sites/v-c-s.org/files/VCS%20Program%20Guide%2C%20v3.5.pdf</a> Registration and Issuance guidance document version 3.6 <a href="http://www.v-c-s.org/sites/v-c-s.org/files/Registration%20and%20Issuance%20Process%2C%20v3.6%280%29.pdf">http://www.v-c-s.org/sites/v-c-s.org/files/Registration%20and%20Issuance%20Process%2C%20v3.6%280%29.pdf</a> Validation and verification manual version 3.1 <a href="http://www.v-c-s.org/sites/v-c-s.org/files/VCS%20Validation%20Verification%20Manual%2C%20v3.1_1.pdf">http://www.v-c-s.org/sites/v-c-s.org/files/VCS%20Validation%20Verification%20Manual%2C%20v3.1_1.pdf</a> CDM Validation and verification Standard version 9.0 <a href="https://cdm.unfccc.int/sunsetcms/storage/contents/stored-file-20150225165159970/reg_stan01.pdf">https://cdm.unfccc.int/sunsetcms/storage/contents/stored-file-20150225165159970/reg_stan01.pdf</a>
2	CDM approved consolidated baseline methodology AMS.III.Z Version 5.0 <a href="https://cdm.unfccc.int/UserManagement/FileStorage/HWF609IQJBM0A38Y47PEL1ZXVSDNCK">https://cdm.unfccc.int/UserManagement/FileStorage/HWF609IQJBM0A38Y47PEL1ZXVSDNCK</a> <a href="https://cdm.unfccc.int/methodologies/DB/VLZZ1DVT1QI3KHZKSM6QEEOAKNSCXZ">https://cdm.unfccc.int/methodologies/DB/VLZZ1DVT1QI3KHZKSM6QEEOAKNSCXZ</a> (Meth validity)
3	VCS Project Description (PD) Version 1 and annexures (version under pipeline project) <a href="http://www.vcsprojectdatabase.org/#/pipeline_details/PL1342">http://www.vcsprojectdatabase.org/#/pipeline_details/PL1342</a>
4	VCS Project Description (PD) Version 2 and annexures (final version)
5	Technical specifications, Purchase orders
6	Commissioning certificate
7	Statutory clearances necessary for establishment and operation of the project such as no objection certificate from State Pollution Control Board, Licence for 'Establishment of work and factory' from State Commercial Tax office
8	Undertaking letter from the service recipient dated 10 <sup>th</sup> July 2015 Link to confirm project not validated under CDM or GS <a href="https://cdm.unfccc.int/Projects/Validation/index.html">https://cdm.unfccc.int/Projects/Validation/index.html</a> (CDM) <a href="http://www.markit.com/sites/en/products/environmental/markit-environmental-registry-public-view.page">http://www.markit.com/sites/en/products/environmental/markit-environmental-registry-public-view.page</a> (GS)
9	General Guidelines for SSC CDM methodologies version 21 <a href="https://cdm.unfccc.int/sunsetcms/storage/contents/stored-file-20141205093825155/MethSSC_guid25.pdf">https://cdm.unfccc.int/sunsetcms/storage/contents/stored-file-20141205093825155/MethSSC_guid25.pdf</a> Project Standard version 9.0 <a href="https://cdm.unfccc.int/sunsetcms/storage/contents/stored-file-20150225165159970/reg_stan01.pdf">https://cdm.unfccc.int/sunsetcms/storage/contents/stored-file-20150225165159970/reg_stan01.pdf</a>
10	SSC_518 clarification <a href="https://cdm.unfccc.int/UserManagement/FileStorage/OKLADNE7UWZCSR3Q1GY9H205XV8F4M">https://cdm.unfccc.int/UserManagement/FileStorage/OKLADNE7UWZCSR3Q1GY9H205XV8F4M</a>
11	CEA annual report <a href="http://www.cea.nic.in/reports/yearly/annual_rep/2009-10/ar_09_10.pdf">http://www.cea.nic.in/reports/yearly/annual_rep/2009-10/ar_09_10.pdf</a> MOEF Notifications dated 14th September 1999 and its amendments dated 27th August 2003 and 3rd November 2009 and MoEF notification- positive list requiring EIA <a href="http://envfor.nic.in/legis/hsm/flyash.html">http://envfor.nic.in/legis/hsm/flyash.html</a> <a href="http://www.icjonline.com/forum/point_of_view.pdf">http://www.icjonline.com/forum/point_of_view.pdf</a> (crosschecking) <a href="http://www.moef.nic.in/downloads/rules-and-regulations/3067.pdf">http://www.moef.nic.in/downloads/rules-and-regulations/3067.pdf</a> (for EIA) Strategies for Cleaner Walling Material in India” prepared by Enzen Global Solutions, supported by Shakti Sustainable Energy Foundation and coordinated by Ellen Baum, Clean Air Task Force, Boston, MA in November 2011 <a href="http://shaktifoundation.in/wp-content/uploads/2014/02/strategies%20for%20cleaner%20walling%20materials%20in%20india.pdf">http://shaktifoundation.in/wp-content/uploads/2014/02/strategies%20for%20cleaner%20walling%20materials%20in%20india.pdf</a> Monitoring & Evaluation of Forest Area Diversions including the Status of Compliance Of Approval Conditionalities of Forest Diversion Cases & their Impact on the Forest & Wildlife - Thermal Power Plants” submitted jointly by Akanksha Tiwari and Anubhav Sogani to the regional MoEF office of the Western Region of India <a href="http://www.moef.nic.in/downloads/public-information/MoEF-IIFM-thermal-power-plants.pdf">http://www.moef.nic.in/downloads/public-information/MoEF-IIFM-thermal-power-plants.pdf</a> FAO document (coal as baseline fuel) FAO Field Document No. 35, “Regional Wood Energy Development Programme in Asia”, GCP/RAS/154/NET Report on Small and Medium scale Industries in Asia- Energy and Environment (Emission factor for coal) <a href="http://www.faculty.ait.ac.th/visu/Prof%20Visu's%20CV/Books%20and%20research%20reports/BRICK%20AND%20CERAMIC.pdf">http://www.faculty.ait.ac.th/visu/Prof%20Visu's%20CV/Books%20and%20research%20reports/BRICK%20AND%20CERAMIC.pdf</a> Report on “Energy Conservation and Pollution Control in Brick Kilns” (weight of baseline brick) <a href="http://www.cosmile.org/papers/brick_energyconservationpollutioncontrol.pdf">http://www.cosmile.org/papers/brick_energyconservationpollutioncontrol.pdf</a> Readme website (Density of brick) <a href="http://www.reade.com/Particle_Briefings/spec_gra2.html">http://www.reade.com/Particle_Briefings/spec_gra2.html</a>
12	Tool for Demonstration of additionality of small scale project activities version 10.0 <a href="https://cdm.unfccc.int/methodologies/PAMethodologies/tools/am-tool-21-v1.pdf">https://cdm.unfccc.int/methodologies/PAMethodologies/tools/am-tool-21-v1.pdf</a> Tool for calculate baseline, project and or leakage emissions from electricity consumption version 1.0 <a href="https://cdm.unfccc.int/methodologies/PAMethodologies/tools/am-tool-05-v1.pdf">https://cdm.unfccc.int/methodologies/PAMethodologies/tools/am-tool-05-v1.pdf</a> General guidance on leakage in biomass project activities renamed as Tool Leakage in biomass small-scale project activities version 4.0

	<p><a href="https://cdm.unfccc.int/methodologies/PAmethodologies/tools/am-tool-22-v1.pdf">https://cdm.unfccc.int/methodologies/PAmethodologies/tools/am-tool-22-v1.pdf</a>  Project and leakage emissions from transportation of freight version 1.1.0  <a href="https://cdm.unfccc.int/methodologies/PAmethodologies/tools/am-tool-12-v1.1.0.pdf">https://cdm.unfccc.int/methodologies/PAmethodologies/tools/am-tool-12-v1.1.0.pdf</a>  Tool to calculate the emission factor for an electricity system version 4.0  <a href="https://cdm.unfccc.int/methodologies/PAmethodologies/tools/am-tool-07-v4.0.pdf">https://cdm.unfccc.int/methodologies/PAmethodologies/tools/am-tool-07-v4.0.pdf</a>  CEA database version 9.0  <a href="http://www.cea.nic.in/reports/planning/cdm_co2/user_guide_ver9.pdf">http://www.cea.nic.in/reports/planning/cdm_co2/user_guide_ver9.pdf</a></p>
13	<p>DPR dated 1<sup>st</sup> Feb 2013</p> <p>Proposal from Technology Provider for Standard raw material specification &amp; Consumption values  Manufacturers specification for DG set</p> <p>Tool for calculate baseline, project and or leakage emissions from electricity consumption MoEF notification</p>
14	<p>IPCC 2006 database for emission factor of lime  <a href="http://www.ipcc-nggip.iges.or.jp/public/2006gl/pdf/3_Volume3/V3_2_Ch2_Mineral_Industry.pdf">http://www.ipcc-nggip.iges.or.jp/public/2006gl/pdf/3_Volume3/V3_2_Ch2_Mineral_Industry.pdf</a></p> <p>CSI protocol for cement (emission factor of cement)  <a href="http://wbcsdcement.org/pdf/csi-gnr-report-with%20label.pdf">http://wbcsdcement.org/pdf/csi-gnr-report-with%20label.pdf</a></p> <p>IPCC 2006 database for emission factor of AI <a href="http://www.ipcc.ch/meetings/session25/doc4a4b/vol3.pdf">http://www.ipcc.ch/meetings/session25/doc4a4b/vol3.pdf</a></p> <p>IPCC 2006 database for emission factor of diesel  <a href="http://www.ipcc-nggip.iges.or.jp/public/2006gl/pdf/3_Volume3/V3_2_Ch2_Mineral_Industry.pdf">http://www.ipcc-nggip.iges.or.jp/public/2006gl/pdf/3_Volume3/V3_2_Ch2_Mineral_Industry.pdf</a></p>

**TABLE 1: IDENTIFICATION OF CARs/CRs based on VVS 9.0**

S.No	SCOPE OF CDM/VCS REQUIREMENT	COMMENTS BY THE VALIDATION TEAM	CONCLUSION
	<b>Small-scale project activities- Project activity eligibility</b>		
1	<p>Check under which of the following, the proposed Project activity falls under:</p> <p>(a) Large-scale project activity;</p> <p>(b) Small-scale project activity;</p> <p>(c) Large-scale afforestation or reforestation project activity;</p> <p>(d) Small-scale afforestation or reforestation project activity; or</p> <p>(e) PoA, either large-scale, small-scale, large-scale A/R or small-scale A/R.</p> <p>(Refer para 19 of project standard)</p>	<p>The project activity is a small scale project activity as confirmed during site visit. The project activity is considered small scale under type III project with annual emission reduction less than 60ktCO<sub>2</sub>e.</p>	OK
2	<p>Determine whether Project participants indicated, from among the following below, the project type of the proposed small-scale CDM project activity, and demonstrated that the project activity qualifies as this type:</p> <p>(a) Type I: Renewable energy project activities with a maximum output capacity of 15 MW (or an appropriate equivalent);</p> <p>(b) Type II: Energy efficiency improvement project activities that reduce energy consumption, on the supply and/or demand side, with a maximum output of 60 GWh per year (or an appropriate equivalent) in any year of the crediting period; or</p> <p>(c) Type III: Other project activities not included in Type I or Type II that result in GHG emission reductions not exceeding 60 kt CO<sub>2</sub>e per year in any year of the crediting period.</p> <p>(Refer para 99 of project standard)</p> <p>Note: Project participants designing a small-scale CDM project activity following the CDM SSC M&amp;Ps shall only use small-scale methodologies. However, project participants may use a large-scale methodology for a project activity that is within the small-scale project activity thresholds if the project activity follows the CDM M&amp;Ps. (Refer para 98 of project standard)</p>	<p>The project activity is manufacturing of high-quality, load-bearing and well insulating building material by adopting an efficient low energy intensive brick production process instead of a high energy intensive brick production process like Clay Brick Bull's trench kilns (BTKs) and positively impact the energy consumption pattern both at the brick production level and at the building operation level.</p> <p>The project activity is a small scale type III project with GHG emission reductions not exceeding 60 kt CO<sub>2</sub>e per year in any year of the crediting period.</p> <p>The project activity emission reduction as estimated is 46712 tCO<sub>2</sub>e/year every year.</p> <p>The emission reduction of the project activity has been calculated based on the total output capacity of the project that has been envisaged. i.e 240,000 m<sup>3</sup>/annum.</p> <p>CAR is raised as the emission reduction calculation is not as per the phased implementation, the way the project activity is undergoing. At the time of registration, ER is revised to 56,107 tCO<sub>2</sub>e/year</p>	CAR-1

	<p>Note: In connection with paragraph 99 above and the scope of the maximum output capacity of 15 MW, project participants shall consider the following:</p> <p>(a) Regarding “maximum output”, “output” is the installed/rated capacity as indicated by the manufacturer of the equipment or plant, irrespective of the actual load factor of the plant. The installed/rated capacity for renewable electricity generating units that involve turbine-generator systems shall be based on the installed/rated capacity of the generator;</p> <p>(b) Regarding the “appropriate equivalent” of 15 MW, decision 7/CP.7, paragraph 6(c)(i), refers to MW, but project participants may refer to MW(p), MW(e) or MW(th). As MW(e) is the most common denomination, MW is defined as MW(e), and otherwise an appropriate conversion factor is to be applied;</p> <p>(c) For biomass, biofuel and biogas project activities, the maximal limit of 15 MW(e) is equivalent to a 45 MW thermal output of the equipment or the plant (e.g. boilers). For thermal applications of biomass, biofuels or biogas (e.g. cook stoves), the limit of 45 MW<sub>th</sub> is the installed/rated capacity of the thermal application equipment or device(s) (e.g. biogas stoves). For electrical or mechanical applications, the limit of a 15 MW installed/rated output shall be used. In the case of co-firing renewable and fossil fuels, the rated capacity of the system when using fossil fuel shall apply;</p> <p>(d) For thermal applications of solar energy projects, “maximum output” shall be calculated using a conversion factor of 700 W<sub>th</sub>/m<sup>2</sup> of aperture area of glazed flat plate or evacuated tubular collector, i.e. the eligibility limit in terms of aperture area is 64,000 m<sup>2</sup> of the collector. (Refer para 99 of project standard)</p>	<p>PP is also requested to submit documentary evidence for the project was envisaged for total capacity of 2.4 Lakh M3/annum at the investment decision.</p>	<p>CAR 2</p>
<p>3</p>	<p>Check whether Project participants demonstrated the proposed small-scale CDM project activity remains, for every year during the crediting period, within the limits of the type of project activity in the PDD.</p> <p>Note: If during its implementation and monitoring the project activity goes beyond the limit of its type in any year of the crediting period,</p>	<p>PP has demonstrated in the VCS PD and ER calculation sheet how the project activity remains under small scale limit every year of the crediting period. Details is provided in the PD.</p>	<p>OK</p>

	<p>the GHG emission reductions that can be claimed during this particular year shall be capped at the maximum GHG emission reductions estimated in the registered PDD for that year during the crediting period. (Refer para 105 of project standard)</p> <p>Note: Project participants shall consider that: (a) The three types of small-scale CDM project activities defined in paragraph 98 of project standard are mutually exclusive. In a small-scale project activity with more than one component following the CDM SSC M&amp;Ps, each component shall meet the threshold criterion of each applicable type; (b) The sum of the size of components of a small-scale CDM project activity belonging to the same type shall not exceed the limits for small-scale project activities. (Refer para 100 of project standard)</p>		
4	Determine whether the proposed project activity meets the small-scale eligibility requirements. (Para 181 of VVS)	The project activity meets the small-scale eligibility criteria requirements, as the GHG emission reduction of the project does not exceed 60 ktCO <sub>2</sub> in any year of the crediting period.	OK
5	Determine whether this project activity follows the modalities and procedures for large-scale project activities for a project activity that is within the small-scale project activity threshold but applies a large-scale approved methodology. (Para 182 of VVS)	The project activity uses AMS. III.Z which is a small scale methodology.	OK
6	Determine whether: (a) The project activity qualifies within the thresholds of the three possible types of small-scale project activities. It may include more than one component; for example, a type III methane recovery component activity and a type I electricity component activity; (b) The project activity conforms to one or more of the approved small-scale methodologies applied in conjunction with the general guidelines to SSC CDM methodologies; (c) The proposed small-scale project activity is not a debundled component of a large-scale project activity. (Para 183 of VVS)	<p>a) The project falls under type III small scale project activity.</p> <p>b) The project activity conforms to approved small scale AMS III.Z. - "Fuel switch, process improvement and energy efficiency in brick manufacture".</p> <p>c) The project activity is not a debundled component of a large scale project activity as confirmed during site visit.</p>	OK
	<b>Project design document</b>		
7	Determine whether the PDD or PoA-DD and CPA-DD was completed using the latest version of the PDD or PoA-DD and	The project activity uses the latest project description available at VCS website.	OK

	CPA-DD form appropriate to the type of project activity or PoA (Para 62 of VVS)		
	<b>Description of project activity</b>		
8	<p>Check in the PDD –cover page whether the following information are indicated:</p> <p>(a) Title of the project activity;  (b) Version number of the PDD;  (c) Completion date of the PDD (DD/MM/YYYY);  (d) Project participant(s);  (e) Host Party(ies);  (f) Sectoral scope(s) and selected methodology(ies);  (g) Estimated amount of annual average GHG emission reductions (Refer SSC PDD guidelines)</p>	Not applicable for VCS PD	OK
9	<p>Check in Section A.1 of PDD, a brief description of the project activity in accordance with applicable provisions related to the description of project activity for all project types and small-scale project activities in the Project standard is provided. (Refer SSC PDD guidelines)</p> <p>Note:  Project participants shall provide a description of the proposed CDM project activity that provides an understanding of the nature of the project and its implementation. (Refer para 31 of project standard)</p> <p>Note:  When describing the proposed CDM project activity or PoA, project participants shall:  (a) Provide a title for the project activity or PoA;  (b) Describe the purpose of the project activity, including a summary of the scope of activities/measures that are to be implemented within the project activity;  (c) Explain how the project activity or PoA will reduce GHG emissions or increase GHG removals;  (d) Indicate the sectoral scope(s) and type of the project activity (Refer para 32 of project standard)</p>	<p>The project activity is manufacturing of high-quality, load-bearing and well insulating building material by adopting an efficient low energy intensive brick production process instead of a high energy intensive brick production process like Clay Brick Bull’s trench kilns (BTKs) and positively impact the energy consumption pattern both at the brick production level and at the building operation level.</p> <p>The validation team confirms that the project description provided in the PD is same as observed in the plant site.</p>	OK
10	Check in the PDD section A.1, a brief description of the following is provided	The scenario existing prior to the implementation of the project activity is Clay brick manufacturing, an alternative	OK

	<p>(a) The scenario existing prior to the implementation of the project activity including, where applicable, the type of facility where the project activity will take place or replace (e.g. sugar mill, swine farm, iron smelter, etc.);</p> <p>(b) The baseline scenario, as identified in section B.4 of the PDD.</p> <p>Note: 1. The full description of the technologies and measures, project boundary and baseline are to be provided in sections A.3, B.3, and B.4 of the PDD. 2. If the baseline scenario is the same as the scenario existing prior to the implementation of the project activity, there is no need to repeat the description of the scenarios, but only to state that both are the same. (Refer SSC PDD guidelines)</p> <p>Note: Project participants shall describe the scenario prior to the implementation of the proposed CDM project activity or CPA, including the technology employed (Refer SSC PDD guidelines)</p>	<p>brick manufacturing technology which involves two key processes: (a) producing green bricks and (b) sintering/firing the green bricks in a kiln. The sintering process requires huge amount of thermal energy inputs which is sourced majorly from the fossil fuel-coal combustion with a small quantum from combustion of biomass in the form of fuel wood.</p> <p>The baseline scenario has been identified in section 2.4 in details.</p>	
11	<p>Check whether the estimate of annual average and total GHG emission reductions for the chosen crediting period is provided in section A.1 of PDD.</p> <p>Note: The UNFCCC CDM website presents all methodologies linked to sectoral scopes. For the project type(s) (i.e. Type I, II, and/or III), refer to applicable provisions for project activity eligibility in the Project standard. (Refer SSC PDD guidelines)</p>	<p>The project description provides estimate of annual average and total GHG emission reductions for the entire crediting period in section 1.1</p>	OK
12	<p>Check in Section A.1 of the PDD whether a brief description of how the project activity contributes to sustainable development is included. (Refer SSC PDD guidelines and para 31c of project standard)</p>	<p>Not specifically applicable for VCS project.</p>	OK
13	<p>Check whether in section A.2.4 of PDD, details of the physical/geographical location of the project activity, including information allowing the unique identification of this project activity and a map is provided</p>	<p>Section 1.9 of the PD clearly provides the description of the project location including identification of project coordinates, which the team has checked in Google earth for cross checking.</p>	OK

14	<p>(Refer SSC PDD guidelines)</p> <p>Check whether in section A.3 of PDD, the technologies and/or measures to be employed and/or implemented by the project activity, including a list of the facilities, systems and equipment that will be installed and/or modified by the project activity are described</p> <p>Note:</p> <p>(a) A list and the arrangement of the main manufacturing/production technologies, systems and equipment involved. Include in the description information about the age and average lifetime of the equipment based on manufacturer's specifications and industry standards, and existing and forecast installed capacities, load factors and efficiencies. The monitoring equipments and their location in the systems are of particular importance;</p> <p>(b) Energy and mass flows and balances of the systems and equipment included in the project activity;</p> <p>(c) The types and levels of services (normally in terms of mass or energy flows) provided by the systems and equipment that are being modified and/or installed under the project activity and their relation, if any, to other manufacturing/production equipment and systems outside the project boundary. The types and levels of services provided by those manufacturing/production systems and equipment outside the project boundary may also constitute important parameters of the description. The description should clearly explain how the same types and levels of services provided by the project activity would have been provided in the baseline scenario.</p> <p>(Refer SSC PDD guidelines)</p>	<p>Section 1,8 of the VCS PD describes the technologies and measure to be employed by the project activity.</p> <p>The list of equipment being used by the project activity are listed below and is also confirmed by the verification team during site visit.</p> <p>The major components of equipment installed as part of project activity are as follows:</p> <ul style="list-style-type: none"> <li>• Raw materials storage silos</li> <li>• Raw material mixer</li> <li>• Hydraulically operated moulding section</li> <li>• Autoclave section</li> <li>• Steam boilers</li> <li>• Compressed air network</li> <li>• Internal transportation system</li> </ul> <p>Specifications of AAC blocks manufactured under the project activity are as follows:</p> <table border="1" data-bbox="1128 911 1825 1347"> <thead> <tr> <th>S. No.</th> <th>Particulars</th> <th>Unit</th> <th>Value</th> <th>Remarks (if any)</th> </tr> </thead> <tbody> <tr> <td colspan="5" style="text-align: center;"><b>Physical Characteristics</b></td> </tr> <tr> <td>1</td> <td>Dimension of AAC blocks</td> <td>Mm</td> <td>600</td> <td rowspan="2"></td> </tr> <tr> <td>2</td> <td>Density</td> <td>Kg/m3</td> <td>551-600</td> </tr> <tr> <td>3</td> <td>Dry Shrinkage (max)</td> <td>%</td> <td>0.1</td> <td rowspan="2">As per Indian Standard – IS 2185</td> </tr> <tr> <td>4</td> <td>Thermal Conductivity</td> <td>W/m-K</td> <td>0.24</td> </tr> </tbody> </table>	S. No.	Particulars	Unit	Value	Remarks (if any)	<b>Physical Characteristics</b>					1	Dimension of AAC blocks	Mm	600		2	Density	Kg/m3	551-600	3	Dry Shrinkage (max)	%	0.1	As per Indian Standard – IS 2185	4	Thermal Conductivity	W/m-K	0.24	
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		<p>The average lifetime of the project activity is 15 years as confirmed by the client.</p> <p>However, PP is required to provide justification on how the life of the project has been determined with documentary evidence.</p>		CR 1				
15	<p>Check whether in Section A.3 of PDD, a list of:</p> <p>(a) Facilities, systems and equipment in operation under the existing scenario prior to the implementation of the project activity;</p> <p>(b) Facilities, systems and equipment in the baseline scenario, as established in section B.4 of PDD is provided</p> <p>Note: Where relevant, consider applicable provisions for application of selected baseline and monitoring methodology for small-scale project activities in the Project standard.</p> <p>If the baseline scenario is a continuation of current practice, thus identical to the scenario existing prior to the implementation of the project activity, there is no need to repeat the description of the scenarios, only state that both are the same.</p> <p>Do not provide information that is not essential to understanding of the purpose of the project activity and how it reduces GHG emissions. Information related to equipment, systems and measures that are auxiliary to the main scope of the project activity and do not affect directly or indirectly GHG emissions and/or mass and energy balances of the processes related to the project activity should not be included.</p> <p>(Refer SSC PDD guidelines)</p>	<p>The project activity is a new installation/Greenfield and hence not applicable.</p>		OK				
16	<p>Check whether in the section A.3 of PDD, a description of how the technologies and measures and know-how to be used are transferred to the host Party is included</p> <p>(Refer SSC PDD guidelines)</p> <p>Note: Describe the technology to be employed by the project activity to enable the identification of the project's scale and type,</p>	<p>Not specifically applicable for VCS project.</p>		OK				

	demonstration of additionality, application of the selected methodology and calculations of GHG emission reductions or net GHG removals, including a description of how environmentally safe and sound technology applied in the project activity and know-how to be used are transferred to the host Party. (Refer para 31e of project standard)		
17	Determine whether the description of the proposed project activity in the PDD is accurate, complete, and provides an understanding of the proposed CDM project activity. (Para 71 of VVS)	Description of the project activity in the VCS project description is accurate complete and provides an understanding of the proposed project activity.  PP is required to clarify in section 1.1 whether the project is being implemented in phased manner or has expansion plan in future.	CR 2
18	Conduct a physical site inspection for the following proposed project activities in existing facilities or utilizing existing equipments unless other means are specified in the methodology: (a) Large-scale projects; (b) Non-bundled small-scale projects with emission reductions exceeding 15,000 tonnes per year; (c) Bundled small-scale projects, each with emission reductions not exceeding 15,000 tonnes per year; in such cases the number of physical site visits may, however, be based on sampling, if the sampling size is justified through statistical analysis. (Para 72 of VVS)	Site visit was conducted on 08/08/2014 for actual existence of the project.	OK
19	Conduct a physical site visit as appropriate for other individual proposed small-scale CDM project activities with emission reductions not exceeding 15,000 tonnes per year  Note: For proposed CDM project activities for which the DOE does not undertake a physical site inspection this shall be justified. The DOE may apply a sampling approach in accordance with the Standard for sampling and surveys for CDM project activities and PoA (Para 73 of VVS)	Same as above	OK
20	Undertake the validation of project description by reviewing available designs and feasibility studies and should conduct comparison analysis with equivalent projects, as appropriate for all other proposed CDM project activities not referred to in paragraphs 72-73 of VVS (Para 74 of VVS)	The project activity is a greenfield project activity; The validation team confirms the same. However, PP is required to demonstrate greenfield with evidences.	CAR 3

	Note: If the proposed CDM project activity involves the alteration of an existing installation or process, the DOE shall ensure that the project description states the differences resulting from the project activity compared to the pre-project situation (Para 75 of VVS)		
	<b>Bundling</b>		
21	<p>Check whether project participants submitted a bundle of project activities for validation, project participants shall complete the “CDM small-scale project activities bundling form” (F-CDM-SSC-BUN) and provide all necessary information and documentation to demonstrate compliance of the bundle with all applicable CDM rules and requirements if project participants bring together more than one small-scale CDM project activities as a bundle. (Refer para 11 of General principles for bundling)</p> <p>Note: The sum of the size of the technology or measure utilized in the bundle shall not exceed the limits of each type of small-scale project activities as defined in the Project standard (type I, II or III). (Refer para 13 of General principles for bundling)</p> <p>Note: Project participants shall also ensure that the sum of the output capacity of the proposed CDM project activities within a sub-bundle does not exceed the maximum output capacity limit for its type. (Refer para 100 of project standard)</p>	NA	OK
22	<p>Check whether PP demonstrated that the bundle will remain under the limit of its type every year during the crediting period. The total emission reductions estimated for the crediting period shall be included in the project design document (PDD) of each project activity and further monitored. (Refer para 14 of General principles for bundling)</p> <p>Note: If during its crediting period a bundle goes beyond the limits of its type, the emission reductions that can be claimed for this particular year shall be capped at the maximum emission reductions estimated in the PDD of the registered project activities in the</p>	NA	OK

	bundle for that year during the crediting period. (Refer para 15 of General principles for bundling)		
23	Check whether project participants provided a written statement indicating: (a) The agreement of all project participants to bundle their individual project activities;  (b) One project participant who shall represent all project participants to communicate with the Board, in accordance with the Project standard and the CDM project cycle procedure (Refer para 18 of General principles for bundling)	NA	OK
<b>Debundling</b>			
24	Check whether in section A.6 of PDD the project activity is not a debundled component of a large-scale project activity, in accordance with applicable provisions for debundling in the Project standard is demonstrated. (Refer SSC PDD guidelines)	The project activity is not a de-bundled component of a large scale project activity confirmed by the PP during site visit.	OK
25	Determine whether there is a registered small-scale CDM project activity or an application to register another small-scale CDM project activity: (a) With the same project participants; (b) In the same project category and technology/measure; and (c) Registered within the previous 2 years; and (d) Whose project boundary is within 1 km of the project boundary of the proposed small- scale activity at the closest point. (Para 2 of Debundling guidelines)	NA	OK
26	If yes, determine the total size of such an activity combined with the previous registered small-scale CDM project activity does not exceed the limits for small-scale CDM project activities, then the project activity can qualify to use simplified modalities and procedures for small-scale CDM project activities. (Para 3 of Debundling guidelines)	NA	OK
27	Determine whether two or more project activities are taking place within one kilometer of each other and with the same project participants: (a) The DOE shall ensure that these projects are described in the PDD and that the validation report contains specific details on how it has been determined that the project activities are not a	NA	OK

	debundled component of a large scale project activity; (b) The DOE shall consider the project activities to be a debundled component of a large scale project activity even in cases where they are taking place in different project categories, if the project activities are Type 1 project activities providing energy to the same user and are registered, or submitted for registration, with 2 years of each other.		
28	Determine whether the proposed small-scale project activity is not a debundled component of a large-scale project activity in accordance with the latest version of “Guidelines on assessment of debundling for SSC project activities” (Para 189 of VVS)	NA	OK
29	Determine the proposed small-scale project activity to be a debundled component of a large-scale project activity if there is a registered small-scale project activity or an application to register another small-scale project activity.(Para 190 of VVS)  Note: The DOE shall, where appropriate, take into account specific debundling requirements for Type I project activities and small-scale transport project activities (Para 191 of VVS)	NA	OK
<b>Public funding</b>			
30	Check whether the project activity receives public funding from Parties included in Annex 1 countries is indicated in Section A.5 of PDD. If so: (a) Provide information on Parties providing public funding; (b) Attach in Appendix 2 in the PDD the affirmation obtained from such Parties in accordance with applicable provisions related to official development assistance in the Project standard. (Refer SSC-PDD guidelines)  Note: Project participants shall provide information on sources of public funding for the proposed CDM project activity or PoA. In cases where public funding from Parties included in Annex 1 of the UNFCCC is involved, project participants shall provide an affirmation obtained from Parties included in Annex 1 that such funding does not result in a diversion of official development assistance, is separate from, and is not counted towards the financial obligations of those Parties.	PP is requested to provide documentary evidences to demonstrate there is no ODA involved in the financing of the project.	CR 3

	(Refer para 34 of project standard)		
	<b>Approval</b>		
31	<p>Check whether in the table in the Section A.4 of PDD, Parties and project participants involved in the project activity is listed and contact information in Appendix 1 of the PDD is provided. (Refer SSC PDD guidelines)</p> <p>Note: Project participants shall identify (a) Parties involved in the proposed CDM project activity (b) Project participants of the proposed CDM project activity (Refer para 33 of project standard)</p>	Not specifically applicable for a VCS project.	OK
32	Check whether in section F of PDD, it is provided whether the letter of approval from each Party to be involved in the project activity is available at the time of submitting the PDD to the validating DOE. (Refer SSC PDD guidelines)	NA	OK
33	Determine whether the designated national authority (DNA) of each Party indicated as being involved in the proposed CDM project activity in the PDD has provided a written letter of approval. (Para 43 of VVS)	NA	OK
34	Determine whether each letter confirms that: (a) The Party is a Party to the Kyoto Protocol; (b) Participation in the proposed project activity is voluntary; (c) In the case of the host Party, the proposed project activity contributes to the sustainable development of the country; (d) It refers to the precise proposed project activity title in the PDD being submitted for registration. (Para 44 of VVS and para 81 of project standard)	NA	OK
35	Check whether the letter(s) of approval is unconditional with respect to para 39 (a) to (d) above. (Para 45 of VVS)	NA	OK
36	<p>Determine whether the letter(s) of approval has been issued by the respective Parties DNA and is valid for the proposed project activity under validation (Para 47 of VVS)</p> <p>Note: If the DOE doubts the authenticity of the letter of approval, the DOE shall verify with the DNA that the letter of approval is authentic. (Para 48 of VVS)</p>	NA	OK
	<b>Authorization</b>		

37	Check whether each project participant has been authorized by at least one Party involved in a letter of approval. (Para 51 of VVS and para 82 of project standard)	NA	OK
38	Confirm whether the project participants are listed in tabular form in the PDD and that this information is consistent with the information provided in the section that contains the contact information for project participants (Para 51 of VVS)	NA	OK
39	Confirm whether no entities other than those authorized as project participants are included in these sections of the PDD (Para 47 of VVS)	NA	OK
40	Confirm that the approval of participation has been issued from the relevant DNA and if in doubt shall verify with the DNA that the approval of participation is valid for the proposed CDM project participants. (Para 54 of VVS)	NA	OK
	<b>Contribution to sustainable development</b>		OK
41	Confirm if DNA considers that the proposed CDM project activity assists the host Party in achieving sustainable development. (Para 57 of VVS)	NA	OK
42	Determine whether the letter of approval by the DNA of the host Party confirms the contribution of the proposed CDM project activity to the sustainable development of the host Party. (Para 58 of VVS of para 83 of project standard)	NA	OK
	<b>Modalities of communications</b>		OK
43	Validate the corporate identity of all project participants and focal points included in the Modalities of Communication (MoC) statement, as well as the personal identities, including specimen signatures and employment status, of their authorized signatories. (Para 60 of VVS)	NA	OK
44	Validate paragraph 60 above through: (a) Directly checking evidence for corporate, personal identity and other relevant documentation; (b) Notarized documentation; or (c) Written confirmation from the project participant or the coordinating/managing entity that submits to it the MoC statement that all corporate and personal details, including specimen signatures, are valid and accurate. (Para 61 of VVS)  Note: When the DOE validates identity by applying paragraph 61	NA	OK

	<p>(c) above, the DOE shall ensure that the MoC statement is received from a project participant with whom the DOE has a contractual relationship. (Para 62 of VVS)</p> <p>When the DOE validates identity by applying paragraph 61 (c) above, the DOE shall ensure that the official who submits the MoC statement to the DOE and the official who signed the written confirmation (if a different person) is/are duly authorized to do so on behalf of the respective project participant (Para 63 of VVS)</p> <p>If the DOE is unable to validate the requirements by applying paragraph 61 (a), (b) or (c) above then the DOE may perform further validation activities in order to confirm that the corporate and personal details, employment status and specimen signatures included in the MoC statement are valid and accurate and comply with the requirements of this section (Para 64 of VVS)</p>		
	<b>Modalities of communication statement</b>		
45	Validate that the MoC statement has been correctly completed and duly authorized (Para 66 of VVS)	NA	OK
46	<p>Check that:</p> <p>(a) The latest version of the form Modalities of Communication statement (F-CDM-MOC) has been used;</p> <p>(b) The information required as per the F-CDM-MOC, including its annex 1, is correctly completed;</p> <p>(c) The project participants authorized signatories signing the F-CDM-MOC correspond to the project participants authorized signatories included in F-CDM-MOC, annex 1 (Para 60 of VVS)</p> <p>(d) The title of the proposed CDM project activity or PoA (and UNFCCC reference number if available);</p> <p>(e) The date of submission of the MoC statement (to a DOE for inclusion in the request for registration or to the secretariat for changes after registration);</p> <p>(f) The designation of a focal point for each scope of authority, contact details and specimen signatures of the authorized signatories of each focal point entity;</p> <p>(g) A list of all project participants, contact details and specimen signatures of their authorized signatories;</p> <p>(h) The signature of an authorized signatory (electronic if available) of all project participants confirming their agreement with the MoC statement</p>	NA	OK

	(Refer para 86 of project standard)		
	<b>Application of the selected baseline and monitoring methodology</b>		
47	<p>Check whether Project participants selected a baseline and monitoring methodology that has been approved by the Board and that is applicable to the proposed CDM project activity or PoA. (Refer para 20 of project standard)</p>	<p>The project activity uses approved baseline and monitoring methodology AMS III.Z. - “Fuel switch, process improvement and energy efficiency in brick manufacture” Version 4.0 which is valid as Request for registration can be done till Jan 2015. Hence accepted by the validation team. At the time of registration, it is revised to version 5.0 The methodology is applicable to the project activity and applicability condition of the methodology has been checked against the project activity.</p>	OK
48	<p>Determine whether the baseline and monitoring methodologies selected by the project participants are the valid versions of those approved by the Board (Para 78 of VVS)</p> <p>Note: The DOE shall apply specific guidance and/or clarifications provided by the Board with respect to the approved methodology and any applicable tools (Para 79 of VVS)</p> <p>Note: If the proposed small-scale CDM project activity involves more than one component, project participants shall provide ex ante calculations of baseline, project and leakage GHG emissions as well as GHG emission reductions for each year of the crediting period and for each component separately (Refer para 105 of project standard)</p> <p>Note: To determine the performance of equipment used in the proposed small-scale CDM project activity, project participants shall use: (a) The appropriate value specified in the selected methodology; (b) The national standard for the performance of the equipment type (project participants shall identify the standard used) if the value specified in subparagraph (a) is not available; (c) An international standard for the performance of the equipment type, such as International Organization for Standardization (ISO) and International Electrotechnical Commission (IEC) standards</p>	<p>Same as above.</p>	

	<p>(project participants shall identify the standard used) if the value specified in subparagraph (b) is not available;  (d) The manufacturer's specifications, provided that they are tested and certified by national or international certifiers, if the value specified in subparagraph (c) is not available;  (e) Performance data from test results conducted by an independent entity for equipment installed under the project activity if the value specified in subparagraph (d) is not available.  (Refer para 106 of project standard)</p> <p>Note:  In cases where leakage is to be considered in the proposed small-scale CDM project activity, project participants shall consider leakage only within the boundaries of non-Annex I Parties.  (Refer para 107 of project standard)</p> <p>Note:  In case of replacement of existing equipments, project participants shall estimate the point in time where the existing equipments would be replaced in the absence of the proposed small-scale CDM project activity in accordance with the "Tool to determine the remaining lifetime of equipment"  (Refer para 108 of project standard)</p> <p>Note: For household devices/appliances, project participants may disregard the remaining lifetime.  (Refer para 109 of project standard)</p> <p>Note: Project participants shall consider that norms, specifications, standards and test procedures cited in the selected methodology refer to the latest version of the documentation available at the time of submission of the PDD to the DOE for validation  (Refer para 110 of project standard)</p>		
49	Determine whether the selected methodology applies to the project activity and was correctly applied with respect to the following: (a) Project boundary; (b) Baseline identification; (c) Algorithms and/or formulae used to determine emission	The methodology applicable to the project activity was correctly applied w.r.t the following The project boundary as schematically provided in the PD is as per the project boundary definition in the methodology. The baseline has been identified using the latest guidelines	OK

	<p>reductions;  (d) Additionality;  (e) Monitoring methodology (Para 80 of VVS)</p>	<p>for determining baseline and methodology.  Algorithms and formulae used to determine emission reductions have been sourced from the methodology and applicable tools.  Additionality has been addressed using latest guideline on additionality  Monitoring methodology is taken from the methodology and is being implemented according in actual by the PP.</p>	
	<p><b>Applicability of the selected baseline and monitoring methodology to the project activity</b></p>		
50	<p>Check whether in the Section B.1 of PDD, the exact reference (number, title, version) of the following is indicated  (a) The selected methodology (e.g. AMS-I.A. "Electricity generation by the user" (Version 14.0));  (b) Any tools and other methodologies to which the selected methodology refers (e.g. "Tool to calculate the emission factor for an electricity system" (Version 02.2.1))</p> <p>Note: Refer to the UNFCCC CDM web site for the exact reference of approved baseline and monitoring methodologies and tools. (Refer SSC CDM guidelines )</p>	<p>AMSIIZ. "Fuel Switch, process improvement and energy efficiency in brick manufacture" Sectoral Scope: 04 Version 5.0 (at the time of registration)</p> <p>Applied Methodological Tool:</p> <ol style="list-style-type: none"> <li>1. "Tool to calculate project or leakage CO2 emissions from fossil fuel combustion" Version 02, Annex 11, EB 41.   <a href="http://cdm.unfccc.int/methodologies/PAmethodologies/tools/am-tool-03-v2.pdf">http://cdm.unfccc.int/methodologies/PAmethodologies/tools/am-tool-03-v2.pdf</a></li> <li>2. "Tool to calculate baseline, project and/or leakage emissions from electricity consumption", Version 01, Annex 7, EB 39.   <a href="http://cdm.unfccc.int/methodologies/PAmethodologies/tools/am-tool-05-v1.pdf">http://cdm.unfccc.int/methodologies/PAmethodologies/tools/am-tool-05-v1.pdf</a></li> <li>3. "Project and leakage emissions from road transportation of freight" Version 01.0.0, Annex 10 of EB63   <a href="http://cdm.unfccc.int/methodologies/PAmethodologies">http://cdm.unfccc.int/methodologies/PAmethodologies</a></li> </ol>	

		<p><a href="http://cdm.unfccc.int/methodologies/PAmethodologies/tools/am-tool-12-v1.pdf">es/tools/am-tool-12-v1.pdf</a></p> <p>4. “Tool for the demonstration and assessment of additionality”, Version (06.1.0), (EB 69)</p> <p><a href="http://cdm.unfccc.int/methodologies/PAmethodologies/tools/am-tool-01-v6.1.0.pdf">http://cdm.unfccc.int/methodologies/PAmethodologies/tools/am-tool-01-v6.1.0.pdf</a></p> <p>CAR was raised as the additionality tool is not the latest.</p>	CAR 4
51	<p>Check whether Project participants used the version of the selected methodology that is valid at the time of submission of the CDM project activity or CPA for registration, taking into account the grace period of the methodology if it has been revised. (Refer para 36 project standard)</p> <p>Note: Project participants shall apply the selected methodology to the proposed CDM project activity or CPA including any tools, standards or guidelines required by the methodology. (Refer para 36 of project standard)</p>	<p>The project activity uses approved baseline and monitoring methodology AMS III.Z. - “Fuel switch, process improvement and energy efficiency in brick manufacture” Version 4.0 which is valid as Request for registration can be done till Jan 2015. At the time of registration of the project activity, PP has used ver 5.0. Hence accepted by the validation team.</p>	OK
52	<p>Check whether in the section B.2 of PDD, the choice of the selected methodology by showing that the project activity meets each applicability conditions of the selected methodology is justified. (Refer SSC CDM guidelines and para 39 of project standard)</p>	<p>The applicability condition is presented below from 52.1 to 52.12.</p>	OK
52.1	<p>The methodology comprises one or more technology/measures listed below in brick production facilities: Shift to an alternative brick production technology/process; or Complete/Partial substitution of fossil fuels with renewable biomass (including solid biomass residues such as sawdust and food industry organic liquid residues); or Complete/partial substitution of high carbon fossil fuels with low carbon fossil fuels</p>	<p>The project activity is a green field project activity. However, to substantiate the same, PP is required to provide documentary evidences.</p> <p>It is confirmed from the onsite that project activity entails shift from baseline scenario (BTK Technology) to the efficient Fal-G Technology. (option 1).</p> <p>However, the fuels used in the baseline and project activity including fuels used in the boiler and DG set is not clearly demonstrated in the PD.</p>	CAR 5

52.2	<p>Complete or partial fuel substitution and associated activities may also result in improved energy efficiency of existing facility; however project activities primarily aimed at emission reductions from energy efficiency measures shall apply AMS-II.D “Energy efficiency and fuel switching measures for industrial facilities”. Thus, the methodology is applicable for the production of:</p> <p>Bricks that are the same in the project and baseline cases; or Bricks that are different in the project case versus the baseline case due to a change(s) in raw materials, use of different additives, and/or production process changes resulting in reduced use or avoidance of fossil fuels for forming, sintering (firing) or drying or other applications in the facility as long as it can be demonstrated that the service level of the project brick is comparable to that of the baseline brick (as per paragraph 11) Examples include pressed mud blocks (soil blocks) with cement or lime stabilization and other „unburned” bricks that attain strength due to fly ash, lime/cement and gypsum chemistry.</p>	Since the project activity is a green field activity, this criterion is therefore not applicable.	OK
52.3	The measures may replace, modify, retrofit or add capacity to systems in existing facilities or be installed in a new facility.	Same as above	OK
52.4	New facilities (Greenfield projects) and project activities involving capacity additions are only eligible if they comply with the requirements for Greenfield projects and capacity increase projects specified in the “General Guidelines for SSC CDM methodologies”.	The project meets the requirement of the general guidelines for SSC CDM methodologies as demonstrated in the Baseline sections of the PD.	OK
52.5	The requirements concerning demonstration of the remaining lifetime of the replaced equipment shall be met as described in the General Guidance for SSC methodologies. If the remaining life time of the affected systems increases due to the project activity, the crediting period shall be limited to the estimated remaining lifetime, i.e, the time when the affected systems would have replaced in the absence of the project activity.	The project activity is a greenfield project activity as described above.	OK
52.6	For existing facilities, it shall be demonstrated, with historical data, that for at least three years immediately prior to the start date of the project implementation, only fossil fuels (no renewable biomass) were used in the brick production systems that are being modified or retrofitted. In cases where small quantities of biomass were used for experimental purposes this can be excluded.	Same as above	OK

52.7	The renewable biomass utilized by the project activity shall not be chemically processed (e.g. esterification to produce biodiesel, degumming and/or neutralization by chemical reagents) prior to the combustion but it may be processed mechanically (e.g. pressing, filtering)/thermally (e.g. gasification to produce syngas).	No renewable biomass is used in the project after being processed chemically as confirmed by the verification team during site visit.	OK
52.8	<p>In cases where the project activity uses crops from renewable biomass origin as fuel, the crops should be cultivated at dedicated plantations and the following conditions shall be met:</p> <p>The project activity does not lead to a shift of pre-project activities outside the project boundary, i.e. the land under the proposed project activity can continue to provide at least the same amount of goods and services as it would in the absence of the project;</p> <p>The plantations are established on land that:  Was classified as degraded or degrading at the start of the project implementation, as per the “Tool for the identification of degraded or degrading lands for consideration in implementing CDM A/R project activities”; or  Is included in the project boundary of one or several registered A/R CDM project activities;</p> <p>c) Plantations established on peat lands are not eligible even if qualifying under condition (i) or (ii) above.</p>	The project activity uses rice husk for steam, however the rice husk is not being cultivated at dedicated plantations.	OK
52.9	<p>In cases where the project activity utilizes charcoal produced from renewable biomass as fuel, the methodology is applicable provided that:</p> <p>Charcoal is produced in kilns equipped with a methane recovery and destruction facility; or</p> <p>If charcoal is produced in kilns not equipped with a methane recovery and destruction facility, methane emissions from the production of charcoal shall be considered.</p>	The project activity does not use charcoal in the project as confirmed during site visit.	OK
52.10	In the case of project activities involving changes in raw materials (including additives), it shall be demonstrated that additive materials are abundant in the country/region according to the	PP is requested to prove abundant availability of raw materials by demonstrating its demand and availability for at least one year prior to the project implementation with	CAR 6

	<p>following procedures:</p> <p>Step 1: Using relevant literature and/or interviews with experts, a list of raw materials to be utilized is prepared based on the historic and/or present consumption of such raw materials.</p> <p>Step 2: The current supply situation for each type of raw material to be utilized is assessed and their surplus availability is demonstrated using one of the approaches below:</p> <p>Approach 1: Demonstrate that the raw materials to be utilized, in the region of the project activity, are not fully utilized. For this purpose, demonstrate that the quantity of material is at least 25% greater than the demand for such materials or the availability of alternative materials for at least one year prior to the project implementation. Approach 2: Demonstrate that suppliers of raw materials to be utilized, in the region of the project activity, are not able to sell all of their supply of these materials. For this purpose, project participants shall demonstrate that a representative sample of suppliers of the raw materials to be utilized, in the region, had a surplus of material (e.g., at the end of the period during which the raw material is sold), which they could not sell and which is not utilized.</p>	<p>documentary evidences.</p> <p>A clarification is raised as the literature referred for the justification is Central Electricity Authority data annual report 2009-10, however the data is for the entire country and not for the region the project is operating. PP to provide analysis on local availability/region of the project activity of the fly ash as well.</p>	<p>CR 4</p>
52.11a	<p>This methodology is applicable under the following conditions:</p> <p>The service level of project brick shall be comparable to or better than the baseline brick, i.e., the bricks produced in the brick production facility during the crediting period shall meet or exceed the performance level of the baseline bricks (in terms of for example dry compressive strength, wet compressive strength, density). An appropriate national standard shall be used to identify the strength class of the bricks, bricks that have compressive strengths lower than the lowest class bricks in the standard are not eligible under this methodology. Project bricks are tested in nationally approved laboratories at 6 months interval (at a minimum) and test certificates on compressive strength are made available for verification;</p>	<p>PP has provided comparison of service level of the project bricks with baseline bricks, which has been checked from <a href="http://aac-india.com/aac-blocks-vs-clay-bricks/">http://aac-india.com/aac-blocks-vs-clay-bricks/</a> and found to be accurate. Moreover the service level of the bricks will be checked every six months during verification.</p> <p>However, PP has not provided reference to any national standard to be used to identify the strength class of the bricks.</p>	<p>CAR 7</p>
52.11 b	<p>The existing facilities involving modification and/or replacement shall not influence the production capacity beyond <math>\pm 10\%</math> of the baseline capacity unless it is demonstrated that the baseline for the added capacity is the same as that for the existing capacity in accordance with paragraph 4 of the methodology.</p>	<p>The project activity is a new facility as confirmed during site visit and document review.</p>	<p>OK</p>

52. 11 c	Measures are limited to those that result in emission reductions of less than or equal to 60 kt CO2 equivalent annually.	The emission reduction calculation provided by PP shows that no year during the crediting period the emission reduction crosses the limit of 60 ktCO2 annually. This will be further crosschecked during verification.	OK
52. 12	This methodology is not applicable if local regulations require the use of proposed technologies or raw materials for the manufacturing of bricks unless widespread non compliance (less than 50% of brick production activities in the country comply) of the local regulation evidenced.	PP has provided the justification based on present literature available. PP has presented the widespread non-compliance of non-use of fly ash in the industry.	OK
53	Check whether in the section B.2 of PDD the project activity qualifies as Type I, II, and/or III during every year of the crediting period in accordance with applicable provisions for project activity eligibility in the Project standard is demonstrated. (Refer SSC CDM guidelines)	The project activity qualifies under type III for every year in the crediting period.	OK
54	Check whether documentation that has been used as a basis for justification and the references are included in Appendix 3 of PDD (Refer SSC CDM guidelines)	NA	OK
55	Validate that the selected baseline and monitoring methodology is applicable to the project activity and that the selected version is valid at the time of submission of the proposed project activity for registration (Para 81 of VVS)	The project activity uses approved baseline and monitoring methodology AMS III.Z. - "Fuel switch, process improvement and energy efficiency in brick manufacture" Version 4.0 which is valid as Request for registration can be done till Jan 2015. Hence accepted by the validation team. At the time of registration, it is revised to version 5.0. The methodology is applicable to the project activity and applicability condition of the methodology has been checked against the project activity.	OK
56	Determine whether the methodology is correctly quoted and applied by comparing it with the actual text of the applicable version of the methodology (Para 82 of VVS)  Note: If the PDD of a proposed project activity is based on a previous version of a methodology and was published for global stakeholder consultation but was not submitted for registration within the grace period, the DOE shall request the project participants to provide a revised PDD in accordance with the Project cycle procedure (Para 83 of VVS)	Methodology is correctly quoted and applied by comparing it with the actual text of the applicable version of the methodology	OK
57	Determine whether the project activity meets each of the	Please refer to sections 52.	OK

	<p>applicability conditions of the approved methodology or any tool or other methodology component referred to therein.</p> <p>Note: This shall be done by validating the documentation referred to in the PDD and by verifying that the documentation content is correctly quoted and interpreted in the PDD. If the DOE, based on local and sectoral knowledge, is aware that comparable information is available from credible sources other than that used in the PDD, then the DOE shall cross-check the PDD against other sources to confirm that the project activity meets the applicability conditions of the methodology (Para 85 of VVS)</p> <p>Note: If project participants wish to present a small-scale CDM project activity with more than one component in the same PDD, project participants shall provide the information regarding the sections covering the type and technology/measure of the project activity and application of the selected methodology separately for each component. (Refer para 100b of project standard)</p>		
	<b>Deviation from an approved methodology</b>		
58	<p>If project participants requested a deviation before the publication of the PDD when applying an approved methodology to a proposed project activity, or if a DOE finds at validation that project participants deviated from an approved methodology and the DOE considers that the deviation was due to a project-specific issue implying that a revision of the methodology would not be required to address the issue, it may seek guidance on the acceptability of the deviation from the Board prior to requesting registration of the proposed project activity (Refer Para 87 of VVS)</p>	NA	OK
59	<p>The DOE shall submit to the Board an assessment of the case including demonstration that the deviation does not require revision of an approved methodology, and shall include a description of the impact of the deviation on the emission reductions from the project activity (Refer Para 88 of VVS)</p>	NA	OK
60	<p>Alternatively, if the DOE considers that a revision of the</p>	NA	OK

	methodology would be required to address the project situation then the DOE shall request the project participants to submit a request for revision in accordance with the Project cycle procedure (Refer Para 89 of VVS)		
	<b>Clarification on the applicability of an approved methodology</b>		
61	<p>If the DOE cannot make a determination regarding the applicability of the selected methodology to the proposed project activity, then the DOE shall request clarification of the methodology. The DOE shall conduct an assessment to ensure that the request is not submitted with the intention of revising an approved methodology to expand its applicability (Para 90 of VVS)</p> <p>Note: In their consideration of baseline and monitoring methodologies applicable to the proposed CDM project activity or PoA, project participants may:</p> <p>(a) Submit a request for revision to an approved methodology through a DOE or directly to the UNFCCC secretariat in accordance with the applicable procedure;</p> <p>(b) Develop and propose a new methodology, in accordance with the applicable guidelines and procedure (Refer para 26 of project standard)</p> <p>Note: Project participants wishing to seek clarification on the applicability of a baseline and monitoring methodology or methodological tool approved by the Board may submit a request for clarification through a DOE or directly to the secretariat in accordance with the applicable procedure</p>	NA	OK
	<b>Project boundary</b>		
62	Check whether in section B.3 of PDD, the project boundary of the project activity based on the guidance of the selected methodology is defined (Refer SSC CDM guidelines)	The project boundary is the physical, geographical site where the brick production takes place during both the baseline and crediting periods. The same was checked during site visit and confirmed by PP.	OK
63	Check whether in section B.3 of PDD, a flow diagram of the project boundary, physically delineating the project activity, based on the description provided in section A.3 of PDD is presented.	The flow diagram provided in the PD represents the description of the activity observed at site.	OK

	(Refer SSC CDM guidelines)		
64	Check whether in section B.3 of PDD, the equipment, systems and flows of mass and energy are described in the flow diagram. (Refer SSC CDM guidelines)	The equipment, systems and flows of mass and energy are described in the flow diagram also the same was confirmed during site visit.	OK
65	Check whether in section B.3 of PDD, the emission sources and GHGs included in the project boundary and the data and parameters to be monitored is indicated in the diagram. (Refer SSC CDM guidelines)	The emission sources and GHGs included in the project boundary and the data and parameters to be monitored is indicated in the diagram.	OK
66	Determine whether all main GHG emission sources, the physical delineation of the proposed project activity and other relevant project and baseline emission sources covered in the methodology are included within the project boundary for the purpose of calculating project and baseline emissions for the proposed project activity. (Refer para 91 of VVS)  Note: Project participants shall define the boundary of the proposed CDM project activity or PoA, including the physical delineation of the project activity, and which sources and GHGs are included in the project or CPA boundary, in accordance with the selected methodology. (Refer para 40 of project standard)  Note: In cases where the selected methodology allows project participants to choose whether a source or gas is to be included in the project or CPA boundary, project participants shall explain and justify the choice. (Refer para 41 of project standard)	All main GHG emission sources, the physical delineation of the proposed project activity and other relevant project and baseline emission sources covered in the methodology are included within the project boundary for the purpose of calculating project and baseline emissions for the proposed project activity.	OK
67	Confirm the project boundary based on documented evidence and shall corroborate it by a site visit where required (Para 92 of VVS)	Project boundary was confirmed during site visit.	OK
68	If the methodology allows project participants to choose whether a source or gas is to be included within the project boundary, the DOE shall determine whether the project participants have justified that choice. The DOE shall determine whether the justification provided is reasonable, based on an assessment of supporting documented evidence provided by the project participants and	NA	OK

	<p>corroborated by observations if required (Refer Para 93 of VVS)</p> <p>Note: For the project activities that have both A/R and non-A/R components, in order to avoid double counting of emission sources, the DOE shall confirm that the emissions associated with the A/R activity will be accounted for and documented by the A/R project activity. (Refer Para 94 of VVS)</p>		
	<b>Baseline scenario identification and description</b>		
69	<p>Check whether in section B.4 of PDD, how the baseline scenario is established in accordance with the selected methodology and applicable provisions for establishment and description of baseline scenario in the Project standard is explained. (Refer SSC-CDM guidelines and para 42 of project standard)</p> <p>Note: When establishing the baseline scenario, and where “future anthropogenic emissions by sources are projected to rise above current levels due to the specific circumstances of the host Party”, project participants should follow the “Guidelines on the consideration of suppressed demand in CDM methodologies” (Refer para 42 of project standard)</p>	<p>The project activity involves setting up new facilities for production of bricks and blocks by adopting the FaL-G technology, which results in emission reductions. The baseline is therefore the fossil fuel consumption of the facilities to manufacture baseline bricks that would otherwise be continued in the absence of the project in order to meet the demand for walling material.</p> <p>The PD provides step wise approach of the identification of baseline scenario and additionality.</p>	OK
70	<p>Check whether in section B.4 of PDD, the key assumptions, its rationale and data used to establish the baseline scenario (variables, parameters, data sources etc.) preferably in a tabular form is explained and justified with all relevant documentation and/or references including a transparent description of the baseline scenario as established above.</p> <p>Note: The full description of the technologies and measures of the baseline scenario is to be provided in section A.3 of PDD. (Refer SSC-CDM guidelines)</p>	<p>The PD provides its rationale and data used to establish the baseline scenario and further justified with all relevant documentation and/or references including a transparent description of the baseline scenario as established above. PP has demonstrated the baseline on the basis of brick type and technology. PP has demonstrated the baseline with three types of bricks namely burnt clay bricks, fly-ash bricks and cement concrete blocks with the market share. Since Burnt clay bricks are having majority market share (95%), it is accepted as the baseline brick. PP has further identified the various technologies available for production of burnt clay bricks which are namely Clamps type kiln, FC BTK kiln, Zig zag firing and VSBK. Based on the number of kilns available and production rates, PP has</p>	CAR 8

		demonstrated that FC BTK technology is the best suited for clay brick type. However, PP is required to provide “Comprehensive industry document with emission standards, guidelines and stack height regulation for vertical shaft brick kilns (VSBK) viz-a-viz pollution control measures, COINDS/71/2007, CPCB, MoEF, May 2007”	
71	<p>Determine whether the baseline identified for the proposed project activity is the scenario that reasonably represents the anthropogenic emissions by sources of GHGs that would occur in the absence of the proposed project activity. (Refer Para 97 of VVS)</p> <p>Note: Project participants shall describe the established baseline scenario for the proposed CDM project activity or CPA, including the technology that would be employed and/or the activities that would take place in the absence of the project activity or CPA. (Refer para 47 of project standard)</p>	The baseline scenario has been selected as per the methodology.	OK
72	<p>Determine whether procedures contained in the methodology to identify the most reasonable baseline scenario has been correctly applied.</p> <p>Note: If the selected methodology requires the use of tools (such as the “Tool for the demonstration and assessment of additionality” and the “Combined tool to identify the baseline scenario and demonstrate additionality”) to establish the baseline scenario, the DOE shall consult the methodology on the application of these tools. In such cases, the specific guidance in the methodology shall supersede the corresponding requirements of the tool. (Para 99 of VVS)</p>	The baseline scenario has been selected as per the methodology.	OK
73	If the methodology requires several alternative scenarios to be considered in the identification of the most plausible baseline scenario, the DOE shall, based on financial expertise and local and sectoral knowledge, determine whether all scenarios that are considered by the project participants and any scenarios that are supplementary to those required by the methodology, are realistic and credible in the context of the proposed project activity and that no alternative scenario has been excluded (Para 100 of VVS)	The baseline scenario has been selected as per the methodology.	OK

74	<p>Determine whether the most plausible baseline scenario identified is reasonable by validating the assumptions, calculations and rationales used in the PDD. It shall determine whether documents and sources referred to in the PDD are correctly quoted and interpreted.</p> <p>Note: The DOE shall cross-check the information provided in the PDD with other verifiable and credible sources, such as local expert opinion, if available (Para 101 of VVS)</p>	The baseline scenario has been selected as per the methodology.	OK
75	Determine whether the PDD provides a description of the identified baseline scenario, including a description of the technology that would be employed and/or the activities that would take place in the absence of the proposed project activity (Para 102 of VVS)	The baseline scenario has been selected as per the methodology.	OK
76	<p>The DOE shall determine whether, drawing on its knowledge of the sector and/or advice from local experts, that all applicable CDM requirements have been taken into account in the identification of the baseline scenario for the proposed project activity, as well as relevant national and/or sectoral policies and circumstances, such as sectoral reform initiatives, local fuel availability, power sector expansion plans, and the economic situation in the project sector. Two (2) types of national and/or sectoral policies have to be taken into account:</p> <p>(a) National and/or sectoral policies or regulations that give comparative advantages to more emissions-intensive technologies or fuels over less emissions-intensive technologies or fuels, otherwise known as policies that increase GHG emissions, and are called type E+. For this type of national and/or sectoral policies or regulations, only those that have been implemented before adoption of the Kyoto Protocol by the COP (decision 1/CP.3, 11 December 1997) shall be taken into account when identifying a baseline scenario. If such national and/or sectoral policies were implemented since the adoption of the Kyoto Protocol, the baseline scenario shall refer to a hypothetical situation without the national and/or sectoral policies or regulations being in place;</p> <p>(b) National and/or sectoral policies or regulations that give comparative advantages to less emissions-intensive technologies</p>	<p>All applicable CDM requirements have been taken into account in the identification of the baseline scenario for the proposed project activity, as well as relevant national and/or sectoral policies and circumstances, such as sectoral reform initiatives, local fuel availability, power sector expansion plans, and the economic situation in the project sector.</p> <p>Moreover the baseline scenario has been selected as per the methodology.</p>	OK

	<p>over more emissions-intensive technologies (e.g. public subsidies to promote the diffusion of renewable energy or to finance energy efficiency programmes), otherwise known as policies that decrease GHG emissions, are called type E-. For this type of national and/or sectoral policies or regulations, those that have been implemented since the adoption by the COP of the CDM M&amp;P (decision 17/CP.7, 11 November 2001) need not be taken into account in identifying a baseline scenario (i.e. the baseline scenario could refer to a hypothetical situation without the national and/or sectoral policies or regulations being in place). (Para 103 of VVS)</p> <p>Note: As a general principle, national and/or sectoral policies and circumstances shall be taken into account in the establishment of a baseline scenario, without creating perverse incentives that may impact host Parties' contributions to the ultimate objective of the Convention. (Refer para 44 of project standard)</p> <p>Note: When establishing the baseline scenario, project participants shall take into account the following two types of national and/or sectoral policies:</p> <p>(a) National and/or sectoral policies or regulations that give comparative advantages to more emissions-intensive technologies or fuels over less emissions-intensive technologies or fuels;</p> <p>(b) National and/or sectoral policies or regulations that give comparative advantages to less emissions-intensive technologies over more emissions-intensive technologies (e.g. public subsidies to promote the diffusion of renewable energy or to finance energy efficiency programmes). (Refer para 45 of project standard)</p> <p>Note: Project participants shall address the two types of policies described in paragraph above as follows: (a) Only national and/or sectoral policies or regulations described in</p>		
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	<p>paragraph 44(a) above that have been implemented before adoption of the Kyoto Protocol by the Conference of the Parties (hereinafter referred to as the COP) (decision 1/CP.3, 11 December 1997) shall be taken into account when establishing a baseline scenario. If such national and/or sectoral policies were implemented since the adoption of the Kyoto Protocol, the baseline scenario should refer to a hypothetical situation without the national and/or sectoral policies or regulations being in place;</p> <p>(b) National and/or sectoral policies or regulations described in paragraph 44(b) above that have been implemented since the adoption by the COP of the CDM M&amp;P (decision 17/CP.7, 11 November 2001) need not be taken into account in establishing a baseline scenario (i.e. the baseline scenario could refer to a hypothetical situation without the national and/or sectoral policies or regulations being in place). (Refer para 46 of project standard)</p>		
	<b>Identification of alternatives</b>		
77	Where the baseline scenario is not prescribed in the approved methodology, the DOE shall assess the list of identified credible alternatives to the project activity in the PDD selected to determine the most realistic baseline scenario. (Para 122 of VVS)	The baseline scenario has been identified based on approved methodology.	OK
78	<p>Assess the list of alternatives given in the PDD and to determine whether:</p> <p>(a) The list of alternatives includes as one of the options that the project activity is undertaken without being registered as a proposed project activity;</p> <p>(b) The list contains all plausible alternatives that the DOE, on the basis of its local and sectoral knowledge, considers to be viable means of supplying the comparable outputs or services that are to be supplied by the proposed project activity;</p> <p>(c) The alternatives comply with all applicable and enforced legislation (Para 123 of VVS)</p> <p>Note: Where the baseline scenario is prescribed in the approved methodology, no further analysis is required (Para 124 of VVS)</p>	<p>PP has listed all credible alternatives to identify the baseline such as:</p> <ul style="list-style-type: none"> <li>• Clay brick</li> <li>• Cement concrete blocks</li> <li>• Fly ash bricks including FaL-G</li> </ul> <p>No regulation prevent setting up of any of the above alternatives.</p>	OK
	<b>Assessment of prior consideration of the CDM</b>		
79	Check in the section B.5 of PDD, if the start date of the project	Not specifically applicable for a VCS project.	OK

	activity is prior to the date of publication of the PDD for the global stakeholder consultation, evidence of the prior consideration of the CDM in accordance with applicable provisions related to the demonstration of prior consideration of the CDM in the Project standard is provided. (Refer SSC-CDM guidelines and para 27 of project standard)		
80	Determine whether CDM benefits were considered necessary in the decision to undertake the project as a proposed project activity if the starting date of the proposed project activity is prior to the start of validation, which is the date of publication of the PDD for global stakeholder consultation (Para 113 of VVS)	NA	OK
81	Determine whether the start date of the project activity, reported in the PDD, is the earliest date at which either the implementation or construction or real action of a project activity begins. For project activities that require construction, retrofit or other modifications, the date of commissioning cannot be considered the project activity start date. The DOE shall determine whether it is a project activity with a start date: (a) On or after 2 August 2008; or (b) Before 2 August 2008. (Para 114 of VVS)	NA	OK
82	For project activities with a start date on or after 2 August 2008, the project participants shall notify the designated national authority (DNAs) of the host Party of the project activity and the secretariat in writing of the commencement of the project activity and their intention to seek the CDM status within 180 days of the start date of the project activity as defined in the "Glossary of CDM terms", by using the "Prior consideration of the CDM form" (F-CDM-PC). (Refer para 7 of project cycle procedure)  Note: Such notification is not necessary if: (a) A PDD regarding the project activity has been published for global stakeholder consultation in accordance with paragraph 16 below; or  (b) A new baseline and monitoring methodology is proposed or a revision of an approved baseline and monitoring methodology is	NA	OK

	<p>requested for the project activity before the start date in accordance with relevant procedures (Refer para 7 of project cycle procedure)</p> <p>Note: If such notification has not been provided by the project participants within 180 days of the project activity start date, the DOE shall determine that the CDM was not seriously considered in the decision to implement the project activity. (Refer para 27 of project standard and Para 115 of VVS)</p> <p>Note: The DOE shall confirm by referring to the list of prior consideration notifications from the UNFCCC website and communication between the project proponent, the secretariat and the host Party DNA regarding the commencement of a new project activity.</p>		
83	<p>For project activities referred to in paragraph 7 of project cycle procedure, until they meet a condition in paragraph 7(a) or 7(b) of project cycle procedure, the project participants shall inform the secretariat of the progress of the project activity every subsequent two (2) years after the initial notification, using the "Prior consideration of the CDM form" (F-CDM-PC).</p>	NA	OK
84	<p>For a project activity with a start date before 2 August 2008, for which the start date is prior to the date of publication of the PDD for global stakeholder consultation, the DOE shall assess the project participants prior consideration of the CDM. Specifically, the DOE shall assess whether the project participants:</p> <p>(a) Had an awareness of the CDM prior to the project activity start date, and that the benefits of the CDM were a decisive factor in the decision to proceed with the project.</p> <p>Note: Evidence to support this could include, inter alia, minutes and/or notes related to the consideration of the decision by the Board of Directors, or equivalent, of the project participants, to undertake the project as a proposed project activity;</p>	NA	OK

	<p>(b) Demonstrated that real and continuing actions were taken to secure CDM status for the project in parallel with its implementation.</p> <p>Note: Evidence to support this could include one or more of the following: contracts with consultants for CDM/PDD/methodology services, draft versions of PDDs and underlying documents such as letters of authorization, and if available, letter of intent, emission reduction purchase agreements (ERPA) term sheets, ERPAs or other documentation related to the potential sale of the certified emission reductions (CERs) (including correspondence with multilateral financial institutions or carbon funds), evidence of agreements or negotiations with a DOE for validation services, submission of a new methodology or requests for clarification or revision of existing methodologies to the Board, publication in a newspaper, interviews with the DNA, and earlier correspondence on the project with the DNA or the secretariat</p> <p>(c) Project participants provided an implementation timeline of the proposed CDM project activity.</p> <p>Note: The timeline should include, where applicable, the date when the investment decision was made, the date when construction works started, the date when commissioning started and the date of start-up (e.g. the date when commercial production started). Project participants shall provide a timeline of events and actions, which have been taken to achieve CDM registration, with description of the evidence used to support these actions. (Refer para 28 of project standard and Para 116 to 118 of VVS and para 10 of project cycle procedure)</p>		
85	Assessment of real and continuing actions shall be conducted by the DOE and should focus on real documented evidence as indicated in paragraph 108(b) above, including an assessment by the DOE of the authenticity of the evidence. The DOE shall assess letters, e-mail exchanges and other documented communications submitted by the project participants to substantiate the above	NA	OK

	information, and these shall be considered as evidence only after the DOE has assessed the reliability and authenticity of such communications, inter alia through cross-checking (e.g. interviews) (Para 117 of VVS)		
86	<p>In validating proposed project activities where:</p> <p>(a) There is less than two years of a gap between the documented evidence, the DOE shall conclude that continuing and real actions were taken to secure CDM status for the project activity;</p> <p>(b) The gap between documented evidence is greater than two years and less than three years, the DOE may determine that continuing and real actions were taken to secure CDM status for the project activity and shall justify any positive or negative validation opinion based on the context of the evidence and information assessed;</p> <p>(c) The gap between documented evidence is greater than three years; the DOE shall conclude that continuing and real actions were not taken to secure CDM status for the project activity (Para 118 of VVS)</p> <p>Note: If evidence to support the serious prior consideration of the CDM as indicated above is not available, the DOE shall determine that the CDM was not considered in the decision to implement the project activity (Para 119 of VVS)</p>	NA	OK
	<b>Additionality of a project activity</b>		
87	<p>Check whether in the section B.5 of PDD, the project activity is additional, in accordance with one of options provided in the applicable provision for demonstration of additionality for small-scale project activities in the Project standard is demonstrated (e.g. "Attachment A to Appendix B"). (Refer SSC-CDM guidelines)</p>	PP has used barrier analysis (Prevailing practice) is demonstrating additionality.	OK
88	<p>Check whether PP provided an explanation in the PDD for small scale project activities to show that the project activity would not have occurred anyway due to at least one of the following barriers:</p> <p>(a) Investment barrier: a financially more viable alternative to the project activity would have led to higher emissions;</p> <p>Note:</p>	The additionality of the project based on barrier analysis is not substantially justified in the PD. As per the barrier guidelines objective description of the barrier identified is not sufficient and needs more supportive.	CR 5

	<p>Best practice examples include but are not limited to, the application of investment comparison analysis using a relevant financial indicator, application of a benchmark analysis or a simple cost analysis (where CDM is the only revenue stream such as end-use energy efficiency). It is recommended to use national or global accounting practices and standards for such an analysis.</p> <p>(b) Technological barrier: a less technologically advanced alternative to the project activity involves lower risks due to the performance uncertainty or low market share of the new technology adopted for the project activity and so would have led to higher emissions;</p> <p>Note: Best practice examples include but are not limited to, the demonstration of non-availability of human capacity to operate and maintain the technology, lack of infrastructure to utilize the technology, unavailability of the technology and high level of technology risk.</p> <p>(c) Barrier due to prevailing practice: prevailing practice or existing regulatory or policy requirements would have led to implementation of a technology with higher emissions;</p> <p>Note: Best practice examples include but are not limited to, the demonstration that project is among the first of its kind in terms of technology, geography, sector, type of investment and investor, market etc.</p> <p>(d) Access-to-finance barrier: the project activity could not access appropriate capital without consideration of the CDM revenues;</p> <p>Note: Best practice examples include but are not limited to, the demonstration of limited access to capital in the absence of the CDM, such as a statement from the financing bank that the revenues from the CDM are critical in the approval of the loan.</p>		
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	<p>(d) Other barriers: without the project activity, for another specific reason identified by the project participant, such as institutional barriers or limited information, managerial resources, organizational capacity, financial resources, or capacity to absorb new technologies, emissions would have been higher.</p> <p>Note: Other barriers such as institutional barriers or limited information, managerial resources, organizational capacity, or capacity to absorb new technologies.</p> <p>Note: Project participants shall identify the most relevant barrier and Provide transparent and documented third party evidence such as national/international statistics, national/provincial policy and legislation, studies/surveys by independent agencies etc.</p> <p>(Refer Attachment A to Appendix B)</p>		
89	<p>Determine whether the proposed SSC project activity is additional in accordance with CDM requirements applicable for small-scale project activities. (Para 193 of VVS)</p> <p>Note: The DOE shall refer to the specific requirements on demonstration of additionality for small-scale project activities and the Non-binding best practice examples to demonstrate additionality for SSC project activities. (Para 195 of VVS)</p> <p>In the case of Type I project activities up to 5 MW that employ renewable energy as their primary technology, Type II energy efficiency project activities that aim to achieve energy savings at a scale of no more than 20 GWh per year, and Type III project activities that aim to achieve emissions reductions at a scale of no more than 20 kt CO<sub>2</sub>e per year, the DOE shall assess the relevant criteria to establish the automatic additionality for these projects. (Para 196 of VVS)</p>	Same as above.	OK
90	<p>Determine whether the proposed project activity is additional as demonstrated in the PDD (Para 108 of VVS)</p> <p>Note: Project participants shall demonstrate, in accordance with the selected methodology and the requirements relating to prior</p>	Same as above.	OK

	consideration of the CDM, that the anthropogenic emissions of GHG by sources are reduced below those that would have occurred in the absence of the proposed CDM project activity. (Refer para 49 of project standard)		
91	<p>Assess and verify the reliability and credibility of all data, rationales, assumptions, justifications and documentation provided by project participants to support the demonstration of additionality. This requires the DOE to critically assess the evidence presented, using local knowledge and sectoral and financial expertise (Para 109 of VVS)</p> <p>Note: If required by the applicable approved methodology, the DOE shall consider tools and guidelines provided by the Board to demonstrate the additionality of proposed project activities. The DOE shall also consider specific complementary or alternative requirements included in the methodology for demonstrating the additionality of the proposed project activity (Para 110 of VVS)</p>	Same as above.	OK
	<b>Investment analysis</b>		
92	If investment analysis has been used to demonstrate the additionality of the proposed project activity, the DOE shall determine whether the proposed project activity would not be: (a) The most economically or financially attractive alternative; or (b) Economically or financially feasible without the revenue from the sale of CERs (Para 126 of VVS)	Depends on closure of CR 5	
93	<p>The DOE shall apply the latest version of the Guidelines on the assessment of investment analysis as provided by the Board and with other relevant provisions. (Para 127 of VVS)</p> <p>Note: For demonstration of additionality of the proposed CDM project activity, and if it is required by the selected methodology and/or any tool referenced in the methodology, project participants shall follow “Guidelines on the assessment of investment analysis”</p>	Same as above.	
94	The period of assessment should not be limited to the proposed crediting period of the CDM project activity. Both project IRR and equity IRR calculations shall as a preference reflect the period of expected operation of the underlying project activity (technical lifetime), or if a shorter period is chosen include the fair value of the project activity assets at the end of the assessment period. In	Same as above.	

	<p>general a minimum period of 10 years and a maximum of 20 years will be appropriate. The IRR calculation may include the cost of major maintenance and/or rehabilitation if these are expected to be incurred during the period of assessment. Project participants are requested to justify and DOEs are requested to validate the appropriateness of the period of assessment in the context of the underlying project activity, without reference to the proposed CDM crediting period.</p> <p>Note: The purpose of undertaking an investment analysis is to determine whether or not the project activity would be financially viable without the incentive of the CDM. The actual project activity is not limited in time to the crediting period being requested.</p> <p>Note: If project participants choose a renewable crediting period and if the technical lifetime of the CDM project activity is more than 20 years, the investment analysis shall be conducted for 20 years and include the fair value of the project activity assets at the end of the assessment period.</p> <p>If project participants choose a renewable crediting period and if the technical lifetime of the CDM project activity is less than 20 years, the investment analysis shall be conducted over a period corresponding to the technical lifetime of the project activity and the fair value at the end of the assessment period shall be set at zero. (Refer para 3 of investment analysis guidelines)</p>		
95	<p>The fair value of any project activity assets at the end of the assessment period should be included as a cash inflow in the final year. The fair value should be calculated in accordance with local accounting regulations where available, or international best practice. It is expected that such fair value calculations will include both the book value of the asset and the reasonable expectation of the potential profit or loss on the realization of the assets.</p> <p>Note: Net Present Value (NPV) or Internal Rate of Return (IRR) calculations are designed to calculate the return on the cost of investment, in cases where the capital expenditures have not been</p>	Same as above.	

	<p>fully devalued this should be reflected as a cash inflow. Not to apply a residual value would imply that the project must repay the full value of the capital expenditure before the value of this expenditure had been consumed.</p> <p>(Refer para 4 of investment analysis guidelines)</p>		
96	<p>Depreciation, and other non-cash items related to the project activity, which have been deducted in estimating gross profits on which tax is calculated, should be added back to net profits for the purpose of calculating the financial indicator (e.g. IRR, NPV). Taxation should only be included as an expense in the IRR/NPV calculation in cases where the benchmark or other financial indicator is intended for post-tax comparisons.</p> <p>Note: Depreciation is not an actual expense incurred by the company and as such does not directly affect the financial viability of the project. To treat both the capital cost of the assets and their depreciation as an expense to the project would be a double counting of this cost. Taxation can only be considered a relevant expense if the indicator used for comparison purposes is intended for post tax comparisons.</p> <p>(Refer para 5 of investment analysis guidelines)</p>	Same as above.	
97	<p>Input values used in all investment analysis should be valid and applicable at the time of the investment decision taken by the project participant. The DOE is therefore expected to validate the timing of the investment decision and the consistency and appropriateness of the input values with this timing. The DOE should also validate that the listed input values have been consistently applied in all calculations.</p> <p>Note: The use of investment analysis to demonstrate additionality is intended to assess whether or not a reasonable investor would or not decide to proceed with a particular project activity without the benefits of the CDM. This decision will therefore be based on the relevant information available at the time of the investment decision and not information available at an earlier or later point. Any expenditures occurred prior to the decision to proceed with the investment in the project will not impact the final investment</p>	Same as above.	

	<p>decision as such expenses sunk costs which remain unaffected by the decision to proceed or not with a project activity. (Refer para 6 of investment analysis guidelines)</p>		
98	<p>In the case of project activities for which implementation ceases after the commencement and where implementation is recommenced due to consideration of the CDM the investment analysis should reflect the economic decision-making context at point of the decision to recommence the project. Therefore capital costs incurred prior to the revised project activity start date can be reflected as the recoverable value of the assets, which are limited to the potential reuse/resale of tangible assets.</p> <p>Note: At the point of taking a decision to restart implementation of a project as a CDM project activity, the key issue of interest to an investor is the costs and revenues including the incentives from the CDM accruing from continuation of the investment (Refer para 7 of investment analysis guidelines)</p>	Same as above.	
99	<p>Project participants should supply spreadsheet versions of all investment analysis. All formulas used in this analysis be readable and all relevant cells be viewable and unprotected. The spreadsheet will be made available to the EB, UNFCCC secretariat and others contracted to assess the request for registration on behalf of the Board including assigned members of the Registration and Issuance Team. In cases where the project participant does not wish to make such a spreadsheet available to the public an exact read-only or PDF copy shall be provided for general publication. In case the PP wishes to black-out certain elements of the publicly available version, a clear justification for this shall be provided to the UNFCCC secretariat by the DOE when requesting registration.</p> <p>Note: Paragraph 6 of Step 2 of the Tool for the demonstration and assessment of additionality (version 4) requires that investment analysis be presented in a transparent manner, to the extent that the reader can reproduce the results. (Refer para 8 of investment analysis guidelines)</p>	Same as above.	
100	<p>The cost of financing expenditures (i.e. loan repayments and interest) should not be included in the calculation of project IRR.</p>	Same as above.	

	<p>Note: The purpose of the project IRR calculation is to determine the viability of the project to service debt. Therefore to include the cost of financing as an expense in this calculation would result in a double counting of this cost in the ultimate analysis. (Refer para 9 of investment analysis guidelines)</p>		
101	<p>In the calculation of equity IRR only the portion of investment costs which is financed by equity should be considered as the net cash outflow, the portion of the investment costs which is financed by debt should not be considered a cash outflow.</p> <p>Note: The purpose of the equity IRR calculation is to determine the final return on the initial equity investment. In such calculations cost of servicing debt (interest and principle payments) are considered as costs. Therefore to consider all investment costs to be a cash outflow would double count the cost of debt to the equity investor. (Refer para 10 of investment analysis guidelines)</p>	Same as above.	
102	<p>Due to the impact of loan interest on income tax calculations it is recommended that when a project IRR is calculated to demonstrate additionality a pre-tax benchmark be applied. In cases where a post-tax benchmark is applied the DOE shall ensure that actual interest payable is taken into account in the calculation of income tax.</p> <p>Note: In general project IRR calculations should be conducted independently of the source of financing. This guideline provides information on how to conduct calculation if a post-tax benchmark is used. (Refer para 11 of investment analysis guidelines)</p>	Same as above.	
103	<p>In cases where a benchmark approach is used the applied benchmark shall be appropriate to the type of IRR calculated. Local commercial lending rates or weighted average costs of capital (WACC) are appropriate benchmarks for a project IRR. Required/expected returns on equity are appropriate benchmarks for equity IRR. Benchmarks supplied by relevant national authorities are also appropriate if the DOE can validate that they are applicable to the project activity and the type of IRR calculation presented.</p>	Same as above.	

	<p>Note: For the same project activity the project IRR and equity IRR will be different, therefore the benchmark shall be appropriate to the type of calculation applied. (Refer para 12 of investment analysis guidelines)</p>		
104	<p>In the cases of projects which could be developed by an entity other than the project participant the benchmark should be based on parameters that are standard in the market. The DOEs validation of the benchmark shall also include its opinion on whether a company-specific benchmark or a benchmark based on parameters that are standard in the market is suitable in the context of the underlying project activity.</p> <p>Note: If the project could be developed by a different entity the unwillingness of one investor to assume the associated risks is not sufficient evidence that the project is additional, as this may be based on the subjective profit expectations of that investor. The applied benchmark must be suitable for the specific proposed project activity. It is not suitable to compare the return of low risk investments with the returns achieved or achievable by higher risk investments. (Refer para 13 of investment analysis guidelines)</p>	Same as above.	
105	<p>Internal company benchmarks/expected returns (including those used as the expected return on equity in the calculation of a weighted average cost of capital - WACC), should only be applied in cases where there is only one possible project developer and should be demonstrated to have been used for similar projects with similar risks, developed by the same company or, if the company is brand new, would have been used for similar projects in the same sector in the country/region. This shall require as a minimum clear evidence of the resolution by the company's Board and/or shareholders and will require the validating DOE to undertake a thorough assessment of the financial statements of the project developer including the proposed WACC to assess the past financial behavior of the entity during at least the last 3 years in relation to similar projects.</p> <p>Note: Paragraph 4 of the Tool for the demonstration and</p>	Same as above.	

	<p>assessment of additionality (version 3) requires that benchmarks should not include the subjective profitability expectations or risk profile of a particular project developer. Note that a company's internal benchmark can be derived in different ways, including by using the Capital Asset Pricing Model (CAPM), however, values derived based on such approaches should only be used if the resulting benchmarks were consistently used by the company in the past. (Refer para 14 of investment analysis guidelines)</p>		
106	<p>If the benchmark is based on parameters that are standard in the market, the cost of equity should be determined either by: (a) selecting the values provided in Appendix A; or by (b) calculating the cost of equity using best financial practices, based on data sources which can be clearly validated by the DOE, while properly justifying all underlying factors. The values in the table in Appendix A may also be used, as a simple default option, if a company internal benchmark is used.</p> <p>Note: The values in Appendix A reflect, as an approximate value, the returns on equity expected by the market for different sectors and countries (see details on the calculation of the table further below). The expectation of return depends on conditions of the market that can be modelled, taking into account the history (time series) of the market key variables (explaining variables proper of the technology and/or sector under analysis). (Refer para 15 of investment analysis guidelines)</p>	Same as above.	
107	<p>If a company's internal benchmark is used for the expected return on equity, the cost of debt should be based on the weighted average cost of debt financing of the legal entity owning the CDM project activity.</p> <p>For loans, use the weighted average cost of outstanding long-term debt. For bonds, use the weighted average yield of the bonds during the last three months prior to the submission of the CDM-PDD for validation or prior to the investment decision, whichever is earlier. The use of bonds to determine the cost of debt is only appropriate for corporate bonds issued in the host country of the CDM project.</p>	Same as above.	

	<p>In cases where the debt finance structure of the project is not yet available (e.g. a letter of intent for debt funding is not available), the cost of debt can be assumed as the commercial lending rate in the country or the yield of a 10 year bond issued by the government of the host country or, if this is not available, the bond with the maturity which is closest to 10 years.</p> <p>The following should be documented in the CDM-PDD:  (a) for bonds: the key parameters of the bond including the time of maturity, yield, registration issuance in the financial system and set-up in the market;  (b) for loans from a financial institution: the contract of lending between the financial institution and the legal entity owning the assets of the project activity, or, in absence of the contract, a letter from the bank stating its intention to award the loan and the key terms for the loan; (c) for debt financing from a parent company: the transfer of capital to the legal entity, documented with the contract of lending between the parent company and the legal entity owning the assets of the project activity and/or the parameters of the corporate bonds as mentioned above. This latter option is only valid for corporate bonds issued in the host country of the CDM project activity.</p> <p>If the benchmark is based on parameters that are standard in the market, the cost of debt should be calculated as the cost of financing in the capital markets (e.g. commercial lending rates and guarantees required for the country and the type of project activity concerned), based on documented evidence from financial institutions with regard to the cost of debt financing of comparable projects. In cases where this data is not available, use the commercial lending rate in the host country to calculate the cost of debt.</p> <p>Note: Interest rates charged on loans are dependent upon a company's specific credit rating. Hence company specific interest rates are only relevant for projects with only one possible project developer.  (Refer para 16 of investment analysis guidelines)</p>		
108	If a company's internal benchmark is used for the expected return	Same as above.	

	<p>on equity, then the percentage of debt financing and equity financing should reflect the long-term debt/equity finance structure of the legal entity owning the assets of the project activity. The percentage should be determined based on the latest balance sheet provided under local fiscal/accounting standards and rules if: (a) the legal entity owning the assets of the project activity has balance sheets audited by a third party within two years prior to the submission of the CDM-PDD for validation; and (b) the accounting books of the legal entity reflect at least the total value of all the assets needed for the project activity. If the debt/equity finance structure is not yet available, 50% debt and 50% equity financing may be assumed as a default.</p> <p>(Refer para 17 of investment analysis guidelines)</p>		
109	<p>If the benchmark is based on parameters that are standard in the market, then the typical debt/equity finance structure observed in the sector of the country should be used. If such information is not readily available, 50% debt and 50% equity financing may be assumed as a default.</p> <p>(Refer para 18 of investment analysis guidelines)</p>	Same as above.	
110	<p>If the proposed baseline scenario leaves the project participant no other choice than to make an investment to supply the same (or substitute) products or services, a benchmark analysis is not appropriate and an investment comparison analysis shall be used. If the alternative to the project activity is the supply of electricity from a grid this is not to be considered an investment and a benchmark approach is considered appropriate.</p> <p>Note: The purpose of an investment analysis in the context of the CDM is to determine whether the project is less financially attractive than at least one alternative in which the project participants could have invested.</p> <p>In cases where the alternative requires investment anyhow and baseline emissions are based on that alternative, the only means of determining that the project activity is less financially attractive than at least one alternative is to conduct an investment comparison analysis.</p>	Same as above.	

	<p>The benchmark approach is therefore suited to circumstances where the baseline does not require investment or is outside the direct control of the project developer, i.e. cases where the choice of the developer is to invest or not to invest. (Refer para 19 of investment analysis guidelines)</p>		
111	<p>Only variables, including the initial investment cost, that constitute more than 20% of either total project costs or total project revenues should be subjected to reasonable variation (all parameters varied need not necessarily be subjected to both negative and positive variations of the same magnitude), and the results of this variation should be presented in the PDD and be reproducible in the associated spreadsheets. Where a DOE considers that a variable which constitute less than 20% has a material impact on the analysis they shall raise a corrective action request to include this variable in the sensitivity analysis.</p> <p>Note: The initial objective of a sensitivity analysis is to determine in which scenarios the project activity would pass the benchmark or become more favorable than the alternative. (Refer para 20 of investment analysis guidelines)</p>	Same as above.	
112	<p>The DOE should assess in detail whether the range of variations is reasonable in the project context. Past trends may be a guide to determine the reasonable range. As a general point of departure variations in the sensitivity analysis should at least cover a range of +10% and 10%, unless this is not deemed appropriate in the context of the specific project circumstances. In cases where a scenario will result in the project activity passing the benchmark or becoming the most financially attractive alternative the DOE shall provide an assessment of the probability of the occurrence of this scenario in comparison to the likelihood of the assumptions in the presented investment analysis, taking into consideration correlations between the variables as well as the specific socio-economic and policy context of the project activity.</p> <p>Note: The ultimate objective of the sensitivity analysis is to determine the likelihood of the occurrence of a scenario other than the scenario presented, in order to provide a cross-check on the suitability of the assumptions used in the development of the</p>	Same as above.	

	investment analysis. (Refer para 21 of investment analysis guidelines)		
113	Depending on the country and sector, project participants can select the relevant benchmark value for their proposed CDM project activity.  Note: The values are expressed in percentages in real terms. Note: The default values for the expected return on equity as adopted by the Board at its sixty-second meeting are based on long term historical returns and therefore may also be applied by projects with a start date prior to the sixty-second meeting of the Board. (Refer para 6 –Appendix of investment analysis guidelines)	Same as above.	
114	In situations where an investment analysis is carried out in nominal terms, project participants can convert the real term values provided in the table below to nominal values by adding the inflation rate. The inflation rate shall be obtained from the inflation forecast of the central bank of the host country for the duration of the crediting period. If this information is not available, the target inflation rate of the central bank shall be used. If this information is also not available, then the average forecasted inflation rate for the host country published by the IMF (International Monetary Fund World Economic Outlook) or the World Bank for the next five years after the start of the project activity shall be used. (Refer para 7 –Appendix of investment analysis guidelines)	Same as above.	
115	The DOE shall determine whether the project activity is not the most economically or financially attractive alternative, or that it is not economically or financially feasible without CDM: (a) The proposed project activity would produce no financial or economic benefits other than CDM-related income. The DOE shall determine whether the documented costs associated with the proposed project activity and the alternatives identified demonstrate that there is at least one alternative which is less costly than the proposed project activity; (b) The proposed project activity is less economically or financially attractive than at least one other credible and realistic alternative; (c) The financial returns of the proposed project activity would be	Same as above.	

	insufficient to justify the required investment.(Para 119 of VVS)		
116	<p>To verify the accuracy of financial calculations carried out for any investment analysis, the DOE shall:</p> <p>(a) Determine the suitability of the financial indicator selected by the project participants and conduct a thorough assessment of all parameters and assumptions used in calculating such financial indicators, and determine the accuracy and suitability of these parameters using available evidence and applying its expertise in relevant accounting practices;</p> <p>(b) Cross-check the parameters against third-party or publicly available sources, such as invoices or price indices;</p> <p>(c) Review, as appropriate, feasibility reports, public announcements and annual financial reports related to the proposed project activity and the project participants;</p> <p>(d) Assess the correctness of computations carried out and documented by the project participants; and</p> <p>(e) Assess, where applicable, the sensitivity analysis by the project participants to determine under what conditions variations in the result would occur, and the likelihood of these conditions (Para 129 of VVS)</p>	Same as above.	
117	<p>To confirm the suitability of any benchmark applied in the investment analysis, the DOE shall:</p> <p>(a) Determine whether the type of benchmark applied is suitable for the type of financial indicator presented;</p> <p>(b) Ensure that any risk premiums applied in determining the benchmark reflect the risks associated with the project type or activity;</p> <p>(c) Determine whether it is reasonable to assume that no investment would be made at a rate of return lower than the benchmark (Para 130 of VVS)</p>	Same as above.	
118	<p>Where project participants rely on values from Feasibility Study Reports (FSR) that are approved by national authorities for proposed project activities, the DOE shall determine whether:</p> <p>(a) The FSR is the basis for the decision to proceed with the investment in the project, i.e. that the period of time between the finalization of the FSR and the investment decision is sufficiently short that it is unlikely in the context of the underlying project activity that the input values would have materially changed;</p>	Same as above.	

	<p>(b) The values used in the PDD and associated annexes are fully consistent with the FSR, and where inconsistencies occur the DOE shall assess the appropriateness of the values;</p> <p>(c) The input values from the FSR are valid and applicable at the time of investment decision. The DOE shall confirm this on the basis of its specific local and sectoral expertise and by cross-checking or other appropriate means (Para 131 of VVS)</p>		
	<b>Barrier analysis</b>		
	<p>Check whether project participants followed “Guidelines for objective demonstration and assessment of barriers” for demonstration of additionality of the proposed CDM project activity, and if it is required by the selected methodology and/or any tool referenced in the methodology. (Refer para 50b of project standard)</p>	The additionality of the project based on barrier analysis is not substantially justified in the PD. As per the barrier guidelines objective description of the barrier identified is not sufficient and needs more supportive.	
119	<p>If barrier analysis was used to demonstrate the additionality of the proposed project activity, the DOE shall determine whether the proposed project activity faces barriers that:</p> <p>(a) Prevent the implementation of this type of proposed project activity;</p> <p>(b) Do not prevent the implementation of at least one of the alternatives (Para 133 of VVS)</p>	Same as above	
120	<p>The DOE shall determine whether issues that have a direct impact on the financial returns of the project activity are not considered barriers and shall be assessed by investment analysis. This does not refer to either:</p> <p>(a) Risk related barriers, for example risk of technical failure, that could have negative effects on financial performance; or</p> <p>(b) Barriers related to the unavailability of sources of finance for the project activity (Para 134 of VVS)</p>	Same as above	
121	<p>The DOE shall apply a two-step process to assessing the barrier analysis performed, as follows:</p> <p>(a) <i>Determine whether the barriers are real:</i> The DOE shall assess the available evidence and/or conduct interviews with relevant individuals (including members of industry associations, government officials or local experts if necessary) to determine whether the barriers listed in the PDD exist. The DOE shall determine whether the existence of barriers is substantiated by independent sources of data such as relevant national</p>	Same as above	

	<p>legislation, surveys of local conditions and national or international statistics. If the existence of a barrier is substantiated only by the opinions of the project participants, the DOE shall not consider this barrier to be adequately substantiated. If the DOE considers, on the basis of its sectoral or local expertise, that a barrier is not real or is not supported by sufficient evidence, it shall raise a CAR to have reference to this barrier removed from the project documentation;</p> <p>(b) <i>Determine whether the barriers prevent the implementation of the project activity but not the implementation of at least one of the possible alternatives:</i> Since not all barriers present an insurmountable hurdle to a project activity being implemented, the DOE shall apply its local and sectoral expertise to judge whether a barrier or set of barriers would prevent the implementation of the proposed project activity and would not equally prevent implementation of at least one of the possible alternatives, in particular the identified baseline scenario (Para 135 of VVS)</p>		
	<b>Common practice analysis</b>		
122	<p>Check whether Project participants followed the following in the demonstration of additionality of the proposed CDM project activity</p> <p>(a) "Guidelines on additionality of first-of-its-kind project activities"</p> <p>(b) "Guidelines on common practice"</p> <p>(Refer para 51 of project standard)</p>	Not applicable as the project is a small scale project activity	OK
123	<p>For proposed large-scale project activities, unless the proposed project type is first-of-its kind as determined in accordance with the relevant guidelines, the DOE shall assess whether the project participants have conducted a common practice analysis (Para 137 of VVS)</p>	NA	OK
124	<p>The DOE shall use official sources and its local and sectoral expertise to:</p> <p>(a) Assess whether the geographical scope (e.g. the defined region) of the common practice analysis is appropriate for the assessment of common practice related to the project activities technology or industry type. For certain technologies, the relevant region for assessment will be local and for others it may be transnational/ global. If a region other than the entire host country is chosen, the DOE shall assess the explanation of why this region is more appropriate;</p> <p>(b) Determine to what extent similar and operational projects (e.g.</p>	NA	OK

	using similar technology or practice), other than project activities, have been undertaken in the defined region; (c) Assess, if similar and operational projects, other than project activities, are already widely observed and commonly carried out in the defined region, whether there are essential distinctions between the proposed project activity and the other similar activities (Para 138 of VVS)		
	<b>Algorithms and/or formulae used to determine emission reductions</b>		
125	Check whether in section B.6.1 of PDD, how the methods or methodological steps, in the selected methodology, for calculating project emissions, baseline emissions, leakage and emission reductions are applied are explained including a statement which equations will be used in calculating emission reductions. (Refer SSC-CDM guidelines and para 53 of project standard)	The PD clearly explains the methods for calculating project emissions, baseline emissions and leakage are applied. As per the equations defined in the applied methodology.	OK
126	Check whether in section B.6.1 of PDD, all relevant methodological choices are explained and justified including: (a) Where the selected methodology provides different options to choose from (e.g. "combined margin" under AMS I.D), indicate and justify which option is chosen for the project activity; (b) Where the selected methodology allows different default values (e.g. values for MCF under AMS III.E), indicate and justify which of the default values have been chosen for the project activity. (Refer SSC-CDM guidelines and para 54 of project standard)	All methodological choices have been explained and justified along with choice of value based on literature publically available and default values wherever applicable.	OK
127	Check whether in section B.6.2 of PDD, a compilation of information on the data and parameters that are not monitored during the crediting period but are determined before the validation and remain fixed throughout the crediting period is included. (Refer para 54 of project standard) Note: Data that become available only after the registration of the project activity (e.g. measurements after the implementation of the project activity) should not be included here but in the table in section B.7.1 of PDD.  Note: The compilation of information may include data that are measured or sampled, and data that are collected from other sources (e.g.	Parameters fixed at validation time are provided below: <b>EF<sub>BL</sub></b> (The parameter is Annual production specific emission factor for manufacturing the product derived in the baseline scenario to project activity product.) <b>EF<sub>cement</sub></b> (Carbon emission factor of Cement production) <b>EF<sub>Aluminium</sub></b> (Carbon emission factor of Aluminium Power production) <b>EF<sub>Lime</sub></b> (Carbon emission factor of Lime) <b>EF<sub>CO2,f</sub></b> (Default carbon di-oxide emission factor for freight transport activity f.)	OK

	<p>official statistics, expert judgment, proprietary data, IPCC, commercial and scientific literature, etc.). Data that are calculated with equations provided in the selected methodology or default values specified in the methodology should not be included in the compilation.</p> <p>For each piece of data or parameter, complete the table in section B.6.2 of PDD, following these instructions:</p> <p>(a) "Value(s) applied": Provide the value applied. Where time series of data is used, where several measurements are undertaken or where surveys have been conducted, provide detailed information in Appendix 4 of PDD. To report multiple values referring to the same data and parameter, use one table. If necessary, reference(s) to electronic spreadsheets may be used;</p> <p>(b) "Choice of data": Indicate and justify the choice of data source. Provide clear and valid references and, where applicable, additional documentation in Appendix 4 of PDD;</p> <p>(c) "Measurement methods and procedures": Where values are based on measurement, include a description of the measurement methods and procedures applied (e.g. which standards have been used), indicate the responsible person/entity that undertook the measurement, the date of the measurement and the measurement results. More detailed information can be provided in Appendix 4 of PDD;</p> <p>(d) "Purpose of data": Choose one of the following options:</p> <p>(i) Calculation of baseline emissions;</p> <p>(ii) Calculation of project emissions;</p> <p>(iii) Calculation of leakage.</p> <p>(Refer SSC-CDM guidelines)</p>		
128	<p>Check whether in section B.6.3 of PDD, a transparent ex-ante calculation of project emissions, baseline emissions (or, where applicable, direct calculation of emission reductions) and leakage expected during the crediting period, applying all relevant equations provided in the selected methodology is provided.</p> <p>Note: For data or parameters available before validation, use values contained in the table in section B.6.2 of PDD. For data/parameters</p>	Same as above	OK

	not available before validation and monitored during the crediting period, use estimates contained in the table in section B.7.1 of PDD. If any of these estimates has been determined by a sampling approach, provide a description of the sampling efforts undertaken in accordance with the "Standard for sampling and surveys for CDM project activities and PoA". (Refer SSC-CDM guidelines and para 54 of project standard)		
129	Check whether in section B.6.3 of PDD, how each equation is applied, in a manner that enables the reader to reproduce the calculation is documented with additional background information and/or data in Appendix 4 of PDD, including relevant electronic spreadsheets including a sample calculation for each equation used, substituting the values used in the equations.  Note: If the project activity involves more than one component activity (e.g. one component activity for methane capture applying AMS III.D together with another component for grid connected electricity generation applying AMS I.D), provide emission reduction calculations for each of the component in accordance with the applicable provision for application of selected baseline and monitoring methodology for small-scale project activities in the Project standard (Refer SSC-CDM guidelines)	NA	OK
130	Check whether in the section of B.6.4 of PDD, the results of the ex-ante calculation of emission reductions for all years of the crediting period, using the table in the section. Note: If the project activity involves more than one component, provide a separate table for each of the component or each of the selected methodology. In addition, provide a table showing the aggregate emission reductions of the project activity. (Refer SSC-CDM guidelines)	PP has provided the result of ex-ante calculation of emission reduction for all years of the crediting period in a tabulated format.  However calculation of the ex-ante emission reduction is not provided transparently in the PD.  CAR is raised as PP has not detailed the ex-ante calculation in the PD.	CAR 9
131	Determine whether the steps taken and the equations and parameters applied in the PDD to calculate project emissions, baseline emissions, leakage and emission reductions comply with the requirements of the selected methodology including applicable tool(s). (Para 140 of VVS)	Yes, the equations and parameters are based on methodology and applied tools.	OK
132	Determine, Where the methodology allows for selection between	Adequate justification has been provided for choice of	OK

	options for equations or parameters, whether adequate justification has been provided (based on the choice of the baseline scenario, context of the proposed project activity and other evidence provided) and that the correct equations and parameters have been used, in accordance with the methodology selected including applicable tool(s). (Para 141 of VVS)	equation and parameters.	
133	Verify the justification given in the PDD for the choice of data and parameters used in the equations. If data and parameters will not be monitored throughout the crediting period of the proposed project activity but have already been determined and will remain fixed throughout the crediting period, the DOE shall determine whether all data sources and assumptions are appropriate and calculations are correct as applicable to the proposed project activity, and will result in an accurate or otherwise conservative estimate of the emission reductions. If data and parameters will be monitored or estimated on implementation and hence become available only after validation of the project activity, the DOE shall determine whether the estimates provided in the PDD for these data and parameters are reasonable. (Para 142 of VVS)	<p>PP is required to provide the document (proposal) to support raw material composition as mentioned in the ER sheet. (Refer ER sheet, Key assumption tab).</p> <p>Document to provide trip road distances for each raw material (fly ash, cement, Gypsum, aluminium, Lime etc)</p> <p>(Refer ER sheet, Key assumption Tab)</p> <p>PD is not clear what type of coal is assumed/ used in the baseline.</p> <p>It is not clear how the emission factor of coal/MJ (0.0000946 tCO<sub>2</sub>e/MJ) is calculated. (Refer ER sheet/ Baseline emission factor tab)</p> <p>PP has considered leakage emissions in the production of raw material. But PP is not demonstrated how there is no emission involved in the consumption of raw material due to the project activity.</p> <p>There is no document provided to support the specific electricity consumption of 10 kWh/M<sup>3</sup> of project brick.</p>	CAR 10
	<b>Monitoring plan</b>		
134	Check whether in sections B.7.1, B.7.2, and B.7.3 of PDD, a detailed description of the monitoring plan of the project activity developed in accordance with the monitoring requirements of the selected methodology and applicable provisions for monitoring plan for all project types and small-scale project activities in the Project standard is provided. (Refer SSC-CDM guidelines and para 61 of project standard)	<p>The parameters determined ex post are:</p> <ul style="list-style-type: none"> <li><input type="checkbox"/> Net quantity of brick produced in m<sup>3</sup> by the project activity. This shall be monitored based on the number of bricks/ blocks produced and recorded in the stock register at the unit level on daily basis.</li> <li><input type="checkbox"/> The electricity consumption by each unit of the project activity. This shall be measured with the energy meters and monthly electricity bills shall be provided by the state</li> </ul>	OK

		<p>electricity board at each unit level.</p> <ul style="list-style-type: none"> <li><input type="checkbox"/> Cement, gypsum, aluminium and lime purchased by each unit of the project activity shall be monitored and recorded from the purchase bills.</li> <li><input type="checkbox"/> The block shall be tested in a Compressive strength Testing Machine (CTM) in any of the laboratories of polytechnics, engineering colleges, building centers, national laboratories etc. once in six months and the test certificates are provided by the laboratory.</li> </ul> <p>In view of the above mentioned monitoring procedure for each of ex-post monitored parameters. the monitoring plan is feasible for the project activity design and project proponent is considered able to implement the monitoring plan.</p>	
135	<p>Check whether in section B.7.1 of PDD, specific information on how the data and parameters that need to be monitored would actually be collected during monitoring is included.</p> <p>Note: Include here data that are determined only once for the crediting period but that will become available only after registration of the project activity (e.g. measurements after the implementation of the project activity). (Refer SSC-CDM guidelines)</p>	<p>Yes the collection of data, frequency of collection is provided for each parameter.</p>	OK
136	<p>Check whether for each piece of data or parameter in the table in the section B.7.1 of PDD includes the following instructions:</p> <p>(a) "Source of data": Indicate the source(s) of data that will be used for the project activity (e.g. which exact national statistics). Where several sources may be used, justify which data sources should be preferred;</p> <p>(b) "Value(s) applied": The value applied is an estimate of the data /parameter that will be monitored during the crediting period, but is used for the purpose of calculating estimated emission reductions in section B.6 above. To report multiple values referring to the same data and parameter, use one table. If necessary, reference(s) to electronic spreadsheets may be used;</p> <p>(c) "Measurement methods and procedures": Where data or parameters are to be monitored, specify the measurement methods and procedures, standards to be applied, accuracy of the</p>	<p>Parameters in the project activity to be monitored contains</p> <p>Source of data Value applied Measurement methods and procedure Frequency of monitoring/recording Value applied: Monitoring equipment QA/QC procedures to be applied Purpose of data Calculation method Comments</p>	OK

	<p>measurements, person entity responsible for the measurements, and, in case of periodic measurements, the measurement intervals;</p> <p>(d) "QA/QC procedures": Describe the Quality Assurance (QA)/Quality Control (QC) procedures to be applied, including the calibration procedures, where applicable;</p> <p>(e) "Purpose of data": Choose one of the following:</p> <p>(i) Calculation of baseline emissions;</p> <p>(ii) Calculation of project emissions;</p> <p>(iii) Calculation of leakage including providing any relevant further background documentation in Appendix 5 of PDD.</p> <p>(Refer SSC-CDM guidelines and para 65 of project standard)</p>		
137	<p>Check whether in section B.7.2 of PDD, a description of the sampling plan in accordance with the recommended outline for a sampling plan in the "Standard for sampling and surveys for CDM project activities and PoA" if data and parameters monitored in section B.7.1 of PDD are to be determined by a sampling approach is provided.</p> <p>(Refer SSC-CDM guidelines)</p>	<p>Sampling plan of the project for testing of the bricks produced is not detailed out.</p> <p>CAR is raised as sampling plan needs more detailing.</p>	CAR 11
138	<p>Check whether in section B.7.3 of PDD, the operational and management structure that the project operator will implement in order to monitor emission reductions and any leakage generated by the project activity are described.</p> <p>(Refer SSC-CDM guidelines and para 65 of project standard)</p>	<p>The monitoring plan would involve structure for:</p> <ul style="list-style-type: none"> <li>• Monitoring, recording and archiving of all data required for calculation of <i>ex-post</i> emission reduction from the project.</li> <li>• Storing documents required for emission reduction calculations.</li> <li>• Conducting/arranging calibration tests for monitoring equipment</li> <li>• Ensuring quality of recorded data</li> <li>• Co-ordinating with consultants and auditors to submit monitored data to VCS Board.</li> </ul>	OK
139	<p>Check in section B.7.3 of PDD, the responsibilities for and institutional arrangements for data collection and archiving are described including any relevant further background information in Appendix 5 of PDD.</p> <p>(Refer SSC-CDM guidelines and para 65 of project standard)</p>	<p>The responsibilities for data collection has been presented in the PD.</p>	OK
140	<p>Check whether project participants considered the following in developing the monitoring plan for the proposed small-scale CDM project activity:</p> <p>(a) Data variables that impact the GHG emission reductions</p>	<p>All the necessary data as per the methodology shall be monitored and recorded. The day to day data shall be compiled on monthly basis and the same shall be reviewed by the project entity. All the data shall be kept for two years</p>	OK

	<p>continuously (e.g. quantity of the fuel inputs, amount of heat or electricity produced, gas captured) shall be measured continuously and recorded at appropriate intervals. Data elements that are generally constant (e.g. emission factors, calorific value, system efficiencies) shall be measured or calculated at least once a year, unless other specifications are provided in the selected methodology;</p> <p>(b) Measuring equipments shall be certified to national or IEC standards;</p> <p>(c) The calibration of measuring equipment shall be carried out by an accredited person or institution;</p> <p>(d) Measured data with high levels of uncertainty or without adequate calibration shall be compared with location/national data and commercial data to ensure consistency. (Refer para 65 of project standard)</p>	<p>after the end of crediting period.</p> <p>The electricity meters shall be calibrated at least once in every five years as stipulated by Central Electricity Authority, Ministry of Power, Government of India: Clause 18 of Gazette Notification No. 502/70/CEA/DP&amp;D, dated 17 March 2006. The electricity meters are in the control of state electricity board and are to be calibrated by the state agency. To comply with the calibration requirement, any one of the following option shall be applied by the project participant:</p> <p><input type="checkbox"/> The electricity meters shall be calibrated by the State Electricity Board (SEB) and the calibration certificate shall be provided. As per the clause 18 (2) of Gazette Notification No. 502/70/CEA/DP&amp;D, dated 17 March 2006, the electricity meters may be replaced by another test meter by the SEB and the relevant test certificate shall be obtained for the electricity meter.</p> <p><input type="checkbox"/> In case, SEB is unable to provide the calibration certificate, as per the options mentioned above, a supplementary electricity meter shall be installed and the same shall be calibrated by a third party once in three years, in line with the CDM Executive Board guidance.</p> <p>The periodic inspection of the units of the project activity shall be conducted by the project entity to ensure the data accuracy and recording consistency.</p>	
141	<p>Check whether project participants included in the monitoring plan the following, for parameters to be measured in accordance with the selected methodology:</p> <p>(a) The measurement methods and procedures, including accepted industry standards or national or international standards that will be applied; the measuring equipment that will be used; how the measurements will be undertaken; the accuracy of the measurement methods; the measurement intervals and the responsible person/entity who will undertake the measurements;</p> <p>(b) Uncertainty levels, methods and the associated accuracy level of measuring instruments to be used for various parameters and variables;</p>	Same as above	OK

	<p>(Refer para 65e of project standard)</p> <p>(c) The calibration procedures to be applied and the responsible person/entity who will perform the calibration. (Refer para 112 of project standard)</p> <p>(d) Specifications of the calibration frequency for the measuring equipments. (Refer para 65f of project standard)</p> <p>Note: In cases where neither the selected methodology, nor the Board's guidance specify any requirements for calibration frequency for measuring equipments, project participants shall ensure that the equipments are calibrated either in accordance with the local/national standards, or as per the manufacturer's specifications. If local/national standards or the manufacturer's specifications are not available, international standards may be used. (Refer para 65f of project standard)</p>		
142	<p>Determine whether the description of the monitoring plan included in the PDD is based on the approved monitoring methodology including applicable tool(s) (Para 148 of VVS)</p>	<p>The selected monitoring plan is as per the applied methodology, AMS-III.Z, version 04. (V5.0 at the time of registration).</p> <p>The baseline has been calculated as the product of annual production specific emission factor and the net production of AAC blocks. The electricity consumption and diesel consumption by the project activity have been accounted as project emissions. The emission due to the transportation of raw materials and usage of cement (OPC) and/or lime in the process have been accounted as leakage as per the methodology, AMS-III.Z.</p> <p>The net production of AAC block shall be monitored based on the number of bricks/ blocks produced and recorded at the individual unit level. The electricity consumed by the project activity is monitored by the energy meters and, the latter shall be calibrated as per the national regulation of India.</p> <p>The monitoring plan is in accordance with the monitoring methodology. The monitoring plan will give opportunity for real measurements of achieved emission reductions.</p> <p>The application of the monitoring methodology is</p>	OK

		transparent and validation team considers the project participants would be able to implement the monitoring plan.	
143	<p>The DOE shall apply a two-step process to meet the above requirement:</p> <p>(a) To assess compliance of the monitoring plan with the approved methodology and the applicable tool(s), the DOE shall:</p> <p>(i) Identify the list of parameters required by the selected approved methodology including applicable tool(s) by means of document review;</p> <p>(ii) Confirm that the description of the monitoring plan contains all necessary parameters, that they are described and that the means of monitoring described in the plan complies with the requirements of the methodology including applicable tool(s).</p> <p>(b) To assess the implementation of the plan the DOE shall, by means of review of the documented procedures, interviews with relevant personnel, project plans and any physical inspection of the proposed project activity site, assess whether:</p> <p>(i) The monitoring arrangements described in the monitoring plan are feasible within the project design;</p> <p>(ii) The means of implementation of the monitoring plan, including the data management and quality assurance and quality control procedures, are sufficient to ensure that the emission reductions achieved by/resulting from the proposed project activity can be reported ex post and verified. (Para 149 of VVS)</p>	Checked above	OK
144	<p>Check whether there is any provisions to ensure that data monitored and required for verification and issuance be kept and archived electronically for two years after the end of the crediting period or the last issuance of CERs, whichever occurs later. (Refer para 65b of project standard)</p>	All data will be kept and archived electronically for two years after the end of the crediting period or the last issuance of CERs, whichever occurs later.	OK
<b>Duration of crediting period</b>			
145	<p>Check whether in section C.1.1 of PDD, the start date of the project activity, in the format of DD/MM/YYYY is stated and described how this date was determined with evidence to support this date (Refer SSC-CDM guidelines and para 71 of project standard)</p>	Start date: 01/8//2013 based on commissioning date of the project activity.	OK
146	<p>Check whether in section C.1.2 of PDD, the expected operational lifetime of the project activity in years and months is stated. (Refer SSC-CDM guidelines)</p>	Operational lifetime of the project is 15 years, however the basis is not yet provided.	OK

	Note: Project participants shall define the expected operational lifetime of the proposed CDM project activity (Refer para 67 of project standard)		
147	<p>Check whether in section C.2.1 of PDD, the type of crediting period chosen for the project activity (renewable or a fixed) is stated.</p> <p>Note: For a renewable crediting period, indicate whether it is the first, second or third. (Refer SSC-CDM guidelines)</p> <p>Note: Project participants shall select the type (fixed or renewable) and duration of the crediting period for the proposed CDM project activity considering that: (a) Each renewable crediting period shall be at most seven years and may be renewed at most two times, for a maximum total length of 21 years; (b) A fixed crediting period shall be at most 10 years (Refer para 68 of project standard)</p>	It is a renewal Crediting period. (10 years, renewal 2 times)	OK
148	<p>Check whether in section C.2.2 and C.2.3 respectively, the start date of the crediting period of the project activity in the format of DD/MM/YYYY and the length of the crediting period of the project activity in years and months is stated. (Refer SSC-CDM guidelines)</p> <p>Note: Project participants shall determine the start date of the crediting period of the proposed CDM project activity considering that the crediting period shall only start after the date of registration of the proposed project activity as a CDM project activity.</p> <p>Note: Project participants shall determine only one start date for the crediting period, even in cases of phased implementation of the proposed CDM project activity.</p> <p>Note: Project participants shall state the start date of the crediting period</p>	<p>Crediting Period Start Date: 01/8/2013 Crediting Period End Date: 31/07/2023 Length: 10Years 00Months (Renewal Crediting Period opted)</p>	OK

	in the format dd/mm/yyyy, and shall not use any qualifications to the start date, such as expected		
	<b>Environmental impacts</b>		
149	Check whether in section D.1 of PDD, a summary of the analysis of the environmental impacts and references to all related documentation in accordance with the applicable provision for environmental impacts for small-scale project activities in the Project standard is provided. (Refer SSC-CDM guidelines)	As per the prevailing regulations of the Host Party i.e. India represented by the Ministry of Environment and Forests (MoEF), Govt. of India, Environment Impact Assessment Notification 2006, and the project activity does not require Environment Impact Assessment to be conducted. The facility does not produce any pollution in manufacturing process but proposes to use the waste products like fly ash which create environmental pollution by increasing dust levels of atmosphere.  CAR is raised as Latest Environment Impact Assessment Notification by the Ministry of Environment and Forests (MoEF), Govt. of India is not provided.	CAR 12
150	Check whether project participants carried out an analysis of the environmental impacts of the proposed small-scale CDM project activity if required by the host Party, and provided a summary of the analysis and the reference to all related documentation. (Refer para 72 and 115 of project standard)	Not required	OK
151	Determine whether the project participants conducted an analysis of the environmental impacts of the proposed project activity, including transboundary impacts and whether those impacts are considered significant by the project participants or the host Party (Para 157 of VVS and para 115 of project standard)	Not Required	OK
152	Determine whether the project participants conducted an environmental impact assessment, if required to do so by the host Party, in accordance with the host Party' procedures (Para 135 of VVS) Note: The DOE shall assess the above requirements by means of a document review and/or using local official sources and expertise. (Para 158 of VVS)	Same as above	OK
	<b>Local stakeholder consultation</b>		
153	Check whether in section E.1 of PDD, the process by which comments from local stakeholders were invited for the project activity is described.	CAR is raised as dates of stakeholder consultation is not provided and date when invitation was circulated.	CAR 13

	(Refer SSC-CDM guidelines)  Note: Project participants shall invite comments from local stakeholders in an open and transparent manner, in a way that facilitates comments to be received from local stakeholders and allows for a reasonable time for comments to be submitted. Project participants shall describe the proposed CDM project activity or PoA in a manner that allows the local stakeholders to understand the project activity or PoA, taking into account confidentiality provisions of the applicable CDM M&Ps. (Refer para 74&75 of project standard)	It also does not describe the topics discussed and feedback from the stakeholder.	
154	Check whether in section E.2 of PDD the stakeholders that have made comments are identified and a summary of these comments is provided. (Refer SSC-CDM guidelines and para 76 of project standard )	Same as above	
155	Check whether in section E.3 of PDD, information demonstrating that all comments received have been considered is provided. (Refer SSC-CDM guidelines and para 77 of project standard)	Same as above	
156	Determine whether the project participants have completed a local stakeholder consultation process and that due steps were taken to engage stakeholders and solicit comments for the proposed project activity. (Para 161 of VVS)	Same as above	
157	Determine, by means of document review and interviews with local stakeholders as appropriate, determine whether: (a) Comments have been invited from local stakeholders that are relevant for the proposed project activity; (b) The summary of the comments received as provided in the PDD is complete; (c) The project participants have taken due account of all comments received and have described this process in the PDD (Para 162 of VVS)	Same as above	
158	Check whether Project participants completed the local stakeholder consultation process before submitting the proposed CDM project activity or PoA to a DOE for validation (Refer para 77 of project standard)	Same as above	
	<b>Global stakeholder consultation</b>		
159	The DOE shall acknowledge receipt of and take into account all	NA	OK

	comments on the PDD of the proposed project activity submitted in accordance with the Project cycle procedure. (Para 32 of VVS)		
160	The DOE shall take into account all the comments received during the validation of the proposed project activity. (Para 36 of VVS)	NA	OK
161	If comments indicate that the proposed project activity does not comply with the CDM requirements and are not substantiated, then the DOE shall request further clarification from the entity providing the comment. However, the DOE is not required to enter into a dialogue with Parties, stakeholders or NGOs that comment on the CDM requirements. If no additional information or substantiation is provided in response to a request for clarification, the DOE shall proceed to assess the comments as originally provided. (Para 37 of VVS)	NA	OK
	<b>GENERAL REQUIREMENTS</b>		
162	Have the project proponents applied an approved VCS Program methodology or a methodology from an approved GHG Program based on the list of current VCS Program approved GHG Programs and methodologies as set out on <a href="http://www.v-c-s.org">www.v-c-s.org</a> ? (Refer 3.1 of VCS Standard version 3.5)	Yes, the project has applied an approved methodology from an approved GHG Program based on the list of current VCS Program approved GHG Programs and methodologies. The project has applied an approved CDM methodology, AMS. III. Z.	OK
	<b>MULTIPLE PROJECT ACTIVITIES</b>		
163	Does the project include multiple activities? (Refer 3.2 of VCS Standard version 3.5)	Yes, the project involves single activity.	OK
	<b>GROUPED PROJECTS</b>		
164	Is this a grouped project? (Refer 3.4 of VCS Standard version 3.5)	No. This is not a grouped project.	OK
	<b>METHODOLOGY DEVIATIONS AND REVISIONS</b>		
165	Is any methodology deviations described and justified? (Refer 3.5 of VCS Standard version 3.5)	No deviation is observed.	OK
	<b>PROJECT START DATE</b>		
166	Is the project start date correctly specified in the PD as per VCS Version 3?	Yes, the start date of the project is correctly specified in the PD. But commissioning certificates are not provided.	

	(Refer 3.7 of VCS Standard version 3.5)		
	<b>PROJECT CREDITING PERIOD</b>		
167	Is the crediting period correctly specified in the PD as VCS version 3 (Refer 3.8 of VCS Standard version 3.5)	Yes, the start date of the project is correctly specified in the PD. But commissioning certificates are not provided.	
	<b>PROJECT DESCRIPTION</b>		
168	Is the template used for PD considers the requirements specified in the VCS 2007.1 (Refer 3.10 of VCS Standard version 3.5)	Yes. The template used has all the required information.	OK
169	Is there a summary description of the project given? (Refer 3.10 of VCS Standard version 3.5)	Yes.	OK
170	Is the sectoral scope and project type of the project given? (Refer 3.10 of VCS Standard version 3.5)	The given sectoral scope and project type of the project are correct, Sectoral scope: 4.	OK
171	Is the project location and geographical boundaries indicated? (Refer 3.10 of VCS Standard version 3.5)	It is provided in the PD.	OK
172	Does the condition (exist) prior to project initiation described? (Refer 3.10 of VCS Standard version 3.5)	The proposed project activity is a greenfield project and there is no activity undertaken prevailing prior to the project implementation,	
173	Does PD describe how the project will achieve GHG emission reductions and/or removal enhancements? (Refer 3.10 of VCS Standard version 3.5)	PD describes that baseline emissions, project emissions/leakage emissions.	OK
174	Is the contact information and roles/responsibilities for the project proponents given? (Refer 3.10 of VCS Standard version 3.5)	The roles and responsibilities are described in the PD.	OK
175	Is the contact information and roles/responsibilities for any other entities involved in the development of the project given? (Refer 3.10 of VCS Standard version 3.5)	The roles and responsibilities are described in the PD.	OK
176	Is the project start date specifying the day, month and year given? (Refer 3.10 of VCS Standard version 3.5)	The project start date is correctly mentioned in the PDD.	OK
177	Is the project crediting period specifying the day, month and year	The project start date of crediting period is correctly	OK

	for the start and end dates and the total number of years given? (Refer 3.10 of VCS Standard version 3.5)	mentioned in the PDD.	
178	Is the scale of the project (project or mega) and the estimated annual GHG emission reductions or removals for the project crediting period given? (Refer 3.10 of VCS Standard version 3.5)	The scale of the project is 'project'. The estimated annual GHG emission reductions is mentioned in the PD.	OK
179	Is a description of the project activity, including the technologies or measures employed and how emission reductions/removals are achieved given? (Refer 3.10 of VCS Standard version 3.5)	The description of the project activity is mentioned in the PD.	OK
180	Is the lifetime of the project activity indicated? (Refer 3.10 of VCS Standard version 3.5)	The lifetime of the project activity is given as 15 years. Please provide supporting evident.	
181	Is it demonstrated that the project has not been implemented to generate GHG emissions for the purpose of their subsequent reduction? (Refer 3.10 of VCS Standard version 3.5)	It is demonstrated that the project has not been implemented for the purpose of the subsequent reductions.	
182	Is it identified and demonstrated the compliance of the project with all relevant local, regional and national laws, statutes and regulatory frameworks? (Refer 3.10 of VCS Standard version 3.5)	The project is in compliance with all relevant local, regional and national laws, statutes and regulatory frameworks. The project proponent needs to provide copies of approval received from the relevant authorities.  It has been verified during the site visit that the project is in compliance with all relevant local, regional and national laws, statutes and regulatory frameworks. The project proponent needs to provide copies of approval received from the relevant authorities.	OK
<b>OWNERSHIP</b>			
183	Are the evidence of the right of use provided?  (Refer 3.11 of VCS Standard version 3.5)	PP did not provide document to support the same.	CAR 14

184	Is it demonstrated that the net reductions or removals will not be used for compliance with emission trading program or meet binding limits on GHG emissions? (Refer 3.11 of VCS Standard version 3.5)	PP did not provide document to support the same.	
185	Is it indicated whether the project has been registered, or is seeking registration under any other GHG program? If yes, provide registration number and details. (Refer 3.11 of VCS Standard version 3.5)	PP did not provide document to support the same.	
186	Is it demonstrated that the project neither has nor intends to generate any other form of GHG-related environmental credit for GHG emission reductions or removals claimed under the VCS Program, or that any such credit has been or will be cancelled from the relevant program? (Refer 3.11 of VCS Standard version 3.5)	PP did not provide document to support the same.	
187	Is it indicated whether the project has been rejected by any other GHG programs? If yes, provide the relevant information. (Refer 3.11 of VCS Standard version 3.5)	PP did not provide document to support the same.	
188	Is it indicated whether any commercially sensitive information has been excluded from the public version of project description? If yes, briefly describe the items to which such information pertains. (Refer 3.11 of VCS Standard version 3.5)	PP did not provide document to support the same.	
189	Is any additional relevant legislative, technical, economic, sectoral, social, environmental, geographical, site-specific and/or temporal information that may have a bearing on the eligibility of the project, the net GHG emission reductions or removals, or the quantification of the project's net GHG emission reductions or removals included? (Refer 3.11 of VCS Standard version 3.5)	Relevant information for the quantification of the project's net GHG emission reductions or removals has been included.	
	<b>PROJECT BOUNDARY</b>		
190	Is the project boundary defined? (Refer 3.12 of VCS Standard version 3.5)	The project boundary is clearly defined in the PD.	
	<b>DETERMINING THE BASELINE SCENARIO</b>		

191	Is the relevant GHG sources, sinks and reservoirs for the project and baseline scenarios (including leakage, if applicable) identified? (Refer 3.12 of VCS Standard version 3.5)	PD describes the GHG sources, sinks, reservoirs etc.	
192	Is the baseline scenario identified and justified? (Refer 3.13 of VCS Standard version 3.5)	Already explained in the previous sections.	
193	Is the additionality of the project undertaken in accordance with the applied methodology demonstrated and assessed? (Refer 3.13 of VCS Standard version 3.5)	Already explained in the previous sections.	
	<b>ADDITIONALITY</b>		
194	Has the PDD describe how the proposed CDM project activity is additional? (Refer 3.14 of VCS Standard version 3.5)	Yes. The project activity uses barrier analysis to demonstrate additionality.	
195	Has the PP provide reliable, credible data, rationales, assumptions, justifications and documentation in the PDD to support the demonstration of additionality? (Refer 3.14 of VCS Standard version 3.5)	Already explained in the previous sections.	
	<b>MONITORING THE GHG PROJECT</b>		
196	Is the monitoring plan described? (Refer 3.16 of VCS Standard version 3.5)	Already explained in the previous sections.	
197	Is the organizational structure, responsibilities and competencies identified? (Refer 3.16 of VCS Standard version 3.5)	The organizational structure, responsibilities and competencies identified in the PD.	
198	Are the methods for generating, recording, storing, aggregating, collating and reporting data on monitored parameters described? (Refer 3.16 of VCS Standard version 3.5)	The method for generating, recording, storing, aggregating, collating and reporting data on monitored parameters described in the PD.	
199	Are procedures for handling internal auditing and non-conformities described? (Refer 3.16 of VCS Standard version 3.5)	The procedures for handling internal auditing and non-conformities described in the PD.	
	<b>METHODOLOGIES</b>		

200	Is the title, reference and version number of the methodology or methodologies applied to the project provided? (Refer 3.17 of VCS Standard version 3.5)	The CDM approved methodology is applied in the project activity. Methodology AMS.III.Z is correctly quoted.	
201	Is it demonstrated and justified that the project activity meets the applicability conditions of the methodology applied to the project? (Refer 3.17 of VCS Standard version 3.5)	Already explained in the previous sections.	
	<b>MONITORING, QUANTIFICATION AND EMISSION REDUCTIONS</b>		
202	Is the procedure for quantification of the baseline emissions and/or removals described? Are all relevant equations included? (Refer 3.18 of VCS Standard version 3.5)	Already explained in the previous sections.	
203	Is the procedure for quantification of the project emissions and/or removals described? Are all relevant equations included? (Refer 3.18 of VCS Standard version 3.5)	Already explained in the previous sections.	
204	Is the procedure for quantification of the leakage emissions and/or removals described? Are all relevant equations included? (Refer 3.18 of VCS Standard version 3.5)	Already explained in the previous sections.	
205	Is the procedure for quantification of net GHG emission reductions and removals described? Are all relevant equations included? (Refer 3.18 of VCS Standard version 3.5)	Already explained in the previous sections.	
206	Is the ex-ante (estimated) calculation of baseline emissions/removals, project emissions/removals, leakage emissions and net emission reductions and removals provided? (Refer 3.18 of VCS Standard version 3.5)	Already explained in the previous sections.	
207	Are all data and parameters available at validation described using the table? (Refer 3.18 of VCS Standard version 3.5)	Already explained in the previous sections.	
208	Are all data and parameters monitored subsequent to validation described using the table? (Refer 3.18 of VCS Standard version 3.5)	Already explained in the previous sections.	
209	Are any environmental impact assessments carried out with respect	Already explained in the previous sections.	

	to the project, where applicable, summarized? (Refer 3.18 of VCS Standard version 3.5)		
210	Are relevant outcomes from stakeholder consultations and mechanisms for on-going communication summarized? (Refer 3.18 of VCS Standard version 3.5)	Already explained in the previous sections.	

**Table 2 Resolution of CARs and CRs**

<b>Correction Action Request (CAR) or Clarification Request (CR) or Forward Action Request (FAR)</b>	<b>Reference to Table 1</b>	<b>Response from project participant</b>	<b>Validation team conclusion</b>
<p><b>CAR 1</b></p> <p>The project activity is manufacturing of high-quality, load-bearing and well insulating building material by adopting an efficient low energy intensive brick production process instead of a high energy intensive brick production process like Clay Brick Bull"s trench kilns (BTKs) and positively impact the energy consumption pattern both at the brick production level and at the building operation level.</p> <p>The project activity is a small scale type III project with GHG emission reductions not exceeding 60 kt CO2e per year in any year of the crediting period.</p> <p>The project activity emission reduction as estimated is 46712 tCO2e/year every year.</p> <p>The emission reduction of the project activity has been calculated based on the total output capacity of the project that has been envisaged. i.e 240,000 m<sup>3</sup>/annum.</p> <p>CAR is raised as the emission reduction calculation is not as per the phased implementation, the way the project activity is undergoing.</p>	<p><b>S. No 2</b></p>	<p>The Emission Reduction calculation sheet has now been revised as per the phased implementation, the way the project activity is undergoing.</p>	<p>The validation team has reviewed the revised emission reduction sheet and now phased implementation scenario is being captured.</p> <p>Conclusion:</p> <p>CAR 1 is resolved.</p>

<b>Correction Action Request (CAR) or Clarification Request (CR) or Forward Action Request (FAR)</b>	<b>Reference to Table 1</b>	<b>Response from project participant</b>	<b>Validation team conclusion</b>
<p><b>CAR 2</b></p> <p>PP is also requested to submit documentary evidence for the project was envisaged for total capacity of 2.4 Lakh M3/annum at the investment decision.</p>	<b>S. No 2</b>	The documentary evidence for the project is envisaged for total capacity, has now been shared for validation.	<p>The validation team has reviewed the technical specifications of the project activity and confirmed the capacity envisaged.</p> <p>Conclusion:</p> <p>CAR 2 is resolved.</p>
<p><b>CAR 3</b></p> <p>The project activity is a greenfield project activity; The validation team confirms the same. However, PP is required to demonstrate greenfield with evidences.</p>	<b>S.No 20</b>	The project activity is a greenfield project activity. The Purchase orders have been shared to confirm the same.	<p>The validation team has reviewed the technical specifications, purchase orders and sale deeds of the project activity and confirmed the greenfield nature of the project.</p> <p>Conclusion:</p> <p>CAR 3 is resolved.</p>
<p><b>CAR 4</b></p> <p>Additionality tool referenced in the PD is not the latest one.</p>	<b>S.No 50</b>	The latest additionality tool has been referred now.	<p>PP has used latest additionality tool for small scale (version 10.0), hence accepted.</p> <p>Conclusion:</p> <p>CAR 4 is resolved.</p>
<p><b>CAR 5</b></p> <p>The project activity is a green field project activity. However, to substantiate the same, PP is required to provide documentary evidences.</p> <p>It is confirmed from the onsite that project activity entails shift from baseline scenario (BTK Technology) to the efficient AAC Technology. (option 1).</p>	<b>S.No 52.1</b>	<p>The project activity is a greenfield project activity. The Purchase orders have been shared to confirm the same.</p> <p>The fuels used in the baseline and project activity including fuels used in the boiler and DG set is clearly demonstrated in the PD.</p>	<p>The validation team has reviewed the technical specifications, purchase orders and sale deeds of the project activity and confirmed the greenfield nature of the project.</p> <p>After validation the PD, it is confirmed that Coal was to be used in the baseline technology and rice husk and Diesel will be used in the project activity.</p>

Correction Action Request (CAR) or Clarification Request (CR) or Forward Action Request (FAR)	Reference to Table 1	Response from project participant	Validation team conclusion
However, the fuels used in the baseline and project activity including fuels used in the boiler and DG set is not clearly demonstrated in the PD.			Conclusion: CAR 5 is resolved.
<p><b>CAR 6</b> PP is requested to prove abundant availability of raw materials by demonstrating its demand and availability for at least one year prior to the project implementation with documentary evidences.</p>	<b>S.No 52.10</b>	<p>As per clarification number SSC_518, surplus availability is not required to be demonstrated for raw materials which are industrial products having commercial value. However, surplus availability of waste materials used as raw material in the project activity should be demonstrated. For the proposed project activity, only fly ash is a waste product and surplus availability of fly ash has been demonstrated in line with Approach 1 provided by the methodology. As per annual report of Central Electricity Authority, Government of India<sup>*</sup>, the utilisation of fly ash was 57%, resulting in a surplus availability of 43%.</p>	<p>From the review of the process, it is inferred that raw material used are fly ash, cement, Lime, Gypsum, Aluminium powder. Referring the clarification response (SSC_518), the validation team has understood that the underlying rationale regarding the requirement on demonstration of the availability abundance of the raw materials is that the alternative raw materials used in the manufacturing of alternative bricks are waste products. The assessment of these applicable criteria of the methodology is not intended for industrial products with commercial value used as raw materials or additives. Hence the validation team has accepted the argument of PP that surplus availability of raw materials which is waste products and not which is having commercial value is required to be demonstrated. As per the CEA report, fly ash production in 2008-2009 is 117 Million Tonnes per Annum whereas utilisation is 67 MTPA or 57%, indicating the abundance availability whereas the demand is only 0.13 MTPA (considering annual production of AAC block of 0.24 Million Cubic metre, fly ash content of 65%, bulk density of flyash of 860 kg/m<sup>3</sup>). Hence surplus availability of</p>

\* Page 82 of the report available at: [http://www.cea.nic.in/reports/yearly/annual\\_rep/2009-10/ar\\_09\\_10.pdf](http://www.cea.nic.in/reports/yearly/annual_rep/2009-10/ar_09_10.pdf)

Correction Action Request (CAR) or Clarification Request (CR) or Forward Action Request (FAR)	Reference to Table 1	Response from project participant	Validation team conclusion
			<p>flyash is established and accepted by the validation team.</p> <p>Conclusion:</p> <p>CAR 6 is resolved.</p>
<p><b>CAR 7</b> PP has provided comparison of service level of the project bricks with baseline bricks, which has been checked from <a href="http://aac-india.com/aac-blocks-vs-clay-bricks/">http://aac-india.com/aac-blocks-vs-clay-bricks/</a> and found to be accurate. Moreover the service level of the bricks will be checked every six months during verification.</p> <p>However, PP has not provided reference to any national standard to be used to identify the strength class of the bricks.</p>	<p><b>S.No 52.11a</b></p>	<p>PP has now provided the reference to national standard to be used to identify the strength class of the bricks.</p>	<p>The compressive strength of the AAC block (3.5 N/mm<sup>2</sup>) is higher than that of baseline brick (3 N/mm<sup>2</sup>).</p> <p>As per the monitoring plan, the Compressive strength test is proposed to be carried in line with IS code: 6441 Part V every 6 months interval and test certificates on compressive strength will be made available for verification through the crediting period. Hence accepted by the validation team.</p> <p>Conclusion:</p> <p>CAR 7 is resolved.</p>
<p><b>CAR 8</b> The PD provides its rationale and data used to establish the baseline scenario and further justified with all relevant documentation and/or references including a transparent description of the baseline scenario as established above. PP has demonstrated the baseline on the basis of brick type and technology. PP has demonstrated the baseline with three types of bricks namely burnt clay bricks, fly-ash</p>	<p><b>S.No 70</b></p>	<p>All the necessary documents has now been furnished referring the data and rationale used to establish the baseline scenario.</p>	<p>The necessary documents is provided for validation.</p> <p>As the project activity is of Type III and Greenfield, the validation team has checked whether PP has identified baseline in line with the “General guidelines for SSC CDM methodologies” version 21.0 (hereinafter referred to as SSC guideline). The validation team checked if all the assumptions and data used by the project</p>

<b>Correction Action Request (CAR) or Clarification Request (CR) or Forward Action Request (FAR)</b>	<b>Reference to Table 1</b>	<b>Response from project participant</b>	<b>Validation team conclusion</b>
<p>bricks and cement concrete blocks with the market share. Since Burnt clay bricks are having majority market share (95%), it is accepted as the baseline brick.</p> <p>PP has further identified the various technologies available for production of burnt clay bricks which are namely Clamps type kiln, FC BTK kiln, Zigzag firing and VSBK. Based on the number of kilns available and production rates, PP has demonstrated that FC BTK technology is the best suited for clay brick type. However, PP is required to provide "Comprehensive industry document with emissionstandards, guidelines and stack height regulation for vertical shaft brick kilns (VSBK) viz-a-vizpollution control measures, COINDS/71/2007, CPCB, MoEF, May 2007"</p>			<p>participants are listed in the PD, including their references and sources, all documentation used is relevant for establishing the baseline scenario and correctly quoted and interpreted in the PDD, assumptions and data used in the identification of the baseline scenario are justified appropriately, supported by evidence and can be deemed reasonable, the SSC guideline has been correctly applied to identify the most plausible baseline scenario and the identified baseline scenario reasonably represents what would occur in the absence of the proposed project activity.</p> <p>The identification and validation of the baseline consists of four steps which are demonstrated as below</p> <p>Step 1: Identification of various alternatives (including that of project activity without VCS) available to the project proponent</p> <p>The validation team has crosschecked the document titled "Strategies for Cleaner Walling Material in India" prepared by Enzen Global Solutions, supported by Shakti Sustainable Energy Foundation and coordinated by Ellen Baum, Clean Air Task Force, Boston, MA in November 2011. By reviewing the document, the alternatives for the project activity are identified as 1) Project activity without VCS 2) common burnt Clay Bricks 3) Burnt clay Fly-ash bricks 4) Cement Stabilized Soil Blocks</p>

Correction Action Request (CAR) or Clarification Request (CR) or Forward Action Request (FAR)	Reference to Table 1	Response from project participant	Validation team conclusion
			<p>(CSSB) 5) Concrete blocks 6) Fly Ash-Lime Gypsum (FaL-G) bricks. The validation team has accepted the alternatives as correctly identified by the project proponent.</p> <p>Step 2: Listing of the alternatives identified that are in compliance with local regulations</p> <p>Based on document referred above, fired clay bricks (including fly ash based bricks) dominate current use of walling material and account for 92.2% of 151.83 billion brick equivalent masonry units produced annually in the country in the year 2011. Concrete blocks have penetrated urban and rural markets over the past few decades and account for 5.9% of all brick equivalent masonry units. AAC and FaL-G blocks have also been gaining in popularity in certain regions across the country over the past decade and are estimated to have a share of 0.2% and 1.6% respectively. Other technology such as CSSB is having a 0.1% share only. Hence fired clay bricks can be considered as alternative to the project activity.</p> <p>There is a local regulation on use of fly ash (one of the raw material for project blocks) for the manufacturing of bricks. The validation team has reviewed the MOEF Notification dated 14th September 1999 and its amendments dated 27th August 2003 and 3rd November 2009 and</p>

Correction Action Request (CAR) or Clarification Request (CR) or Forward Action Request (FAR)	Reference to Table 1	Response from project participant	Validation team conclusion
			<p>understood that use of 50% fly ash in brick manufacturing units set up within 100 km of a coal or lignite based thermal power plant is mandatory. By reviewing the CEA annual report for the 2009 – 10, 57.11% utilization of fly ash generated annually, that consumed in bricks manufacturing is a meager 9% only. The non-compliance is further corroborated by reviewing the report on “Monitoring &amp; Evaluation of Forest Area Diversions including the Status of Compliance Of Approval Conditionalities of Forest Diversion Cases &amp; their Impact on the Forest &amp; Wildlife - Thermal Power Plants” submitted jointly by Akanksha Tiwari and Anubhav Sogani to the regional MoEF office of the Western Region of India. Hence the validation team has accepted that flyash bricks cannot be considered as a credible alternative to the project activity.</p> <p>Based on the above findings, there are only two alternatives remaining Project activity without VCS and common burnt Clay Bricks at the end of step 2</p> <p>Step 3: Barrier analysis</p> <p>As per the SSC guideline, the remaining alternatives are subjected to barrier tests specified in the “Guidelines on the demonstration of additionality of small-scale project activities”. PP has used Barrier due to prevailing practice. The validation of the barrier analysis is reported below</p>

Correction Action Request (CAR) or Clarification Request (CR) or Forward Action Request (FAR)	Reference to Table 1	Response from project participant	Validation team conclusion
			<p>By reviewing the document titled "Strategies for Cleaner Walling Material in India", the validation team has found that AAC blocks have low penetration in India which is to the tune of only 0.2% and fired clay bricks are currently prevalent in Indian walling industry and the scenario is expected to be same in future. Moreover, AAC block project activity technology requires recipe control of several main ingredients namely fly ash, cement, lime and water etc. at the mixing step. In case there are changes to the sources of the raw materials, the chemistry and hence the recipe needs to be reworked. Hence it requires the intervention of advanced technologies leading to much higher investments. Further it is a newer technology; skilled operators are required for operation of AAC block manufacturing unit and wherein the choice of AAC block as construction material is found to be negligible compared to clay bricks. The negative perception about the durability and quality of AAC blocks arises from low consumer awareness about the product.</p> <p>Clay brick production is a simple commonly used technological practice and is practiced at the cottage industry level. The document referred above indicates that fired clay bricks (including fly ash based fired bricks) dominate current use of walling material and account for 92.2% of 151.83 billion brick equivalent masonry units produced</p>

Correction Action Request (CAR) or Clarification Request (CR) or Forward Action Request (FAR)	Reference to Table 1	Response from project participant	Validation team conclusion
			<p>annually in the country in the year 2011. Small fired clay brick producers have no incentives to introduce alternate technologies, which require new investments, training to stabilize the operation, and a different business practice in long-term perspective. Burnt clay bricks are therefore the most prevalent technology which has no barriers.</p> <p>Step 4: Identification of baseline</p> <p>As the Manufacturing of fired-clay bricks through conventional fired clay brick production processes is the prevailing technology, hence forms the baseline scenario. Since baseline technology uses coal, baseline fuel is coal.</p> <p>Conclusion:</p> <p>CAR 8 is resolved.</p>
<p><b>CAR 9</b> PP has provided the result of ex-ante calculation of emission reduction for all years of the crediting period in a tabulated format.</p> <p>However calculation of the ex-ante emission reduction is not provided transparently in the PD.</p> <p>CAR is raised as PP has not detailed the ex-ante calculation in the PD.</p>	<p><b>S.No 130</b></p>	<p>The detailed ex-ante calculations has now been incorporated in the PD.</p>	<p>The validation team has reviewed the ER sheet and revised PD and now ex-ante calculations have been detailed elaborately.</p> <p>Conclusion:</p> <p>CAR 9 is resolved.</p>

Correction Action Request (CAR) or Clarification Request (CR) or Forward Action Request (FAR)	Reference to Table 1	Response from project participant	Validation team conclusion										
<p><b>CAR 10</b> PP is required to provide the document (proposal) to support raw material composition as mentioned in the ER sheet. (Refer ER sheet, Key assumption tab).</p> <p>Document to provide trip road distances for each raw material (fly ash, cement, Gypsum, aluminium, Lime etc)</p> <p>(Refer ER sheet, Key assumption Tab)</p> <p>PD is not clear what type of coal is assumed/used in the baseline.</p> <p>It is not clear how the emission factor of coal/MJ (0.0000946 tCO<sub>2</sub>e/MJ) is calculated. (Refer ER sheet/ Baseline emission factor tab)</p> <p>PP has considered leakage emissions in the production of raw material. But PP is not demonstrated how there is no emission involved in the consumption of raw material due to the project activity.</p> <p>There is no document provided to support the specific electricity consumption of 10 kWh/M<sup>3</sup> of project brick.</p>	<p><b>S.No 133</b></p>	<p>The raw-material composition has been sourced from DPR and Charter Engineer Certificate. The same has now been furnished.</p> <p>The road distances for each material have been sourced based on field visits to the selling point.</p> <p>The value is a calculated value. It has been derived based on CO<sub>2</sub> emission per brick data taken from “Brick and ceramic sector report”, which has been converted to CO<sub>2</sub> emission per unit volume of baseline brick with weight of each brick taken from “Energy conservation and Pollution Control in brick kilns” report and density of each brick from the engineering tool box. Values used are such that conservativeness of baseline emission factor is ensured. Low grade coal(Sub-bituminous) is used.</p> <p>The value of 0.0000946 tCO<sub>2</sub>e/MJ is removed for calculation and instead another document is provided for 0.78 tCO<sub>2</sub>e/brick is provided for validation.</p> <p>The electricity consumption of 10kWh/M<sup>3</sup> has been sourced from DPR and Charter Engineer Certificate. The</p>	<p>1)The validation team has reviewed the proposal from Technology Provider for Standard raw material specification &amp; Consumption values and confirmed the raw material composition.</p> <p>2)Return trip distance between the origin and destination of freight transportation activity</p> <table border="1" data-bbox="1525 611 1912 772"> <tbody> <tr> <td>Flyash</td> <td>40 km</td> </tr> <tr> <td>Lime</td> <td>3348 km</td> </tr> <tr> <td>Cement</td> <td>260 km</td> </tr> <tr> <td>Gypsum</td> <td>972 km</td> </tr> <tr> <td>Aluminium</td> <td>1022 km</td> </tr> </tbody> </table> <p>Ex-ante estimation: As per the PP’s recent experience, it is considered for the calculation which is accepted by the validation team.</p> <p>Ex-post calculation: It will be recorded for every trip. It will be determined once ex-ante for each freight transportation activity for a reference trip (actual purchase invoices) and using online map sources in the trip sheet.</p> <p>3) Low grade coal (sub bituminous coal) would have been used in the baseline.</p> <p>4) ER sheet is updated and now 0.78 tCO<sub>2</sub>e/brick is used for the calculation. As per the report on “Small and Medium scale Industries in Asia- Energy and Environment”, Annual production specific emission factor (EFBL) is 0.78</p>	Flyash	40 km	Lime	3348 km	Cement	260 km	Gypsum	972 km	Aluminium	1022 km
Flyash	40 km												
Lime	3348 km												
Cement	260 km												
Gypsum	972 km												
Aluminium	1022 km												

Correction Action Request (CAR) or Clarification Request (CR) or Forward Action Request (FAR)	Reference to Table 1	Response from project participant	Validation team conclusion
		same has now been furnished.	<p>tCO<sub>2</sub>e/baseline brick which is accepted by the validation team.</p> <p>5) Leakage emissions due to consumption of the raw materials and additives =0 tCO<sub>2</sub>e/year</p> <p>It is observed at the onsite that there is no processing of raw materials or additives before using it production of AAC block, hence Leakage emissions due to consumption of the raw materials and additives is zero.</p> <p>6) Specific electricity consumption per cubic metre =10 kWh/m<sup>3</sup></p> <p>It is considered from the DPR which is accepted by the validation team.</p> <p>Conclusion:</p> <p>CAR 10 is resolved.</p>
<p><b>CAR 11</b> Sampling plan of the project for testing of the bricks produced is not detailed out.</p> <p>CAR is raised as sampling plan needs more detailing.</p>	<b>S.No 137</b>	The sampling plan has now been detailed in the PD.	<p>The validation team has reviewed the PD and accepted the sampling plan proposed for verification of the compressive strength of the AAC block. As per the monitoring plan, the Compressive strength test is proposed to be carried in line with IS code: 6441 Part V every 6 months interval and test certificates on compressive strength will be made available for verification through the crediting period. Hence accepted by the validation team.</p> <p>Conclusion:</p>

Correction Action Request (CAR) or Clarification Request (CR) or Forward Action Request (FAR)	Reference to Table 1	Response from project participant	Validation team conclusion
			CAR 11 is resolved.
<p><b>CAR 12</b> As per the prevailing regulations of the Host Party i.e. India represented by the Ministry of Environment and Forests (MoEF), Govt. of India, Environment Impact Assessment Notification 2006, and the project activity does not require Environment Impact Assessment to be conducted. The facility does not produce any pollution in manufacturing process but proposes to use the waste products like fly ash which create environmental pollution by increasing dust levels of atmosphere.</p> <p>CAR is raised as Latest Environment Impact Assessment Notification by the Ministry of Environment and Forests (MoEF), Govt. of India is not provided.</p>	<b>S.No 149</b>	The latest guideline has now been referred in the PD.	<p>The validation team has reviewed MoEF notification dated 1<sup>st</sup> Dec 2009 and observed that the project activity does not fall under positive list of projects for which Environment Impact Assessment (EIA) is required. Hence, the project activity does not require Environment Impact Assessment to be conducted.</p> <p>Conclusion: CAR 12 is resolved.</p>
<p><b>CAR 13</b> CAR is raised as dates of stakeholder consultation is not provided and date when invitation was circulated.</p> <p>It also does not describe the topics discussed and feedback from the stakeholder.</p>	<b>S.No 153</b>	The dates, circulations of the invitations, topics and feedback, relating to Local Stakeholder has now been incorporated in the PD.	<p>A formal consultation process with the local stakeholders was carried out on 24<sup>th</sup> March 2014 at the project site. The identified stakeholders included villagers, officers from the Municipal Corporation, farmers around the project area, and representatives of project developers. All the identified stakeholders were communicated by written invitation on 15<sup>th</sup> March 2014 before the meeting</p> <p>The meeting discussed the environmental benefits of the project activity and the stakeholders were provided with an interactive presentation on the project activity, its local and global benefits to the</p>

Correction Action Request (CAR) or Clarification Request (CR) or Forward Action Request (FAR)	Reference to Table 1	Response from project participant	Validation team conclusion
			<p>environment, the process, and how the project would lead to sustainable development. The Queries / comments were summarized and adequately addressed / accounted for as evident from the minutes of the stakeholder meeting and the description provided in the PD. The validation team was able to confirm that PP had conducted the local stakeholder consultation process.</p> <p>Conclusion: CAR 13 is resolved.</p>
<p><b>CAR 14</b> PP did not provide document to support the ownership of the project activity.</p>	<p><b>S.No 183</b></p>	<p>All the purchase order copies has now been shared for validation to support the ownership of the project activity.</p>	<p>The validation team has reviewed the purchase order which indicates the ownership of the project activity.</p> <p>Conclusion: CAR 14 is resolved.</p>
<p><b>CR 1</b> PP is required to provide justification on how the life of the project has been determined with documentary evidence.</p>	<p><b>S.No 14</b></p>	<p>The Charter-Engineer certificate has been shared to support the technical lifetime of the project activity.</p>	<p>The validation team has reviewed the document and accepted as correct.</p> <p>Conclusion: CR 1 is resolved.</p>
<p><b>CR 2</b> PP is required to clarify in section 1.1 whether the project is being implemented in phased manner or has expansion plan in future.</p>	<p><b>S.No 17</b></p>	<p>The project is being implemented in phase manner, and the same has now been incorporated in the PD.</p>	<p>The project activity involves constuction of Autoclaved Aerated Concrete (AAC) block manufacturing unit replacing conventional fired (baked) clay bricks (baseline scenario) as construction material. The installed</p>

Correction Action Request (CAR) or Clarification Request (CR) or Forward Action Request (FAR)	Reference to Table 1	Response from project participant	Validation team conclusion
			<p>capacity of the plant at the end of complete implementation is 0.24 Million Cubic metre per year. The initial phase of 0.15 Million Cubic metre per year was commissioned on 1st August 2013 (Project start date) whereas expansion phase is expected to be completed soon.</p> <p>Conclusion: CR 2 is resolved.</p>
<p><b>CR 3</b></p> <p>PP is requested to provide documentary evidences to demonstrate there is no ODA involved in the financing of the project.</p>	<p><b>S.No 30</b></p>	<p>The undertaking has been shared for validation stating that there is no ODA involved in the financing of the project.</p>	<p>The validation team has reviewed the undertaking letter and accepted that no ODA is involved in the financing of the project.</p> <p>Conclusion: CR 3 is resolved.</p>
<p><b>CR 4</b></p> <p>A clarification is raised as the literature referred for the justification is Central Electricity Authority data annual report 2009-10, however the data is for the entire country and not for the region the project is operating. PP to provide analysis on local availability/region of the project activity of the fly ash as well.</p>	<p><b>S.No 52.10</b></p>	<p>No document is available for the region where the project activity is located. Hence PP has used national data. As per clarification number SSC_518, surplus availability is not required to be demonstrated for raw materials which are industrial products having commercial value.</p> <p>However, surplus availability of waste materials used as raw material in the project activity should be demonstrated. For the proposed CDM project activity, only fly ash is a waste product and surplus availability of fly ash has been</p>	<p>From the review of the process, it is inferred that raw material used are fly ash, cement, Lime, Gypsum, Aluminium powder. Referring the clarification response (SSC_518), the validation team has understood that the underlying rationale regarding the requirement on demonstration of the availability abundance of the raw materials is that the alternative raw materials used in the manufacturing of alternative bricks are waste products. The assessment of these applicable criteria of the methodology is not intended for industrial products with commercial value</p>

Correction Action Request (CAR) or Clarification Request (CR) or Forward Action Request (FAR)	Reference to Table 1	Response from project participant	Validation team conclusion
		demonstrated in line with Approach 1 provided by the methodology. As per annual report of Central Electricity Authority, Government of India, the utilisation of fly ash was 57%, resulting in a surplus availability of 43%.	used as raw materials or additives. Hence the validation team has accepted the argument of PP that surplus availability of raw materials which is waste products and not which is having commercial value is required to be demonstrated. As per the CEA report, fly ash production in 2008-2009 is 117 Million Tonnes per Annum whereas utilisation is 67 MTPA or 57%, indicating the abundance availability whereas the demand is only 0.13 MTPA (considering annual production of AAC block of 0.24 Million Cubic metre, fly ash content of 65%, bulk density of flyash of 860 kg/m <sup>3</sup> ). Hence surplus availability of flyash is established and accepted by the validation team.  Conclusion:  CR 4 is resolved.
<p><b>CR 5</b></p> <p>The additionality of the project based on barrier analysis is not substantially justified in the PD. As per the barrier guidelines objective description of the barrier identified is not sufficient and needs more supportive.</p>	<b>S.No 88</b>	The barrier analysis has now been substantially justified in the PD, as per guideline.	As the project activity is of Type III and Greenfield, the validation team has checked whether PP has identified baseline in line with the “General guidelines for SSC CDM methodologies” version 21.0 (hereinafter referred to as SSC guideline). The validation team checked if all the assumptions and data used by the project participants are listed in the PD, including their references and sources, all documentation used is relevant for

\* Page 82 of the report available at: [http://www.cea.nic.in/reports/yearly/annual\\_rep/2009-10/ar\\_09\\_10.pdf](http://www.cea.nic.in/reports/yearly/annual_rep/2009-10/ar_09_10.pdf)

Correction Action Request (CAR) or Clarification Request (CR) or Forward Action Request (FAR)	Reference to Table 1	Response from project participant	Validation team conclusion
			<p>establishing the baseline scenario and correctly quoted and interpreted in the PDD, assumptions and data used in the identification of the baseline scenario are justified appropriately, supported by evidence and can be deemed reasonable, the SSC guideline has been correctly applied to identify the most plausible baseline scenario and the identified baseline scenario reasonably represents what would occur in the absence of the proposed project activity.</p> <p>The identification and validation of the baseline consists of four steps which are demonstrated as below</p> <p><b>Step 1: Identification of various alternatives (including that of project activity without VCS) available to the project proponent</b></p> <p>The validation team has crosschecked the document titled “Strategies for Cleaner Walling Material in India” prepared by Enzen Global Solutions, supported by Shakti Sustainable Energy Foundation and coordinated by Ellen Baum, Clean Air Task Force, Boston, MA in November 2011. By reviewing the document, the alternatives for the project activity are identified as 1) Project activity without VCS 2) common burnt Clay Bricks 3) Burnt clay Fly-ash bricks 4) Cement Stabilized Soil Blocks (CSSB) 5) Concrete blocks 6) Fly Ash-Lime Gypsum (FaL-G) bricks. The validation</p>

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			<p>team has accepted the alternatives as correctly identified by the project proponent.</p> <p><b>Step 2: Listing of the alternatives identified that are in compliance with local regulations</b></p> <p><i>Based on document referred above, fired clay bricks (including fly ash based fired bricks) dominate current use of walling material and account for 92.2% of 151.83 billion brick equivalent masonry units produced annually in the country in the year 2011. Concrete blocks have penetrated urban and rural markets over the past few decades and account for 5.9% of all brick equivalent masonry units. AAC and FaL-G blocks have also been gaining in popularity in certain regions across the country over the past decade and are estimated to have a share of 0.2% and 1.6% respectively. Other technology such as CSSB is having a 0.1% share only. Hence fired clay bricks can be considered as alternative to the project activity.</i></p> <p>There is a local regulation on use of fly ash (one of the raw material for project blocks) for the manufacturing of bricks. The validation team has reviewed the MOEF Notification dated 14th September 1999 and its amendments dated 27th August 2003 and 3rd November 2009 and understood that use of 50% fly ash in brick</p>

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			<p>manufacturing units set up within 100 km of a coal or lignite based thermal power plant is mandatory. By reviewing the CEA annual report for the 2009 – 10, 57.11% utilization of fly ash generated annually, that consumed in bricks manufacturing is a meager 9% only. The non-compliance is further corroborated by reviewing the report on “Monitoring &amp; Evaluation of Forest Area Diversions including the Status of Compliance Of Approval Conditionalities of Forest Diversion Cases &amp; their Impact on the Forest &amp; Wildlife - Thermal Power Plants” submitted jointly by Akanksha Tiwari and Anubhav Sogani to the regional MoEF office of the Western Region of India. Hence the validation team has accepted that flyash bricks cannot be considered as a credible alternative to the project activity.</p> <p><i>Based on the above findings, there are only two alternatives remaining Project activity without CDM and common burnt Clay Bricks at the end of step 2</i></p> <p><i>Step 3: Barrier analysis</i></p> <p>As per the SSC guideline, the remaining alternatives are subjected to barrier tests specified in the “Guidelines on the demonstration of additionality of small-scale project activities”. PP has used Barrier due to prevailing practice. The validation of the barrier analysis is reported below</p> <p>By reviewing the document titled</p>

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			<p>“Strategies for Cleaner Walling Material in India”, the validation team has found that AAC blocks have low penetration in India which is to the tune of only 0.2% and fired clay bricks are currently prevalent in Indian walling industry and the scenario is expected to be same in future. Moreover, AAC block project activity technology requires recipe control of several main ingredients namely fly ash, cement, lime and water etc. at the mixing step. In case there are changes to the sources of the raw materials, the chemistry and hence the recipe needs to be reworked. Hence it requires the intervention of advanced technologies leading to much higher investments. Further it is a newer technology; skilled operators are required for operation of AAC block manufacturing unit and wherein the choice of AAC block as construction material is found to be negligible compared to clay bricks. The negative perception about the durability and quality of AAC blocks arises from low consumer awareness about the product.</p> <p>Clay brick production is a simple commonly used technological practice and is practiced at the cottage industry level. The document referred above indicates that fired clay bricks (including fly ash based fired bricks) dominate current use of walling material and account for 92.2% of 151.83 billion brick equivalent masonry units produced annually in the country in the year 2011.</p>

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			<p>Small fired clay brick producers have no incentives to introduce alternate technologies, which require new investments, training to stabilize the operation, and a different business practice in long-term perspective. Burnt clay bricks are therefore the most prevalent technology which has no barriers.</p> <p>Step 4: Identification of baseline</p> <p>As the Manufacturing of fired-clay bricks through conventional fired clay brick production processes is the prevailing technology, hence forms the baseline scenario.</p> <p>Conclusion:</p> <p>CR 5 is resolved.</p>