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Validation Report

VALIDATION OF THE CDM-PoA: NATIONAL PROGRAMME FOR IMPROVED COOKSTOVES IN INDIA

AND VALIDATION OF THE SPECIFIC CDM-CPA: CPA No. 001, "SAMUHA"

REPORT NO. 600501052

18 December 2012

TÜV SÜD South Asia Pvt. Ltd.
Environmental Technology
Carbon Management Service
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INDIA

| | | |
|--|--|---|
| Date of first issue of this report | Revision No. of this report | |
| 02-10-2012 | 02 | |
| Managing Entity (contractor): Sardar Swaran Singh National Institute of Renewable Energy | Host Country/ies: India | |
| CPA Implementer: SAMUHA | Project Site: Taluk – Koppal, District – Koppal, Karnataka, India Geographical Coordinates – Koppal is situated between 15.1666° N to 15.6333° N & 75.8833° E to 76.4000° E | |
| Applied Methodology / Version: AMS – II.G. version 3: Energy efficiency measures in thermal applications of non-renewable biomass. | | Scope(s): 3 Technical Area(s): 3.1 |
| First PoA-DD Version (GSP): PoA-DD version date: 12-04-2012 Version No.: 01 Starting Date of GSP 09-05-2012 | First CPA-DD Version (GSP): CPA-DD version date: 12-04-2012 Version No.: 01 Starting Date of GSP 09-05-2012 | |
| Final PoA-DD version: PoA-DD version date: 16-12-2012 Version No.: 05 | Final CPA-DD version: CPA-DD version date: 16-12-2012 Version No.: 05 | |
| Estimated Annual Average Emission Reduction: | 46, 814 tCO ₂ e | |

VALIDATION OPINION

TÜV SÜD has performed a validation of the aforementioned CDM programme of activity (PoA) and specific CPA.

Standard auditing techniques have been used for the validation of the PoA and the specific CPA. An internal validation checklist has been prepared to conduct the validation process in a transparent and comprehensive manner.

The review of the PoA and CPA design documentation, subsequent follow-up interviews, and further verification of references have provided TÜV SÜD with sufficient evidence to determine the fulfilment of stated criteria in the protocol. In the opinion of TÜV SÜD, the PoA and the specific CPA fulfil all relevant UNFCCC requirements for the CDM if the underlying assumptions do not change. TÜV SÜD recommends the PoA for registration by the CDM Executive Board. TÜV SÜD also recommends the specific CPA for inclusion under the PoA.

An analysis, as provided by the applied methodology, demonstrates that the proposed activity is not a likely baseline scenario. Emission reductions attributable to the activity are additional to any that would occur in the absence of the programme. Considering that the PoA will be implemented as designed, the CPAs under the same are likely to achieve emission reductions.

The validation has been performed following the requirements of the latest version of the CDM VVS and on the basis of the contractual agreement. The single purpose of this report is its use during the registration process as part of the CDM project cycle. Based on the work described in this report, nothing has come to our attention that causes us to believe that any project component or issue has not been covered by the validation process.

Pune, 18/12/2012



Certification Body "Environment and Energy"
TÜV SÜD South Asia Pvt Ltd

Abbreviations

| | |
|-----------------|---|
| AMS | Approved Methodology Small-scale |
| CAR | Corrective Action Request |
| CB | Certification Body |
| CDM | Clean Development Mechanism |
| CDM EB | CDM Executive Board |
| CPA | Component Project Activity |
| CPA-DD | Component Project Activity Design Document |
| CER | Certified Emission Reduction |
| CME | Coordinating Managing Entity |
| CMP | Conference of the Parties serving as the Meeting of the Parties to the Kyoto Protocol |
| CL | Clarification Request |
| DNA | Designated National Authority |
| DOE | Designated Operational Entity |
| EF | Emission Factor |
| EIA / EA | Environmental Impact Assessment / Environmental Assessment |
| ER | Emission Reduction |
| FAR | Forward Action Request |
| GHG | GreenHouse Gas(es) |
| GSP | Global Stakeholder Consultation / Process |
| IPCC | Intergovernmental Panel on Climate Change |
| IRL | Information Reference List |
| KP | Kyoto Protocol |
| MP | Monitoring Plan |
| NGO | Non Governmental Organisation |
| PoA | Programme of Activities |
| PoA-DD | Programme of Activities Design Document |
| PP | Project Participant |
| TÜV SÜD | TÜV SÜD South Asia Pvt Ltd |
| UNFCCC | United Nations Framework Convention on Climate Change |
| VVS | Validation And Verification Standard |

| Table of Contents | Page |
|---|-------------|
| 1 INTRODUCTION | 6 |
| 1.1 Objective | 6 |
| 1.2 Scope | 6 |
| 2 VALIDATION METHODOLOGY | 7 |
| 2.1 Appointment of the Assessment Team | 7 |
| 2.2 Review of Documents | 8 |
| 2.3 Follow-up Interviews | 8 |
| 2.4 Cross-check | 8 |
| 2.5 Resolution of Clarification and Corrective Action Requests | 8 |
| 2.6 Internal Quality Control | 9 |
| 3 REPORTING REQUIREMENTS | 10 |
| 3.1 Global stakeholder consultation | 10 |
| 3.2 Approval, Authorization and Contribution to sustainable development | 11 |
| 3.3 Modalities of Communications | 12 |
| 3.4 Design Documents | 12 |
| 3.5 Application of the selected baseline and monitoring methodology | 12 |
| 3.5.1 Applicability of the selected baseline and monitoring methodology | 12 |
| 3.5.2 Baseline scenario identification and description | 15 |
| 3.5.3 Algorithms and/or formulae used to determine emission reductions | 16 |
| 3.6 Programme of activities / component project activities | 19 |
| 3.6.1 Coordinating/managing entity and participants in a PoA | 19 |
| 3.6.2 CPA Design Document | 19 |
| 3.6.3 Description of a PoA/CPA | 20 |
| 3.6.4 Application of Multiple Methodologies | 21 |
| 3.6.5 Boundary for the PoA in terms of geographical area | 21 |
| 3.6.6 Start Date of a PoA / CPA - | 21 |
| 3.6.7 Prior Consideration of the CDM | 21 |
| 3.6.8 Demonstration of additionality of the PoA as a whole | 21 |
| 3.6.9 Eligibility criteria for inclusion of a CPA in the PoA | 23 |
| 3.6.10 Crediting period of a PoA/CPA | 27 |
| 3.6.11 Monitoring plan for a PoA | 28 |
| 3.6.12 Monitoring plan for a CPA | 31 |
| 3.6.13 Sampling | 32 |
| 3.6.14 Environmental analysis of a PoA | 32 |
| 3.6.15 Local stakeholder consultation | 34 |
| 3.6.16 Determination of occurrences of debundling under a PoA | 34 |

Annex 1: List of findings

Annex 2: Information Reference List

Annex 3: Appointment Certificates

1 INTRODUCTION

1.1 Objective

The objective of the validation process is to provide an independent assessment by a third party, a Designated Operational Entity (DOE), of the proposed Programme of Activities (PoA) and the Component Project Activity (CPA; generic and specific) against the applicable CDM requirements. The assessment involves the evaluation whether the proposed activities comply with the requirements of §37 of the CDM modalities and procedures, the applicability conditions of the selected methodology and any applicable guidance issued by the CDM Executive Board (CDM-EB).

The PoA validation is part of the PoA CDM project cycle and results in a conclusion by the executing DOE on whether or not the PoA is valid to be submitted for registration to the CDM-EB. The CPA validation is also part of the PoA CDM project cycle and results in a conclusion by the executing DOE on whether or not a CPA is valid to be included under the proposed PoA. The ultimate decision on the registration of a proposed PoA rests with the CDM-EB and the Parties involved.

1.2 Scope

The scope of any assessment is defined by the underlying legislation, regulation and guidance given by relevant entities or authorities. In the case of CDM PoA, the scope is set by:

- The Kyoto Protocol, in particular §12 and modalities and procedures for the CDM;
- Decision 2/CMP1 and Decision 3/CMP.1 (Marrakech Accords);
- Further COP/MOP decisions with reference to the CDM (e.g. decisions 4 – 8/CMP.1);
- Clean Development Mechanism Validation And Verification Standard (VVS) published under <http://cdm.unfccc.int>;
- Decisions and specific guidance outlined by the EB which are published under <http://cdm.unfccc.int>;
- Guidelines for completing the CDM PoA and CPA design documents (PoA-DD and CPA-DD) and the applied CDM methodology;
- Baselines and monitoring methodologies (including GHG inventories);
- Management systems and auditing methods;
- Environmental issues relevant to the applicable sectoral scope;
- Applicable environmental and social impacts and aspects of the CDM PoA;
- Sector specific technologies and their applications;
- Current technical and operational knowledge of the specific sectoral scope and information on best practice.

The validation process is not meant to provide any form of consulting to the project participant (PP). However, stated requests for clarifications, corrective actions, and/or forward actions may provide input for improvement of the programme design.

Once TÜV SÜD receives the design documents, it is made publicly available through a dedicated interface on the UNFCCC CDM website for global stakeholder consultation. The duration of the period for submission of comments for the global stakeholder consultation is 30 days.

2 VALIDATION METHODOLOGY

The information provided by the project participant(s) is assessed by applying the means of validation specified in the “Clean Development Mechanism Validation and Verification Standard” and standard auditing techniques. In the absence of specific means of validation specified in the VVS, the standard auditing techniques are applied.

A competent team is selected for the performance of the validation prior to the start of the assessment. The team is selected to cover the technical scope(s), sectoral scope(s), and relevant host country experience for evaluating the CDM PoA and specific CPA. Once the program is made available for the stakeholder consultation process, members of the team carry out the desk review, follow-up actions, resolution of issues identified, and the preparation of the validation report. The prepared validation report and other supporting documents then undergo an internal quality control by the CB “Environment and Energy” before being submitted to the CDM-EB.

In case the validation team identifies issues that require further elaboration, research or expansion in order to determine whether the activities meet the CDM requirements, and whether the CPAs under the same PoA can achieve credible emission reductions, findings are raised as specified in the VVS.

All corrective action and clarification requests shall be closed out in order to submit the request for registration for this PoA.

All requests are listed in annex 1 of this validation report including the responses provided by the project participant(s) as well as the means of validation of these responses and any references to any resulting changes in the design documents or supporting annexes.

2.1 Appointment of the Assessment Team

According to the technical scopes and experiences in the sectoral or national business environment, TÜV SÜD composed a project team in accordance with the appointment rules of the TÜV SÜD certification body “Environment and Energy”.

The composition of an assessment team has to be approved by the Certification Body (CB) to assure that the required skills are covered by the team. The CB TÜV SÜD operates the following qualification levels for team members that are assigned by formal appointment rules:

- Assessment Team Leader (ATL);
- Validator (V);
- Validator Trainee (T);
- Technical Experts (TE);
- Country expert (CE);
- Technical review (TR).

It is required that the sectoral scope(s) and the technical area(s) (TA) linked to the methodology and project has to be covered by the assessment team. A technical review is conducted to perform a check on quality and completeness. Appointment certificates are attached to this report in Annex 3.

Assessment and Technical Review Team:

| Name | Qualification | Coverage of sectoral scope | Coverage of Technical area | Coverage of Financial aspect | Host country experience | On-site visit |
|----------------|---------------|-------------------------------------|-------------------------------------|-------------------------------------|-------------------------------------|-------------------------------------|
| Nikunj Agarwal | ATL | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |
| Vijayanand V | V | - | - | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |
| Bratin Roy | V | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |
| Stephan Hild* | - | - | - | - | - | <input checked="" type="checkbox"/> |

*Stephan Hild has not been appointed as of yet.

Technical Reviewer:

| Name | Qualification | Coverage of scope | Coverage of technical area | Coverage of financial aspect |
|----------------|---------------|-------------------------------------|-------------------------------------|-------------------------------------|
| Thomas Kleiser | TR | - | - | <input checked="" type="checkbox"/> |
| Shivraj Sharma | TE | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | - |

Appointment certificates are attached to this report in Annex 3.

2.2 Review of Documents

The GSP-DDs and additional background documents related to the PoA and specific CPA design and baseline have been reviewed to verify the correctness, credibility, and interpretation of the presented information. Furthermore, a cross-check between information provided and information from other sources was performed as an initial step of the validation process. A complete list of all documents and evidences reviewed is attached as annex 2 to this report.

2.3 Follow-up Interviews

From 12/06/2012 to 16/06/2012, TÜV SÜD performed a physical site inspection and interviews with project stakeholders to confirm relevant information and to resolve issues identified in the first document review. A list of all persons interviewed in this process is presented in annex 2 to this report.

2.4 Cross-check

During the validation process the team has made reference to available information related to similar projects or technologies as described in the CDM PoA and CPA. Project documentation has also been reviewed against the approved methodology applied to confirm the appropriateness of formulae and correctness of calculations.

2.5 Resolution of Clarification and Corrective Action Requests

The objective of this phase of the validation is to resolve the requests for corrective actions (CAR), clarifications (CL), and any other outstanding issues which need to be clarified for TÜV SÜD's conclusion on the PoA and CPA design. The CARs and CLs raised by TÜV SÜD are resolved during communication between the managing entity, the CPA implementer and TÜV SÜD. To guarantee

the transparency of the validation process, the concerns raised and responses that have been given are documented in more detail in annex 1 to this report.

2.6 Internal Quality Control

Internal quality control within the team is assured by means of a technical review process that takes place after the on-site assessment and after the closure of findings. The internal quality control in the validation process is given by the final decision (Validation Opinion) made by the CB “Environment and Energy”.

3 REPORTING REQUIREMENTS

The assessment work and the main results are described below in accordance with the CDM Validation and Verification Standard (VVS). The reference documents indicated in this report are stated in annex 2 of this report.

3.1 Global stakeholder consultation

| | |
|--|-------------------------------------|
| <p>Comment submitted by: Anurag Bhatnagar C.E.O. Grassroot Trading Network for Women, A Green Livelihood Company from S.E.W.A. Address: 8 - Navrang Colony, Navrangpura, Ahmedabad, Gujarat, India Email: anurag.bhatnagar@gtnfw.org</p> | <p>Date: 06/06/2012</p> |
| <p>Issue raised: We welcome the initiative taken by the CME in developing POA on Improved Cook Stoves (ICS) - this POA comes at an appropriate time since unfortunately there has been no scale up in the ICS market in India due to a number of barriers viz.</p> <ol style="list-style-type: none"> 1. Technological barriers: inappropriate stove designs of ICS viz. <ol style="list-style-type: none"> a. does not cook the staple food b. does not retain the taste and smell of the staple food c. are unable to accommodate the household cooking pot d. are unable to withstand the heat required for cooking e. consume the same quantity of wood as traditional 3 stone cook stove f. emit the same quantity of smoke as traditional 3 stone cook stove g. use a fuel that is available at a high cost viz. pellets h. etc. 2. Barriers due to prevailing practice: <ol style="list-style-type: none"> a. no/low awareness among rural population of benefits of ICS b. existing habits of taste, food and fuel cannot be changed to suit ICS c. comfort of 'knowing' the traditional 3 stone cook stove which has been used for centuries 3. Investment Barriers (other than NPV): exist at an individual as well as the CPA level - <ol style="list-style-type: none"> a. micro finance companies tend to stay away from financing ICS since the value of loan is too small to justify their expense in collections b. banks are unwilling to lend to this sector since they rate this as unsecured lending; if any bank is interested in lending to this sector, it is usually at exorbitant rates of interest to offset the perceived high risk c. as a result of the above two, most of the dissemination of the ICS is happening by NGO's/ non-profit social enterprises. These organizations are usually unable to raise financing from banks, unless they are able to justify the financial viability of the same. <p>- If they have a negative NPV as required by the PoA, no bank will lend, and the project can never take off the ground. The case for 'future carbon revenue making the project finan-</p> | |

cially viable' is unlikely to hold true since future carbon revenue is uncertain on all three counts – timing, quantity and price.

4. Social Impact:

- a. health of women cooking on the traditional 3 stone cook stove is adversely affected, resulting in diseases of lungs and eyes, as well as risk of burns to them and their infants who usually stay with their mothers when the latter are cooking.
- b. environment is adversely affected due to the excessive consumption of wood as a fuel to cook food in the traditional 3 stone cook stove, leading to deforestation.
- *the positive impact of an ICS makes on health and environment can be measured and quantified, in terms of the health of the women and their children, as well reduced deforestation.*

As per B.1 of the PoA-DD, the demonstration of Additionality is restricted to NPV analysis. *We feel that in addition to this criterion, other barriers and micro scale guidelines should also be allowed to demonstrate Additionality. In India, these type of projects are going to be developed by not for profit social enterprises/NGO's, who may not be conversant with the financial nuances, and as such should be allowed to demonstrate other barriers like Technological Barriers, or Barriers due to prevailing practice, or Investment Barriers (other than NPV or IRR).*

In addition to our request above, we would also like to propose to the UNFCCC to *include Improved Cook Stoves in the Positive List, thereby reducing transaction cost associated with the demonstration of Additionality, and resulting in faster dissemination of these improved cook stoves.*

Actions taken to account for the comment:

The additionality demonstration in the design documents has been revised following 'Guidelines on the demonstration of additionality of small-scale project activities' EB68, Annex 27. The revision of small-scale project Additionality demonstration expands the positive list of technologies, particularly for dispersed activities for households or communities or Small and Medium Enterprises. Projects under positive list are exempted from demonstration of barriers and are deemed additional.

In the revised design documents, only requirement is to establish that each isolated unit (i.e., ICS) saves less than 5% of the small scale threshold (180 GWh-thermal) and is used by households/communities. These clauses are included in the eligibility criteria.

Final conclusion:

The comment has been addressed in the revised design documents. There is no requirement for doing NPV analysis or documenting barriers owing to the positive list indicated in EB68, Annex 27. The criteria for qualifying under the positive list have been included in the revised design documents.

3.2 Approval, Authorization and Contribution to sustainable development

| Party / DNA | Authorized Project Participant(s) |
|--|--|
| Republic of India / National CDM Authority (NCDMA) | Sardar Swaran Singh National Institute of Renewable Energy (Hereafter CME or NIRE) |

The Party issued a LoA [IRL 33] with letter no. 4/12/2012-CCC dated 16th August 2012.

The Party's DNA is included in the list available on the UNFCCC CDM.

As checked by TÜV SÜD the LoA is in accordance with paragraph 39-42 of the VVS.

The project participant mentioned above has been authorized by the aforementioned DNA.

TÜV SÜD received the LoA from the project participant and has confirmed authenticity by contacting the DNA responsible person i.e. Deputy Secretary Mr. Rajiv Kumar over phone.

The **host Party's** DNA has confirmed the contribution of the project to the sustainable development of the host Party.

3.3 Modalities of Communications

TÜV SÜD has received the Modalities of Communication (MoC) statement [IRL 34] from the CME, i.e., NIRE, with whom the DOE has contractual relationship too. The corporate identity of the focal points included in the MoC statement as well as the personal identities, including specimen signatures and employment status, of their authorized signatories has been validated through written confirmation from the CME [IRL 46].

TÜV SÜD confirms that the MoC statement complies with all relevant forms and requirements as

- the latest version of the form "Modalities of Communication statement" (F-CDM-MOC) has been used
- the information required as per the F-CDM-MOC, including its annex 1, is correctly completed
- the project participant's authorized signatories signing the F-CDM-MOC correspond to the project participant's authorized signatories included in F-CDM-MOC, annex 1

3.4 Design Documents

The PoA-DD and the CPA-DD template are in compliance with relevant form and guidance as provided by UNFCCC. The most recent version of the forms is used.

As required by para 62 & 63 of VVS, TÜV SÜD considers that the guidelines for the completion of the PoA documents in their most recent version have been followed. Relevant information was provided by the Managing entity and/ or project participants in the applicable PoA sections. Completeness was assessed through the list of findings included in Annex 1.

3.5 Application of the selected baseline and monitoring methodology

3.5.1 Applicability of the selected baseline and monitoring methodology

Compliance with each applicability condition as listed in the chosen baseline and monitoring methodology (AMS-II G Version 03) has been demonstrated.

The validation team assessed by checking the UNFCCC webpage, the baseline and monitoring methodology selected by the project participant is the valid version of those approved by the Board.

Applicability criteria

This category comprises appliances involving the efficiency improvements in the thermal applications of non-renewable biomass. Examples of these technologies and measures include the introduction of high efficiency biomass fired cookstoves or ovens or dryers and/or improvement of energy efficiency of existing biomass fired cookstoves or ovens or dryers.

Information from design documents:

PoA-DD –

As per stated Eligibility Criteria, the CPAs to be included in this PoA will involve the introduction of improved cookstoves (ICS) having high efficiency as compared to the existing traditional cookstove. The ICS shall have efficiency of at least 20% demonstrated through test reports from Ministry of New and Renewable Energy (MNRE) approved cookstove testing center.

CPA –DD –

The ICS (Chulika Cookstoves) distributed in 1st CPA by SAMUHA is having 29.98% efficiency.

Assessment:

The validator compared the actual text of the applicable version of the methodology with the information stated in the PoA-DD and CPA-DD.

The CPA-DD refers to “Technical specifications data sheet of Chullika Cookstove from iSquaredD” and “Test Report of Chullika Cookstove by Institute of Materials and Minerals Technology (IMMT), Bhubaneswar, India (a MNRE approved cookstove testing center)” [IRL 18,19, 21]. The referred documents have been checked by the assessment team. It is confirmed by the local and sectoral knowledge of the assessment team that the content of this document is correctly quoted and interpreted in the CPA-DD.

These documents confirm that the proposed cookstove is having efficiency more than 20%.

Validation opinion:

The documentation content is correctly quoted and interpreted in the design documents.

The applicability criterion is met by 1st CPA.

Applicability criteria

2. Project participants are able to show that non-renewable biomass has been used since 31 December 1989, using survey methods or referring to published literature, official reports or statistics.

Information from design documents:

PoA-DD –

The forest cover of India has decimated from nearly 40% of India's geographical area a century ago to 22% in 1951 and to 20.55% in 2001. This indicates that large-scale deforestation is prevalent since 1989. Furthermore, it may be noted as per data (tables T1 and T11) from the Global Forest Resources Assessment 2010 (FRA 2010) that the wood removals (Industrial round wood removals + Wood fuel removals) have increased 23.56% from (35,055,000 + 213,169,000 = 248,224,000) cubic meters in 1990 to (45,957,000 + 260,752,000 = 306,709,000) cubic meters in 2005. State of Forest Report (FSI) report in 1987 i.e., prior to 1989 clearly states for India that the firewood consumption in 1987 is estimated at 157 million tonnes or 235 million cu.m. However, the production of firewood from forests estimated by FSI (Forest Survey of India) is only 40 million cu.m. Thus, there was a gap of 195 million cu.m. in demand and production of firewood. This also leads to a conclusion that upto 83% (195/235) of the firewood used was non-renewable prior to 1989. It may also be noted that FSI is an organisation under the Ministry of Environment & Forests, Government of India and its principal mandate is to conduct survey and assessment of forest resources in the country. Thus it is established that non-renewable biomass has been used in India since 31 December 1989, using official reports of the Government of India. Thus, it is clear from the above arguments that the wood resources in India are constrained with respect to extraction which has increased at a much higher rate as compared to increase in forests (including outside forests/ wooded land) and non renewable biomass extraction is prevalent since 1989.

CPA-DD -

The first CPA is being implemented in Koppal, Karnataka, which is within geographical boundary of India and information in PoA-DD has been referred.

Assessment:

The validator compared the actual text of the applicable version of the methodology with the information stated in the PoA-DD and CPA-DD.

The PoA-DD refers to "State of Forest Reports, 1987 and 2001 respectively by Forest Survey of India (Ministry of Environment and Forest)" [IRL 20, 27]. The referred documents have been checked by the assessment team. It is confirmed by the local and sectoral knowledge of the assessment team that the content of these documents are correctly quoted and interpreted in the PoA-DD.

These documents confirm that non-renewable biomass has been used since 31 December 1989 in the region where PoA is being implemented.

Validation opinion:

The documentation content is correctly quoted and interpreted in the PoA-DD and holds true for CPA-DD as well.

The applicability criterion is met by the PoA and 1st CPA.

Applicability criteria

The annual energy savings of each project activity shall not go beyond the limits of 180 GWh_{th}/year over the entire crediting period.

Information from design documents:

As per stated in the Eligibility Criteria., the aggregate energy savings from a CPA shall be limited to the threshold level applicable to Type II small scale activities, i.e., not exceeding 180 GWh_{th}. This shall be demonstrated in each SSC-CPA-DD.

Assessment:

The validator compared the actual text of the applicable version of the methodology with the information stated in the PoA-DD and CPA-DD.

The CPA-DD refers to "Detailed Project Report and addendum for CPA by Advanced Characterization and Testing Systems Pvt. Ltd.", "Technical specifications data sheet of Chullika Cookstove from iSquaredD", "Test Report of Chullika Cookstove by Institute of Materials and Minerals Technology (IMMT), Bhubaneswar, India", "Study Report: "Baseline Information: Koppal Taluk, Karnataka" by Fair Climate Network" and "Emission reduction calculation sheet" [IRL 4, 5, 16-20]. The referred documents have been checked by the assessment team. It is confirmed by the local and sectoral knowledge of the assessment team that the content of these documents and the calculations are correctly quoted and interpreted in the CPA-DD.

These documents confirm that the aggregate energy saving form each CPA would be with in limits of small scale limit of 180 GWh_{th}.

Validation opinion:

The documentation content is correctly quoted and interpreted in the PoA-DD and CPA-DD.

The applicability criterion is met by the PoA and 1st CPA.

Applicability criteria

The use of this methodology in a project activity under a programme of activities is legitimate if the following leakages are estimated and accounted for, if required on a sample basis using a 90/30 precision for the selection of samples, and accounted for:

(a) Use of non-renewable woody biomass saved under the project activity to justify the baseline of other CDM project activities can also be a potential source of leakage. If this leakage assessment quantifies a portion of non-renewable woody biomass saved under the project activity that is then used as the baseline of other CDM project activities then B_{old} is adjusted to account for the quantified leakage;

(b) Increase in the use of non-renewable woody biomass outside the project boundary to create non-renewable woody biomass baselines can also be a potential source of leakage. If this leakage assessment quantifies an increase in the use of non-renewable woody biomass outside the project boundary then B_{old} is adjusted to account for the quantified leakage;

(c) As an alternative to subparagraphs (a) and (b) B_{old} can be multiplied by a net to gross adjustment factor of 0.95 to account for leakages, in which case surveys are not required.

Information from design documents:

In order to reduce the transaction costs associated with the surveys for the small scale CPAs, the net to gross adjustment factor of 0.95 is adopted to account for leakages.

Assessment:

The validator compared the actual text of the applicable version of the methodology with the information stated in the PoA-DD and CPA-DD.

The PoA-DD and CPA-DD refer to the use of the default net to gross adjustment factor of 0.95 to account for leakages as provided in the methodology.

Validation opinion:

The methodology content is correctly quoted and interpreted in the PoA-DD and CPA-DD.

The applicability criterion is met by the PoA and 1st CPA.

TÜV SÜD confirms that the chosen baseline and monitoring methodology is applicable to the project activity.

3.5.2 Baseline scenario identification and description

TÜV SÜD did following steps to assess the requirements for baseline identification:

- initial document review
- on-site visit
- view of information from similar projects and/or technologies

The procedure to identify the most plausible baseline scenario derived from the applied methodology has been applied correctly and is transparently and sufficiently documented and justified in the PoA-DD.

As per applied methodology AMS.II.G version 03, the baseline has been defined as “the use of fossil fuels for meeting similar thermal energy needs”.

The PoA also correctly defines the baseline scenario as: “the use of fossil fuels for meeting similar thermal energy needs. Therefore, emission reductions are calculated by multiplying the thermal energy from annual biomass savings resulting from non-renewable biomass with an emission factor for fossil fuels.”

The DOE checked and confirms that the CME has correctly applied the AMS.II.G, version 03 to arrive at the baseline determination. DOE confirms that all plausible alternatives have been identified and the non-plausible alternatives have been properly justified and excluded. Letter from MNRE confirms that there is no legal mandate for usage of improved cookstoves in India [IRL 22], It has been assessed that the identified baseline scenario is plausible, conservative and reasonably repre-

sents what would occur in the absence of the proposed PoA, and the approved methodology used is applicable to the identified baseline scenario.

The information presented in the CPA-DD been verified during the on-site visit and by review of baseline assessment report prepared by Fair Climate in May 2010 for this project [IRL 20]. The sources referenced in the PoA-DD and CPA-DD have been quoted correctly

The following sources of information were used for crosscheck the information contained in the PoA-DD and CPA-DD:

| Assumption / Data used for baseline identification | Source stated in design documents (reference documents, etc.) | Information crosschecked by | Conclusion |
|---|---|---|---|
| As per AMS II G version 3 para 4, It is assumed that in the absence of the project activity, the baseline scenario would be the use of fossil fuels for meeting similar thermal energy needs. | AMS-II.G. Version 3 | Viswanathan, B. Kavi Kumar, KS, Cooking fuel use patterns in India:1983–2000, Energy Policy, vol. 33 (2005), pp. 1022 [IRL 13] Study Report: “Baseline Information: Koppal Taluk, Karnataka” by Fair Climate Network, dated 15/05/2012 [IRL20] | The selected baseline is appropriate and is as per methodology. |

TÜV SÜD confirms the following statements:

- All the assumptions and data used by the project participants are listed in the design documents, including their references and sources;
- All documentation used is relevant for establishing the baseline scenario and correctly quoted and interpreted in the design documents;
- Assumptions and data used in the identification of the baseline scenario are justified appropriately, supported by evidence, and can be deemed reasonable;
- Relevant national and/or sectoral policies and circumstances are considered and listed in the in the design documents;
- The approved baseline methodology has been correctly applied to identify the most reasonable baseline scenario, and the identified baseline scenario reasonably represents what would occur in the absence of the proposed CDM PoA;
- The design documents provide 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.

3.5.3 Algorithms and/or formulae used to determine emission reductions

TÜV SÜD has assessed the calculations of project emissions, baseline emissions, leakage, and emission reductions. Corresponding calculations have been carried out based on calculation spreadsheets. The parameters and equations presented in the PoA and CPA DDs, as well as other applicable documents, have been compared with the information and requirements presented in the methodology and respective tools. An equation comparison has been made to ensure consistency between all the formulae presented in the calculation files and in the PoA and CPA DDs, methodology, and tools.

The estimate of the baseline emissions are considered correct as the calculations have been reproduced by the audit team with the attainment of the same results.

The assumptions and data used to determine the emission reductions are listed in the design documents and all the sources have been reviewed. The following sources of information were used for crosscheck the information contained in the CPA-DD:

| Assumption / Data / References used for estimating the emission reductions in the PoA-DD and CPA-DD | Information crosschecked by | Conclusion |
|---|---|---|
| Baseline Fuel wood Consumption per year (Q_{biomass}) | Baseline survey done for first CPA [IRL 20] | The value used is 3.25 tonnes/household/year has been correctly calculated from baseline survey. |
| Efficiency of the system being replaced. (η_{old}) | AMS II G, Version 3 and Baseline survey done for first CPA [IRL 20] | Default value of 0.1 from Methodology has been correctly used. |
| Efficiency of the system being deployed as part of the project activity (η_{new}) | Test Report of Chullika Cookstove by Institute of Materials and Minerals Technology (IMMT), Bhubaneshwar, India, dated 02/04/2012 [IRL 19, 21] | The efficiency value has been correctly used as 29.98% in accordance with the test report. The test report has been issued by MNRE approved testing center – IMMT Bhubaneshwar. |
| Fraction of woody biomass saved by the project activity in year y that can be established as non-renewable in the project region ($f_{\text{NRB},y}$) | As per the methodology this parameter is to be based on historical data or survey of local usage. For the first CPA the value is based on study carried out by Ramachandra in year 2007 – Geospatial mapping of bio-energy potential in Karnataka, India, Journal of Energy & Environment, Vol 6, May 2007 [IRL 47]. | The ratio of non-renewable woody biomass (NRB) to demand (DRB+NRB) was computed at <i>taluk</i> level for various <i>taluks</i> of Karnataka. According to the study, for the representative <i>taluks</i> of Koppal, the renewable woody biomass (DRB) available is 341951.74 million kcal while the NRB is 6966360.26 million kcal. Thus calculation yields the f_{NRB} as 0.953. The baseline survey report also confirms the usage of non-renewable biomass [IRL 20]. The same was confirmed by the DOE during the on-site visit. |
| Net calorific value of the non-renewable biomass that is substituted ($\text{NCV}_{\text{biomass}}$) | 0.015 TJ/tonne as stated in AMS II G, Version 3 | Default value as prescribed by methodology applied |
| Emission factor for the substituent | 81.6 tCO ₂ /TJ as stated in AMS | Default value as prescribed by |

| Assumption / Data / References used for estimating the emission reductions in the PoA-DD and CPA-DD | Information crosschecked by | Conclusion |
|---|---------------------------------------|---|
| tion of non-renewable biomass by similar consumers ($EF_{\text{projected_fossilfuel}}$) | II G, Version 3 | methodology applied |
| Net to gross adjustment factor to account for leakages (NTG) | 0.95 as stated in AMS II G, Version 3 | Default value as prescribed by methodology applied |
| Total number of ICS distributed (N_{all}) | Detailed project report [IRL 16, 17] | The numbers have been found to be consistent with the DPR. This was also confirmed during interviews with CPA implementers on-site. |

For the first CPA, baseline survey was carried out by Fair Climate Network using stratified multistage sampling. The adopted method is deemed appropriate.

The objective of the survey was to identify the type, number of stoves, the fuel wood consumption per household and the trend in biomass collection. The target population for the baseline survey conducted was 140 villages, in 35 *Gram Panchayats* covering 4 *Hoblis* of Koppal Taluk, Koppal District of Karnataka State, India. The list of the villages presented in the Baseline Survey Report has been checked and found to be correct.

A pilot study covering 6 villages and four households per village was conducted based on which the minimum number of households to be surveyed was arrived at to achieve the required level of reliability (95/10 confidence/precision). The standard deviation figure has been taken from the results of the pilot survey and this is correct, as the final survey has also been conducted in the same area consisting of similar type of households.

The sample size of the number of unit households to be covered for the survey has been calculated considering a 95/10 confidence/precision and a minimum sample size was calculated as 186 households. However, a sample size (number of households) of 400 was taken for the survey for better representation. The number of villages that needed to be sampled at a minimum household sampling size of 25 was 12 villages. However, 4 villages from each of the *hobli* were sampled, making to 400 households minimum. As the number of selected household is more than required as per the requirement this has been accepted. Further the randomness of sample was also evidenced during site visit of villages by the assessment team.

The submitted baseline survey carried out and the report has been found to be in accordance with EB69 Annex 4 'Standard for Sampling and surveys for CDM project activities and Programme of Activities; and EB 69 Annex – 5 "Guidelines for sampling and surveys for CDM project activities and programme of activities" hence accepted.

TÜV SÜD confirms the following statements

- All assumptions and data used by the project participants are listed in the design documents, including their references and sources;
- All documentation used by project participants as the basis for assumptions and source of data is correctly quoted and interpreted in the design documents;

- (c) All values used in the design documents are considered reasonable in the context of the proposed project activity;
- (d) The baseline methodology and corresponding tool(s) have been applied correctly to calculate project emissions, baseline emissions, leakage and emission reductions;
- (e) All estimates of the baseline emissions can be replicated using the data and parameter values provided in the design documents;
- (f) Any estimates for monitored data or parameter are reasonable for estimating the emission reductions in the design documents.
- (g) Different options for equations and parameters are selected appropriately.
- (h) The data and parameters fixed ex-ante are conservative and appropriate.

3.6 Programme of activities / component project activities

3.6.1 Coordinating/managing entity and participants in a PoA

A clear and transparent description of the operational and management arrangement has been established by CME and stated in the PoA-DD. This has been verified during site audit with following documents -

- Agreement between NIRE and SAMUHA [IRL 14, 15]
- CME Manual [IRL 33]

The roles and responsibility of different units within CME and CPA implementer has been clearly stated in the PoA-DD. There is a record keeping system for each CPA under the PoA. The CPAs will follow the CPA implementation plan as stated in the PoA-DD. Several check point and review system both financially and technically has been stated and will be checked for each CPA before submission to the DOE. This has been further strengthened with an agreement between CPA implementer and CME. The agreement between NIRE and SAMUHA has been checked on site [IRL 14, 15].

The system to avoid double counting has been indicated in the PoA-DD. Double-counting of emissions reductions will be avoided by the unique referencing of stoves included in each CPA. SAMUHA will check the double counting through Unique ID & location of the stove and an agreement between CPA implementer and end user. The template of proposed agreement between end user and CPA implementer was checked on site by audit team. The double counting check of CPA will be done by CME through credentials check and information available on UNFCCC website. Also, each CPA would have a unique identification number thus it can be checked whether a CPA under the PoA is already a registered CDM project or CPA in another PoA from the UNFCCC website.

As per EB 54, Annex 13, it is clearly explained that the CPA of PoA is exempted from performing de-bundling check.

Provisions are in place to ensure that those operating the CPA are aware of and have agreed that their activity is being subscribed to the PoA. The agreement between CME and CPA implementer ensures that those operating the CPA are aware of and have agreed that their activity is being subscribed to the PoA.

Hence it could be confirmed that the CME has the capacity and competency to implement the Operation and management plan of the PoA and this is in line with the requirements of EB 70 Annex 5 guidelines.

3.6.2 CPA Design Document

The CPA-DD is in compliant with relevant form and guidance as provided by UNFCCC.

TÜV SÜD considers that the guidelines for the completion of the CPA documents in their most recent version have been followed. Relevant information was provided by the CME and the CPA Implementers in the applicable CPA-DD sections. Completeness was assessed through the list of findings for CPA included in Annex 1.

A detailed check on eligibility criteria stated in PoA being met by the CPA by SAMUHA has been done in section 3.6.9.

3.6.3 Description of a PoA/CPA

The PoA involves replacement of the traditional inefficient stoves with Fuel Efficient Stoves in entire India. Sardar Swaran Singh National Institute of Renewable Energy (NIRE) will be the coordinating and managing entity (CME) of the improved cook stoves (ICS) in India. The distribution of the stoves will be done by several agencies i.e CPA implementer(s). The CDM programme activities (CPAs) under the PoA will be implemented in the host country India. Although there are no mandatory policies or regulations for the adoption of ICS use in India, Govt. of India through National Programme on Improved Cookstoves (NPIC) in 1982 and National Biomass Cookstove Initiative (NBCI) in 2009 tried to “promote the use of ICS” through “innovative financing schemes designed to reduce the initial cost problem for low income households.” The proposed PoA is a voluntary action by the coordinating/managing entity – NIRE [IRL 10-13 & 22].

Under the PoA, traditional inefficient stoves will be replaced by SSC-CPA implementer(s) with ICS in Host country. The traditional stoves commonly used in the host country involves cooking in an open fire - three stone fire, or a conventional system with no improved combustion air supply or flue gas ventilation system, i.e. without a grate or a chimney.

This PoA envisages deploying efficient biomass cookstoves with better technological design features e.g. grates, insulation, optimized combustion chambers, induced draft or forced air flow to provide a cleaner burning and increased efficiency of the device. The improved cook-stoves may be made with metal, ceramic and terracotta/ pottery (durable type) and combination thereof. With this, the stoves could be categorized as metallic (MS, SS, cast iron and combination thereof), metal clad ceramic/pottery and ceramic (having warranty of minimum one year) types. For the fixed type cookstoves platform may be prepared using brick and cement for increasing durability and ease of operation. The PoA intends to cover fixed as well as portable type; single pot as well as multiple pot stoves as per the implementation framework for dissemination in any CPA under the PoA, but all types fall to same basic technology [IRL 19, 20, 21 & 22].

The PoA is funded entirely by NIRE and there is no diversion of ODA involved [IRL 23 & 24]. The starting date of the PoA is 09/05/2012 based on the start date of validation (uploading of PoA on UNFCCC website for global stakeholder Consultation) of the PoA. The length of the PoA is taken as 28 years.

First real case CPA implemented by SAMUHA as a part of this PoA, envisages the distribution of ICS to replace the traditional three stone cook stove in Koppal taluk of Koppal district, Karnataka. CPA plan to use 39,000 efficient fuelwood single pan “CHULIKA” cookstoves for replacement of traditional cookstoves.

As the ICS are more energy efficient than commonly used three stone traditional cooking stoves, the replacement would reduce the GHG emissions (CO₂) from reducing the amount of non renewable biomass fuel in fuel efficient stoves from traditional three stone cooking stoves.

The information presented in the PoA documents on the technical design is consistent with the actual planning and implementation of the project activity confirmed in the following ways:

- A review of data and information (see annex 2);
- An on-site visit to the place where the associated real case CPA is being implemented and interview with relevant stakeholder and personnel with knowledge of the project in attendance; and

- A review of information related to similar projects or technologies which have been used to validate the accuracy and completeness of the project description.

In conclusion, TÜV SÜD confirms that the PoA project description, as included in the PoA-DD, is sufficiently accurate and complete in order to comply with the requirements of the CDM.

3.6.4 Application of Multiple Methodologies

Not applicable as only one methodology i.e. AMS II G, version 3 has been applied in the PoA.

3.6.5 Boundary for the PoA in terms of geographical area

The PoA boundary was assessed considering information gathered from the physical site inspection, interviews, and secondary evidence received on the design of the PoA. The PoA boundary has been defined as geographical boundary of India.

The project boundary is the physical, geographical location of each stove installed. The sources and gases within the boundary have been considered in a clear manner. The CO₂ emissions from the combustion of non renewable biomass for cooking have been included.

The major source of emissions in the baseline and project activity is CO₂ due to combustion of non-renewable biomass for cooking. TÜV SÜD confirms that the identified boundary, the selected sources, and gases as documented in the real case CPA-DD are justified for the project activity and are fully in line with the requirements set by the applied methodology.

3.6.6 Start Date of a PoA / CPA – SAMUHA

The starting date of the PoA is 09/05/2012 based on the start date of validation (uploading of PoA on UNFCCC website for global stakeholder Consultation) of the PoA. The length of the PoA is taken as 28 years.

As per the eligibility criteria of PoA the CPA start date shall be after the PoA start date i.e., 9th May 2012. The expected start date of the CPA is 01/08/2013.

3.6.7 Prior Consideration of the CDM

According to EB 60, annex 26 and VVS §194, the demonstration and assessment of prior consideration of the CDM does not apply to PoAs. Moreover the starting date of the PoA is 09/05/2012 based on the start date of uploading of PoA on UNFCCC website for global stakeholder consultation.

3.6.8 Demonstration of additionality of the PoA as a whole

It has been demonstrated in PoA-DD that Government of India does not have laws/policies mandating the adoption of improved cookstoves, hence the proposed PoA is a voluntary action by the CME – NIRE.

The additionality of the PoA has been demonstrated using the EB 68, Annex 27, "Guidelines on the demonstration of Additionality of Small-Scale Project Activities".

According to this guideline, Documentation of barriers is not required for the positive list of technologies and project activity types that are defined as automatically additional for project sizes up to and including the small-scale CDM thresholds (e.g. installed capacity up to 15 MW). The positive list includes:

Project activities solely composed of isolated units where the users of the technology/measure are households or communities or Small and Medium Enterprises (SMEs) and where the size of each unit is no larger than 5% of the small-scale CDM thresholds. The size of each unit under 750 kW installed capacity or under 3000 MWh of energy savings per year or 3000 tonnes of emission reductions per year.

The projects applying the small-scale methodology AMS II.G version 3 have a threshold of 180GWh_{th} maximum thermal energy savings per annum. Each CPA under the PoA cannot exceed the threshold limit and the same is also stated in the eligibility criteria.

Since the target group of the PoA are households and community institutions therefore each CPA would qualify for the positive list if it can be demonstrated that each ICS results in energy savings under the threshold of 5% of the type-II SSC cap (180 GWh_{th}) i.e., each ICS results in energy savings under 9 GWh_{th} per year. The GWh savings per stove per year in the proposed project are calculated based on Quantity of woody biomass that is saved per stove per annum (By,savings) and NCV of the biomass and it is 0.0045 GWh_{th}/appliance/yr. This has been checked with emission reduction calculation sheet [IRL 4, 5] submitted by PP and found to be correct. The first real case CPA uses the same criteria for demonstration of additionality.

Since the size of each ICS is no larger than 5% of the small-scale CDM threshold in the real case CPA-DD and thus the CPA meets the 'positive list' criteria of Annex 27 of EB 68.

On the basis of description of additionality in PoA-DD and first real case CPA-DD, documents and references and reviewed, it can be confirmed that the criteria for qualifying under the positive list have been included in the design documents.

3.6.8.1 Identifications of alternatives

The applied methodology i.e. AMS II G, version 3 clearly mentions the baseline scenario would be the use of fossil fuels for meeting similar thermal energy needs, hence as per VVS/115 the identification alternatives is not applicable.

3.6.8.2 Investment Analysis

Not applied.

3.6.8.3 Barrier analysis

There is no requirement for doing investment analysis or documenting barriers owing to the positive list indicated in EB68, Annex 27. Nevertheless, certain barriers have been indicated in the PoA-DD. These have been assessed based on the references indicated.

The PoA-DD explains that programme faces various prohibitive barriers and the programme cannot be viable at a reasonable scale without external finance. The uncertainty about the acceptance of the stoves among the target population increases the financial risks for investors.

PoA-DD refers that Barriers to investment exist at both the User level and the Implementer level. At user the main concern is due to the significant higher cost than traditional stoves. There is significant reduction in fuel consumption in ICS in respect to traditional stoves. A report "Improved stoves in India: A study of sustainable business models. Energy Policy (2011)" confirms that despite of reduced fuel cost households are not prompt to use ICS as they collect majority of fuelwood for free [IRL 10].

However at implementer level the lack of initial working capital required for scaling up cookstove programmes has always been a challenge [IRL 36], high distribution costs for remote and sparsely populated areas make the supply of improved stoves a difficult task in India. Over and above creating user acceptance and willingness for long-term utilisation of the ICS constitute a significant additional financial burden on stove distributors, report "Cooking fuel use patterns in India: 1983–2000, Energy Policy, vol. 33 (2005)" [IRL 13] confirms the statement made in PoA-DD. The study "Improved stoves in India: A study of sustainable business models" [IRL 10] suggests that none of the major organisations distributing improved cookstoves in India "have yet achieved both scale and proven financial sustainability in cookstove distribution".

An assessment of some of the ongoing cook-stove initiatives in the past has been discussed describing other cookstove initiatives for prevailing practice analysis. In recent past two improved cookstove programmes has been done in India. First one was National Programme on Improved Chulhas (NPIC) - initiated by the Govt. Of India in 1983 in response to concerns about deforestation and rural fuel poverty and 50% subsidy was offered on purchase by Govt. of India. But the programme failed despite of funding by Govt. of India and was formally closed in 2004 [IRL 12].

Another programme “Appropriate Rural Technology Institute (ARTI) cookstove initiative” was funded by Shell Foundation UK. The initiative was to reach to 1.5 million households in the state of Maharashtra with cleaner cooking fuels/ stoves. There were few relatively smaller initiatives have launched but they sourced funds from CDM transaction –

- Improved cookstove CDM project of SAMUHA – includes approx 21000 stove [IRL 37]
- Improved cookstove CDM project of JSMBT - includes approx 21000 stove [IRL 38]

Hence, on the basis of evidences and justification, it can be confirmed the project activity is not the prevailing practice in host country.

These barrier exist for the first real case CPA as well, however CPA level Additionality has been demonstrated using the provisions made in the ‘positive list’ criteria of Annex 27 of EB 68 which has also been referred by the PoA-DD.

The statements made were checked with referred study and references and it can be confirmed that the barriers mentioned are prohibitive in nature for implementation of PoA and CPA thereafter.

3.6.8.4 Common practice analysis

Not applied.

3.6.9 Eligibility criteria for inclusion of a CPA in the PoA

All the eligibility criteria required for the inclusion of the CPA under the PoA have been addressed in the PoA-DD and will be assessed for each potential CPA through the procedures described in the PoA Management System (PoA MS). The stated confirmation against each eligibility criteria has been checked and found acceptable. It can be confirmed that the criteria are verifiable, sufficiently objective as well as comprehensive. Please refer to the following sections for a detailed assessment of the individual criteria as per the EB 70, Annex - 5 “Standard for demonstration of additionality, development of eligibility criteria and application of multiple methodologies for programme of activities” [IRL 40; hereafter referred as “PoA standard”].

| PoA Standard requirement | Assessment and Conclusion (PoA-DD and generic CPA-DD) | Assessment and Conclusion (specific CPA-DD) |
|--|---|---|
| The geographical boundary of the CPA including any time-induced boundary consistent with the geographical boundary set in the PoA. | The eligibility criteria no. 1 of PoA-DD refers to geographical boundary. The geographical boundary of India has been considered as project boundary and is consistent in PoA-DD and CPA-DD [IRL 32]. | The first CPA by SAMUHA is located within the geographical boundary of India: in Koppal <i>taluk</i> , Koppal district of Karnataka state. The information provided in CPA-DD is correct and has been confirmed during site visit and discussion with CPA implementer and CME [IRL 35]. |

| PoA Standard requirement | Assessment and Conclusion (PoA-DD and generic CPA-DD) | Assessment and Conclusion (specific CPA-DD) |
|--|--|---|
| Conditions that avoid double counting of emission reductions like unique identifications of product and end-user locations (e.g. programme logo). | The eligibility criteria no. 2 of PoA-DD refers the double counting and states a) A unique identification no. shall be provided to each ICS by implementer; b) Confirmation from implementer of CPA being not part of any other PoA or developed as independent CDM project activity; c) a mechanism shall be placed for relinquishment of carbon rights from user to implementer. | A unique identification no. will be provided to each ICS by SAMUHA. A confirmation letter has been provided by SAMUHA confirming that CPA is neither being part of any other PoA nor being developed as independent CDM project activity. This has been confirmed with checking of UNFCCC and Indian DNA website [IRL 14, 15]. CPA Implementer SAMUHA has developed a template of end-user agreement for cookstove dissemination, which covered the point of relinquishment of carbon rights from user to implementer [IRL 31]. |
| The specifications of technology/measure including the level and type of service, performance specifications including compliance with testing/certifications. | PoA-DD requires that the ICS shall have efficiency of at least 20% and it should be demonstrated through test reports from MNRE approved cookstove testing centers. It is in line with requirements. | In first real case CPA, single pot ICS "Chulika" with efficiency of 29.98% has been selected for distribution. This has been confirmed with Technical specifications data sheet of Chullika Cookstove i.e. ICS to be distributed in first CPA by SAMUHA and Test Report by Institute of Materials and Minerals Technology (IMMT), Bhubaneshwar, India, dated 02/04/2012 [IRL 18, 19, 21]. |
| Conditions to check the start date of the CPA through documentary evidence. | The start date of PoA has been referred as 9th May 2012 and as per criteria stated, CPA start date shall be after the PoA start date. | The CPA implementer has not yet started any activity towards implementing the project and expected start date has been referred as 1 st August 2013. Hence the CPA start date is after the PoA start date. This has been cross checked with date mentioned in detailed project report of the CPA [IRL 16, 17]. |
| Conditions that ensure compliance with applicability and other requirements of single or multiple methodologies applied by CPAs. | A single methodology AMS II G, Version 3 has been used and all criteria of applicability has to be demonstrated by CPA i.e. <ul style="list-style-type: none"> CPA shall involve efficiency improvements in the thermal applications of non-renewable biomass by introduction of improved biomass cookstoves having efficiency | The criteria for applicability of methodology have been completely met by the first CPA. a) ICS with efficiency of 29.98% will be used [19, 21] b) Usage of non-renewable biomass since 1989 has also been proved with State of Forest Report, 1987 by Ministry of Environment and Forest and Forest Survey of India, dated |

| PoA Standard requirement | Assessment and Conclusion (PoA-DD and generic CPA-DD) | Assessment and Conclusion (specific CPA-DD) |
|--|--|--|
| | <p>of at least 20%;</p> <ul style="list-style-type: none"> Demonstration that non-renewable biomass has been used since 31 December 1989; Annual energy savings of each CPA shall not go beyond the limits of 180 GWh_{th}/year over the entire crediting period; Leakages are to be estimated and accounted for in accordance with para 23 of the methodology. | <p>05/06/1988 [IRL 27].</p> <p>c) Annual energy savings of the CPA is 176 GWh_{th}/year, i.e., less than 180 GWh_{th}/year [IRL 4].</p> <p>d) CPA has applied the default factor of 0.95 for accounting for leakages as per the methodology [IRL 8].</p> |
| The conditions that ensure that CPAs meet the requirements pertaining to the demonstration of additionality. | <p>As per PoA the additionality for each CPA is demonstrated as per EB 68 Annex 27 "Guidelines on the demonstration of additionality of small-scale project activities", para 2(c), as follows:</p> <ul style="list-style-type: none"> The CPA is solely composed of isolated units; The users of the ICS are households or communities; and Each ICS results in energy savings no larger than the threshold of 5% of the type-II SSC cap (180 GWh_{th}) i.e., each ICS results in energy savings no larger than 9 GWh_{th} per year. <p>The criteria are appropriate to use.</p> | <p>Additionality of the CPA has been demonstrated by the approach laid out in section B.1. of the PoA-DD appropriately. CPA implementer will distribute ICS to replace traditional cookstove. The ICS is isolated unit, distributed in household or community and results in energy savings no larger than 9 GWh_{th} per year. This has been checked and confirmed with ER calculation sheet and technical specification of ICS [IRL 4, 16-20].</p> |
| The PoA-specific requirements stipulated by the CME including any conditions related to undertaking local stakeholder consultations and environmental impact analysis. | <p>The following requirements stipulated by the CME are to be fulfilled:</p> <p>a) The ICS shall not be distributed for free to household consumers, i.e., a minimum proportion of the cost of the ICS (equivalent to at least INR. 100) shall be charged from the end user. There is no restriction on</p> | <p>a) The CPA implementer will charge INR 100 from each end user for each ICS [IRL 14 & 15]</p> <p>b) Stakeholder consultation has been conducted for the CPA [IRL 30]. During site audit interview of few stakeholders (from attendance list) was conducted and information was cross checked. It found to be correct.</p> |

| PoA Standard requirement | Assessment and Conclusion (PoA-DD and generic CPA-DD) | Assessment and Conclusion (specific CPA-DD) |
|---|--|---|
| | <p>user contribution in case of ICS distributed to community institutions.</p> <p>b) Each CPA shall conduct a local stakeholder consultation exercise for informing the various relevant stakeholders and obtaining their feedback and comments on the CPA.</p> <p>c) No environmental impact analysis study or approval is required to be carried out for a CPA, as established in section E.1. of the PoA-DD by means of host country government guidelines.</p> | <p>c) It has been confirmed with EIA notification by Govt. of India that no EIA is required [IRL 40].</p> |
| Conditions to provide an affirmation that funding from Annex I parties, if any, do not result in a diversion of official development assistance. | <p>Confirmation that the CPA is either:</p> <p>a) Not receiving any funding from Annex I parties; or</p> <p>b) The Annex I party funds do not result in a diversion of ODA.</p> | <p>An ODA Declaration by SAMUHA has been provided stating that no ODA has been used [IRL 25]. A separate letter was provided declaring the mode of funding [IRL 26].</p> |
| Where applicable, target group has to be specified. (e.g. domestic/ commercial/ industrial, rural/ urban, grid-connected/ off-grid) and distribution mechanisms (e.g. direct installation). | <p>The end-user of the ICS shall be either a household (domestic user) or a community institution (non-commercial user).</p> | <p>Contract between CME and CPA implementer i.e. SAMUHA has been provided [IRL 14 & 15] which clearly indicate that CPA implementer has to distribute to domestic household or community institutions only.</p> |
| Where applicable, the conditions related to sampling requirements for a PoA in accordance with the approved guidelines/standard from the Board pertaining to sampling and surveys; | <p>There would be multiple CPA implementers and ICS types under the PoA and PoA opts for verification of each CPA to be done. Hence, no PoA level sampling has been considered.</p> <p>PoA mandates each CPA to follow the sampling plan guidelines provided in section B.7.2. (part II) of the PoA-DD the purpose of monitoring.</p> | <p>The sampling plan indicated for the generic CPA (section B.7.2, part II of the PoA-DD) has been followed. The sampling plan has been checked against EB 69, annex- 4 "Guidelines for sampling and surveys for CDM project activities and programme of activities" and found to be appropriate.</p> |
| Where applicable, the conditions that ensure that every CPA in aggregate meets the small-scale or | <p>Annual energy savings of each CPA shall not go beyond the limits of 180 GWh_{th}/year for small scale CPAs over the entire</p> | <p>In the CPA-DD and emission reduction calculation sheet it has been demonstrated that Annual energy savings of the CPA is 176</p> |

| PoA Standard requirement | Assessment and Conclusion (PoA-DD and generic CPA-DD) | Assessment and Conclusion (specific CPA-DD) |
|--|--|---|
| micro-scale threshold criteria and remains within those thresholds throughout the crediting period of the CPA; | crediting period. | $\text{GWh}_{\text{th}}/\text{year}$, i.e., less than $180\text{GWh}_{\text{th}}/\text{year}$ [IRL 4, 5]. |
| Where applicable, the requirements for the debundling check, in case CPAs belong to small-scale (SSC) or micro-scale project categories. | <p>The CPA shall comply with the “<i>Guidelines on assessment of de-bundling for SSC Project activities</i>” (EB54, Annex 13).</p> <p>As per EB 54, Annex 13, para 10 for determination of the occurrence of debundling under a Programme of Activities (PoA), if each of the independent subsystem/measures included in the CPA of a PoA is not larger than 1% of the small scale threshold defined by the methodology applied, then that CPA of the PoA is exempted from performing debundling check, i.e. considered as being not a debundled component of a large scale activity.</p> <p>Hence, debundling check is not required if it can be demonstrated that each ICS reduces energy consumption by less than $1.8\text{GWh}_{\text{th}}/\text{year}$.</p> | <p>In the first CPA by SAMUHA ICS disseminated by the CPA shall reduce energy consumption by $0.0045\text{GWh}_{\text{th}}/\text{year}$, i.e., less than $1.8\text{GWh}_{\text{th}}/\text{year}$. This has been checked with technical details of ICS to be distributed and emission reduction calculation sheet and found to be correct [IRL 4, 16-20]. Hence the CPA is exempted from performing de-bundling check.</p> |

The CME employs clear and unambiguous criteria for the inclusion of the CPA. The eligibility criteria stated in the PoA-DD are verifiable with regards to the applicability of the applied methodology and EB 70 annex 5. Furthermore, the DOE confirms that the eligibility criteria are sufficiently objective and comprehensive to permit the assessment of the inclusion of CPAs in the PoA.

The eligibility criteria can be checked at the CPA level by the CME and can be confirmed by the DOE during inclusion.

Hence, TÜV SÜD considers that the eligibility criteria for inclusion of CPA in the PoA is demonstrated accurately in order to comply with the VVS §196.

3.6.10 Crediting period of a PoA/CPA

In the PoA-DD the length of a PoA has been selected as 28 years. The length of crediting period of CPA has been selected as 10 years, which can be considered appropriate as lifetime of ICS are 12 years as per technical data sheet [IRL 18].

3.6.11 Monitoring plan for a PoA

The monitoring plan presented in the PoA-DD complies with the requirements of the applicable methodology. The assessment team has verified all parameters in the monitoring plan against the requirements of the methodology and no deviations have been found.

The monitoring plan provides a transparent system to ensure that no double accounting occurs and that the status of verification can be determined any time for each CPA. The system to avoid double counting has been indicated in the PoA-DD. This would be done by CME through review of information provided by SSC-CPA with information available with UNFCCC. Also, each ICS will have a unique serial number with code. Thus it can be checked whether a CPA under the PoA already is a registered CDM project or CPA in another PoA.

The description provided in the PoA-DD on the operational and management arrangements were confirmed based on document review and on-site interviews.

As per PoA-DD, CME will obtain confirmations on CDM-specific requirements relating to monitoring activities that occur during the distribution of stoves including the collecting of the necessary data required for ex-post monitoring from each CPA implementer involved in the implementation of CPA under the PoA and ensuring that the CPA Implementation Records are completed correctly. The CME will have responsibility of to oversee ex-post monitoring activities by providing guidance to the parties involved including its own staff, CPA implementer or other parties contracted by the CME – “Monitoring Organisations”.

Ex-post monitoring activities will involve visiting a sample of households and community institutions as are required under AMS II G and the sampling standard, EB69, Annex 4 and EB 69 Annex – 5 “Guidelines for sampling and surveys for CDM project activities and programme of activities”. In accordance with EB69 Annex 4 ‘Standard for Sampling and surveys for CDM project activities and Programme of Activities; and EB 69 Annex – 5 “Guidelines for sampling and surveys for CDM project activities and programme of activities” sampling plan will apply to the CPAs to be included in the PoA. In order to comply with the guidelines and the methodology, the PP has opted for annual sampling and the confidence interval considered is 90/10 confidence/precision surveys. This precision levels comply with monitoring requirements for a group of CPAs as per EB69, Annex 4. The Stoves installed under each CPA will have a unique identification no. in the PoA monitoring database. Emissions reductions generated by CPAs included in the PoA will be monitored using the data contained in the monitoring database and from the monitoring surveys. A monitoring report describing monitoring activities and calculated emissions reductions will be produced for each monitoring period for each CPA.

The following parameters will be reported ex-ante and are in line with requirement of applied methodology i.e AMS II G, version 3. The listed parameters are considered to be appropriate for estimation of baseline emission reduction. These parameters will be used by each CPA for estimation of baseline emission.

| Parameter | Description of parameter | Value | Conclusion |
|----------------------|--|---|---|
| Q _{biomass} | Annual average biomass consumption per appliance in the project region | The value will be available at CPA level. For first CPA it is 1.63 tonnes/year based on survey of local usage. | For the first CPA the value is based on the survey of local usage [IRL 20]. The submitted baseline survey carried out and the report has been found to be in accordance with EB69 |

| | | | |
|------------------------------|--|--|---|
| | | | Annex 4 'Standard for Sampling and surveys for CDM project activities and Programme of Activities; and EB 69 Annex – 5 "Guidelines for sampling and surveys for CDM project activities and programme of activities" hence accepted. |
| $f_{NRB,y}$ | Fraction of woody biomass saved by the project activity in year y that can be established as non-renewable in the project region | <p>The value will be available at CPA level.</p> <p>For first CPA it is 0.953 based historical data and survey of local usage.</p> | <p>For the first CPA the value is based on study carried out by Ramachandra in year 2007 – Geospatial mapping of bioenergy potential in Karnataka, India, Journal of Energy & Environment, Vol 6, May 2007 [IRL 47].</p> <p>The ratio of non-renewable woody biomass (NRB) to demand (DRB+NRB) was computed at <i>taluk</i> level for various <i>taluks</i> of Karnataka. According to the study, for the representative <i>taluks</i> of Koppal, the renewable woody biomass (DRB) available is 341951.74 million kcal while the NRB is 6966360.26 million kcal. Thus calculation yields the f_{NRB} as 0.953.</p> <p>The baseline survey report also confirms the usage of non-renewable biomass [IRL 20]. The same was confirmed by the DOE during the on-site visit.</p> |
| $NCV_{biomass}$ | Net calorific value of the non-renewable biomass that is substituted | 0.015 TJ/tonne | Default value as prescribed by methodology applied |
| $EF_{projected_fossilfuel}$ | Emission factor for the substitution of non-renewable biomass by | 81.6 tCO ₂ /TJ | Default value as prescribed by methodology |

| | | | |
|--------------|--|--|--|
| | similar consumers | | applied |
| η_{old} | Efficiency of the system being replaced, | <p>A default value of 0.10 will be used if the replaced system is a three stone fire, or a conventional system with no improved combustion air supply or flue gas ventilation system, i.e. without a grate or a chimney; for other types of systems a default value of 0.2 will be optionally used.</p> <p>For first CPA 0.1 has been used based on survey of local usage.</p> | <p>The default value taken from the methodology AMS-II.G version 03.</p> <p>The value for the first CPA is based on survey of local usage [IRL 20]. The baseline survey report confirms the usage of three stone fire, or a conventional system with no improved combustion air supply or flue gas ventilation system, i.e. without a grate or a chimney [IRL 20]. The same was confirmed by the DOE during the on-site visit.</p> |
| NTG | Net to gross adjustment factor to account for leakages | 0.95 | Default value as prescribed by methodology applied |

The following parameters will be monitored ex-post and are in line with requirement of applied methodology i.e AMS II G, version 3. The listed parameters are considered to be appropriate for estimation of emission reduction. Each CPA would need to monitor these parameters.

| Parameter | Description of parameter | Source of Data |
|--------------|--|--|
| η_{new} | Efficiency of the ICS being disseminated as part of the project activity | Field Survey Reports: WBTs performed on the sample of ICS selected |
| N_{all} | Total number of ICS distributed | CPA implementation records |
| SOF | Stove Operation Fraction | Survey of a representative sample of households and community institutions |
| μ_{old} | Amount of woody biomass for the continued use of old stoves | Survey of a representative sample of households and community institutions |
| f_{old} | Fraction of stove users still using baseline stove | Survey of a representative sample of households and community institutions |

Since multiple CPA implementers and ICS types are likely to be involved in the PoA, therefore, CME has opted for each CPA verification instead of PoA level sampling. The data contained in each indi-

vidual CPA Monitoring Record and collected during field measurements will be transferred to the CME by the CPA implementer. The CME will be responsible for maintaining a secure PoA Database, which includes all the data relating to the CPAs within the PoA.

To ensure the quality assurance / quality control over the monitoring plan and parameters, CME has adopted number of cross checks and quality procedures as referred in PoA-DD. Training will be provided to the parties carrying out the actual field measurements (Monitoring Agents) on how to deal with non-responses etc if necessary. In order to ensure the quality of the sampling results, the CPA implementer can draw on the provisions for reliability calculations as provided by the Guidelines for sampling and surveys for CDM project activities and programme of activities' (version 02.0) (EB 69, Annex 5).

The procedures have been reviewed by the assessment team through document review and interviews with the relevant personnel. The information provided has allowed the assessment team to confirm that the proposed monitoring plan is feasible within the project design. The relevant points of monitoring plan have been discussed with the PoA managing entity and the CPA implementers. Specifically; these points include the monitoring methodology, data management, and the quality assurance and quality control procedures to be implemented in the context of the project. Therefore, the PoA managing entity and/or CPA implementer(s) will be able to implement the monitoring plan and the achieved emission reductions can be reported ex-post and verified.

3.6.12 Monitoring plan for a CPA

The monitoring plan presented in the CPA-DD complies with the requirements of the PoA. The assessment team has verified all parameters in the monitoring plan against the requirements of the methodology and no deviations have been found.

The procedures have been reviewed by the assessment team through document review and interviews with the relevant personnel. The information provided has allowed the assessment team to confirm that the proposed monitoring plan is feasible within the project design. The relevant points of monitoring plan have been discussed with the PoA managing entity and the CPA implementers. Specifically, these points include the monitoring methodology, data management, quality assurance and quality control procedures to be implemented in the context of the activity.

The following parameters will be monitored by CPA implementer "SAMUHA" ex-post -

| Parameter | Description of parameter | Source of Data |
|---------------------|--|--|
| η_{new} | Efficiency of the ICS being disseminated as part of the project activity | Field Survey Reports: WBTs performed on the sample of ICS selected |
| N_{all} | Total number of ICS distributed | CPA implementation records |
| SOF | Stove Operation Fraction | Survey of a representative sample of households and community institutions |
| μ_{old} | Amount of woody biomass for the continued use of old stoves | Survey of a representative sample of households and community institutions |
| f_{old} | Fraction of stove users still using base-line stove | Survey of a representative sample of households and community institutions |

Ex-post monitoring activities will involve visiting a sample of households and community institutions as are required under AMS II G and the sampling standard, EB69, Annex 4. In accordance with EB69 Annex 4 'Standard for Sampling and surveys for CDM project activities and Programme of Activities; sampling plan will apply to the CPAs to be included in the PoA. In order to comply with the guidelines and the methodology, the PP has opted for annual sampling and the confidence interval

considered is 90/10 confidence/precision surveys. This precision levels comply with monitoring requirements for a group of CPAs as per EB69, Annex 4. The ICS installed under each CPA will have a unique identification no. in the PoA monitoring database. Emissions reductions generated by CPAs included in the PoA will be monitored using the data contained in the monitoring database and from the monitoring surveys.

Since the large number of the ICS are to be distributed as part of the CPA by SAMUHA, hence it is not economically feasible to monitor each individual ICS unit distributed. The sampling plan has been demonstrated in the PoA-DD based on the latest guidance EB 69 Annex 4, where a series of requirements for sampling plans have been indicated. The CPA implementer follows the sampling plan provided by PoA in line with Sampling standard (See details in section 3.6.13) and no deviation has been found.

The CPA implementer "SAMUHA" structured the monitoring responsibilities as per the hierarchy of the team to be constituted and are as follows:

- Director – Overall supervision and approval
- CDM Manager – review and supervision of operation of *Hoblis* (cluster of villages) and overall reporting to Director
- *Hobli* Coordinator – review of data and operations of villages and preparing consolidated report
- Village Animator – Monitoring operations by visiting all households in the village

The responsibilities and institutional arrangements for data collection and archiving has been clearly provided in the CPA-DD. Samhuha is the implementing agency for the CPA. The information provided in the CPA-DD has been confirmed based on the on-site interviews and also through the submitted documentary evidence - project implementation covering all requirements as stated in PoA section E.7.2 [IRL 35].

Based on the same, it has been confirmed that the PoA managing entity and the CPA implementers will be able to implement the monitoring plan and the achieved emission reductions can be reported ex-post and verified.

3.6.13 Sampling

Since the large number of the ICS are to be distributed as part of the CPAs to be included in the PoA, hence it is not economically feasible to monitor each individual ICS unit distributed.

The sampling plan has been demonstrated in the PoA-DD based on the latest guidance EB 69 Annex 4, where a series of requirements for sampling plans have been indicated. The following sampling plan will enable the determination of parameter values for the calculation of emissions reductions:

- a) Sampling Design which is based on
 - Objectives & Reliability Requirements
 - Target Population
 - Sampling method
 - Sample size
 - Sampling frame
- b) Data
- c) Implementation

A representative sampling will be undertaken as part of a Sampling Plan that is designed in line with the requirements of AMS II.G v3 and the "Standard for sampling and surveys for CDM project activities and programme of activities" (the Sampling standard). The purpose of representative sampling

is to obtain a reliable estimate of the following key variables over the course of the crediting period and meeting the indicated confidence/precision levels, for each CPA.

| Parameter | Description of parameter | Type of parameter | Confidence/precision level (frequency of sampling) |
|---------------------|--|-------------------|--|
| η_{new} | Efficiency of the ICS being disseminated as part of the project activity | Mean Value | 90/10 (Annual Sampling) |
| SOF | Stove Operation Fraction | proportion value | 90/10 (Annual Sampling) |
| μ_{old} | Amount of woody biomass for the continued use of old stoves | mean value | 90/10 (Annual Sampling) |
| f_{old} | Fraction of stove users still using baseline stove | proportion value | 90/10 (Annual Sampling) |

The PoA-DD has kept an option of using the lower bound of the 90% confidence interval of the parameter value as is allowed by the methodology AMS.II.G version 3 (para 22), in cases where such precision is not able to be achieved. The frequency of sampling will always comply with the requirements of the methodology and the Sampling Standard.

The target population is the ICS distributed during CPAs implemented under the PoA. Each ICS will be identified by a unique identification number for each CPA and the serial numbers will be applied for the sampling. PoA is recommending use of Simple Random Sampling. The CPA implementer will draw a sample for defined sampling frame. The ICSs sample will be drawn from the list of individual ICS unique ID numbers maintained in the respective CPA Database by the respective CPA implementer. During survey premises of user of each ICS falling under sample list (which is assigned to a CPA in the Database and linked to an end user) will be visited during monitoring.

The above mentioned parameters will be sampled among all distributed ICS separately for each CPA. Hence, the overall sampling frame consists of all installed ICS per CPA, represented by their unique identification nos. in the CPA database.

Statistical sound sampling has been adopted and sampling plan design has been described transparently in the PoA-DD. Simple random sampling approach has been adopted. The size of the sample for each sampling frame is determined by the requirement to achieve 90/10 confidence/precision for the estimation of the proportion or mean value of the parameter investigated, which is in line with the requirement of the Sampling Standard. The final number of sample will be kept higher than calculated sample size to ensure the accuracy.

CPA implementers will implement the Sampling Plan over the course of the PoA, including contracting third parties responsible for actual field measurements. The decisions will be made to either hire and train direct staff to conduct field measurements or to sub-contract these responsibilities. As per PoA-DD, any such third parties would need to be trained to ensure that field measurements are undertaken in line with the standards required of the Sampling Plan.

Hence the DOE confirms that the sample size calculations are conservative and are in compliance with EB 69 annex 4 and guidance provided in EB 69 annex 5.

3.6.14 Environmental analysis of a PoA and CPA

It has been indicated that the environmental analysis is done at the PoA level. There are no host country requirements for EIA for this kind of programme - replacement of traditional cooking stoves

with fuel efficient stoves. In accordance with Indian regulations, an EIA is not required for typical CPAs included in the proposed PoA. This has been confirmed by the Environmental Impact Assessment Notification - 2006 by Ministry of Environment and Forest, Govt. Of India. However, likely environmental impacts have been discussed in the PoA-DD [IRL 40].

In accordance there is requirement for EIA for implementation for real case CPA as well;

No negative impact have been observed for this PoA and CPA and same has been indicated in the PoA and CPA DDs.

3.6.15 Local stakeholder consultation

It has been indicated that the local stakeholder consultation is done at both PoA and CPA level.

At PoA level, the CME of the programme, i.e., NIRE has conducted a programme design consultation exercise at the programme level by means of informing various relevant stakeholders and obtaining their feedback about the programme over electronic mails, requesting them to provide their valuable comments and feedback.

The relevant local stakeholders have been invited through invitation email. The summary of this stakeholder meeting has been provided. The assessment team has reviewed the documentation in order to validate the inclusion of relevant stakeholders. Team local expertise has confirmed that the communication method used to invite the stakeholders is appropriate. The summary of comments presented in the PoA-DD has been verified with the documentation of the stakeholder consultation and has been found to be complete [IRL 28, 29].

Comments presented by the local stakeholders have been taken into account by the PoA managing entity and has been verified with information obtained during interviews.

At CPA level, CPA implementer "SAMUHA" had organised a meeting to inform various stakeholders about the project activity and obtain the comments/ feedback on the project. The relevant stakeholders were invited for the meeting by several suitable means, like posters, newspaper articles, letters, electronic mails, etc. A diverse group of personnel including but not restricted to villagers & village authorities, NGOs, press reporters, development officials, government officials, educational institutions, donor organisations, local clubs, Gold Standard Foundation, etc were invited. This covers a total of almost 250 people also covering a wide range of age, gender, ethnicity and type of officials. All records of stakeholder meeting at CPA level has been reviewed including the video of the event [IRL 30].

Hence, the local stakeholder consultation has been performed adequately according to the CDM requirements.

3.6.16 Determination of occurrences of debundling under a PoA

According to the EB 54, Annex13, para 10 for determining the occurrence of debundling under a Programme of Activities (PoA), if each of the independent subsystem/measures included in the CPA of a PoA is not larger than 1% of the small scale threshold defined by the methodology applied, then that CPA of the PoA is exempted from performing de-bundling check, i.e. considered as being not a debundled component of a large scale activity. In light of same, debundling check is not required if it can be demonstrated that each ICS reduces energy consumption by less than 1.8GWh_{th}/year.

In the first CPA by SAMUHA ICS disseminated by the CPA shall reduce energy consumption by 0.0045 GWh_{th}/year, i.e., less than 1.8GWh_{th}/year. This has been checked with technical details of ICS to be distributed and emission reduction calculation sheet and found to be correct [IRL 4, 5, 16-20]. Hence the CPA is exempted from performing de-bundling check.



South Asia

Annex 1

List of Findings

List of Findings - Compilation and Resolutions - PoA

Version: Final

Project Title: National Programme for Improved Cookstoves in India



| Definitions | |
|-----------------------------|--|
| Shall / Should / May | In addition to the definitions contained in the Glossary of CDM terms, the following terms apply in the VVS (VVS/10): <u>Shall</u> is used to indicate requirements to be followed; <u>Should</u> is used to indicate that among several possibilities, one course of action is recommended as particularly suitable; <u>May</u> is used to indicate what is permitted. |
| Credible | Information is credible if it is authentic and is able to inspire belief or trust, and the willingness of persons to accept the quality of evidence. (VVS/17) |
| Reliable | Information is reliable if the quality of evidence is accurate and credible and able to yield the same results on a repeated basis. (VVS/17) |
| CAR | The DOE shall raise a CAR if one of the following situations occur: (VVS/220) (a) <u>Non-compliance</u> with the monitoring plan or methodology are found in monitoring and reporting and has not been sufficiently documented by the project participants, or if the evidence provided to prove conformity is insufficient; (b) Modifications to the implementation, operation and monitoring of the registered project activity has not been sufficiently documented by the project participants; (c) Mistakes have been made in applying assumptions, data or calculations of emission reductions that will impact the quantity of emission reductions; (d) Issues identified in a FAR during validation to be verified during verification or previous verification(s) have not been resolved by the project participants. |
| CL | The DOE shall raise a CL if <u>information</u> is insufficient or not clear enough to determine whether the applicable CDM requirements have been met. (VVS/221) |
| FAR | The DOE shall raise a FAR during verification for actions if the monitoring and reporting require attention and/or adjustment for the next verification period. (VVS/223) |

Compilation and Resolutions of CARs, CRs and FARs

| Corrective Action Requests by validation team | | |
|---|---|--------------------|
| | Comments and Results | Conclusion and IRL |
| Issue | Description of <u>PoA</u> in section A.2 is incomplete | Ok. IRL 45 |
| Requirement | Guidelines to complete F-CDM-SSC-PoA-DD, EB 67, Annex 30 & VVS/62 | |
| Corrective Action Request | <u>Corrective Action Request No.1</u> Table of Gases is not as per PoA-DD form. There is discrepancy in information provided in Section B.5 and B.2 of Part I of PoA-DD. | |
| Response | Please refer to the changes incorporated in the table of gases in section B.3. of the revised PoA-DD submitted to the validator, that are in line with the PoA-DD form as well as the applied | |

List of Findings - Compilation and Resolutions - PoA

Version: Final

Project Title: National Programme for Improved Cookstoves in India



| Corrective Action Requests by validation team | | |
|---|--|--|
| | <p>methodology AMS-II.G.</p> <p>Response (2nd Round):</p> <p>The section B.5. of part II of the PoA-DD has been revised in line with the section B.2. of part I of the PoA-DD in the revised PoA-DD submitted to the validator.</p> | |
| Assessment Means of validation / verification | <p>The revised table of gases are in line with the requirement of methodology and latest PoA-DD form.</p> <p>The section B.5. of part II of the PoA-DD has been revised in line with the section B.2. of part I of the PoA-DD in the revised PoA-DD.</p> | |
| Adjustment on pro- ject design OR Changes in the monitoring report or supporting annexes | The text of table of gases has been revised in revised PoA-DD and section B.5. of part II of the PoA-DD has been revised. | |

| Corrective Action Requests by validation team | | |
|---|---|----------------------|
| | Comments and Results | Conclusion and IRL |
| Issue | PoA Description | OK IRL 18, 19, 45 |
| Requirement | Guidelines to complete F-CDM-SSC-PoA-DD, EB 67, Annex 30, chapter V, section A.2 & VVS/62 | |
| Corrective Action Request | <p><u>Corrective Action Request No.2</u></p> <p>The 1st paragraph in A.2. have to specify which kind of fuels are combusted more efficiently with improved cook stove.</p> <p>PPs have to clarify in a more transparent way the target group(s) for type of fuel separately as applicable. The PoA-DD is not clear in this sense. A.2. mentions "...households and community institution across India"</p> | |

List of Findings - Compilation and Resolutions - PoA

Version: Final

Project Title: National Programme for Improved Cookstoves in India



| Corrective Action Requests by validation team | | |
|--|---|--|
| | CME also needs to justify further what exactly is meant by “replacement” of traditional stove. Explain situation whether after replacement old stove will be in use or not? | |
| Response | <p>The ICS have been designed to achieve better overall efficiency with combustion of solid biomass fuels, as mentioned in section A.2. of the revised PoA-DD submitted to the validator.</p> <p>The intended target group for the PoA are the domestic and other non-commercial populace in India, as mentioned in section A.2. of the revised PoA-DD submitted to the validator. This also appears as a PoA eligibility criteria in section B.2. of the revised PoA-DD submitted to the validator.</p> <p>It may be noted that the “replacement” of traditional cookstoves may denote either the physical substitution of the traditional cookstoves with ICS or operation of the traditional cookstoves in parallel to the ICS disseminated under the PoA. However the actual emission reduction will be calculated on the basis of cookstove in operation.</p> <p>Response (2nd Round):</p> <p>The efficiency improvement is on account of improved combustion of the fuel and heat transfer to the utensil. This has already been indicated in the PoA-DD. The ICS are designed to achieve better overall efficiency with combustion of solid biomass fuels, which also includes woody biomass. The GHG emission reductions would accrue on account of the reduced usage of non-renewable biomass only.</p> <p>The explanation provided for “replacement” in the previous reply has also been inserted as a footnote in section A.2. of the revised PoA-DD submitted to the validator.</p> | |
| Assessment Means of validation / verification | <p>Please clarify if solid biomass fuel includes any other form of biomass other than woody biomass, as PoA-DD refers woody biomass and response to CAR refers solid biomass.</p> <p>The intended target group has been clearly identified and explained in revised PoA-DD.</p> <p>The explanation provided here still needs to be explained in PoA-DD as well.</p> <p><u>Further Response</u></p> <p>The explanation has been added in section A.2 of PoA-DD.</p> | |
| Adjustment on pro- | Further clarification and additional information has been added in section A.2 of the PoA-DD. | |

List of Findings - Compilation and Resolutions - PoA

Version: Final

Project Title: National Programme for Improved Cookstoves in India



| Corrective Action Requests by validation team | | |
|---|--|--|
| ject design OR Changes in the monitoring report or supporting annexes | | |

| Corrective Action Requests by validation team | | |
|---|--|--------------------|
| | Comments and Results | Conclusion and IRL |
| Issue | PoA description | OK IRL 18, 45 |
| Requirement | EB55, Annex 38, paragraph 6 (f) & VVS/69 | |
| Corrective Action Request | <p><u>Corrective Action Request No.3</u></p> <p>A.6 just mentions an example of the technology that would be used in a CPA and mentions that specific stoves types will be described for each SSC-CPA. However, EB55, Annex 38, paragraph 6 (f) indicates that “the CDM-PoA-DD shall include description of a typical CPA that will be included in the PoA covering the technology or measures to be used....”. Paragraph 6 further mentions that the CME shall develop a POA-DD setting a framework for the implementation of the PoA and unambiguously defining a CPA under the PoA. Thus PPs are requested to indicate at PoA-level all possible technologies that are intended to be implemented in different CPAs and have to be more precise in the description of technology specifications.</p> | |
| Response | <p>The PoA intends to cover fixed as well as portable type; single pot as well as multiple pot type improved biomass cookstoves, as per the framework for implementation of the PoA in section A.6. of the revised PoA-DD submitted to the validator. A typical CPA shall employ ICS belonging to the above types for dissemination.</p> <p>Response (2nd Round):</p> <p>The PoA intends to cover fixed as well as portable type; single pot as well as multiple pot type improved biomass cookstoves, as indicated in section A.6. of the revised PoA-DD submitted to</p> | |

List of Findings - Compilation and Resolutions - PoA

Version: Final

Project Title: National Programme for Improved Cookstoves in India



| Corrective Action Requests by validation team | | |
|--|--|--|
| | the validator. | |
| Assessment Means of validation / verification | <p>The description or categorization of type of cookstove differs in revised PoA-DD and response to CAR. Clarify.</p> <p><u>Further Response –</u></p> <p>The description of type of cookstove has been revised in section A.6. of the revised PoA-DD and it represents the actual scenario of implementation of one technology only.</p> | |
| Adjustment on project design OR Changes in the monitoring report or supporting annexes | The description of type of cookstove has been revised in section A.6. of the revised PoA-DD. | |

| Corrective Action Requests by validation team | | |
|---|---|--------------------|
| | Comments and Results | Conclusion and IRL |
| Issue | Description of PoA | IRL 19 |
| Requirement | Guidelines to complete F-CDM-SSC-PoA-DD, EB 67, Annex 30 & VVS/69 | |
| Corrective Action Request | <p><u>Corrective Action Request No.4</u></p> <p>Efficiency test Certificate of ICS needs to be submitted.</p> | |
| Response | Energy efficiency test certificate of the ICS model to be disseminated in the first CPA, issued by an MNRE approved cookstove testing center has been submitted to the validator. | |
| Assessment Means of validation / verification | Required energy efficiency test report of ICS model to be used in first CPA has been submitted. | |

List of Findings - Compilation and Resolutions - PoA

Version: Final

Project Title: National Programme for Improved Cookstoves in India



| Corrective Action Requests by validation team | | |
|--|------------|--|
| Adjustment on project design OR Changes in the monitoring report or supporting annexes | No change. | |

| Corrective Action Requests by validation team | | |
|--|---|--------------------|
| | Comments and Results | Conclusion and IRL |
| Issue | Geographical PoA boundary | IRL 45 |
| Requirement | Guidelines to complete F-CDM-SSC-PoA-DD, EB 67, Annex 30 & VVS/83 | |
| Corrective Action Request | <u>Corrective Action Request No.5</u> GPS extent have to be indicated country wide (the whole country of India is the project boundary) and respective supporting documentation has to be submitted to the validation team. | |
| Response | The GPS coordinates for the host country of the PoA – India have been provided in section A.5. of the revised PoA-DD submitted to the validator. | |
| Assessment Means of validation / verification | Required information i.e extent of GPS co-ordinates of India has been incorporated. Same has been crosschecked with Google earth. | |
| Adjustment on project design OR Changes in the monitoring report or supporting annexes | GPS coordinates has been revised in Section A.5 of PoA-DD. | |

List of Findings - Compilation and Resolutions - PoA

Version: Final

Project Title: National Programme for Improved Cookstoves in India



| Corrective Action Requests by validation team | | |
|--|---|---------------------|
| | Comments and Results | Conclusion and IRL |
| Issue | Eligibility and Applicability Criteria | OK IRL 18,19, 45 |
| Requirement | AMS II G, version 3 para 1 to 3 & 22 to 24, VVS/73, 74 & 76 | |
| Corrective Action Request | <p><u>Corrective Action Request No.6</u></p> <p>Confirm who are the MNRE approved labs for Efficiency test of ICS. Status of NIRE in respect to MNRE approved labs is unclear and need to be further elaborated.</p> <p>What does it mean by high efficiency? The term high efficiency is unclear and not measurable without further information on this.</p> | |
| Response | <p>The MNRE approved cookstove testing centres as of now are in Indian Institute of Technology – Delhi, Maharana Pratap University of Agriculture and Technology – Udaipur and Institute of Minerals and Materials Technology – Bhubaneswar. The CME further wishes to confirm that currently NIRE is not a MNRE approved stove testing center.</p> <p>The high efficiency of the improved cookstoves denotes thermal energy efficiency at least 20%, in line with the methodology AMS-II.G. Hence the efficiency of an ICS model has to be at least 20% for it to qualify under the PoA.</p> | |
| Assessment Means of validation / verification | <p>The required clarification regarding different MNRE approved testing centres for cookstove testing has been provided. NIRE does not have a status as of a MNRE approved test centre. There is no risk of conflict of interest for NIRE to issue testing certificates for ICS model to be used in CPA implemented under this PoA.</p> <p>The value of 20% as threshold of thermal efficiency has been clearly indicated and is in line with the requirement of methodology. Hence issue is closed.</p> | |
| Adjustment on project design OR Changes in the | No changes. | |

List of Findings - Compilation and Resolutions - PoA

Version: Final

Project Title: National Programme for Improved Cookstoves in India



| Corrective Action Requests by validation team | | |
|---|--|--|
| monitoring report or supporting annexes | | |

| Corrective Action Requests by validation team | | |
|--|---|--------------------|
| | Comments and Results | Conclusion and IRL |
| Issue | Eligibility and Applicability Criteria | Ok IRL 27 |
| Requirement | AMS II G, version 3 para 1 to 3 & 22 to 24, VVS/73, 74 & 76 | |
| Corrective Action Request | <u>Corrective Action Request No.7</u> Clarify if same 1987 FSI report has been referred for production of 40 million of cu m of fuel wood. | |
| Response | The CME hereby clarifies that the production of 40 million cu m of fuel wood has been sourced from page 46 of the same 1987 FSI report: http://www.fsi.nic.in/sfr1987/sfr_1987.pdf . Response (2nd Round): The data of 235 million cu.m. has been sourced from page 46; section 3.7 and the data of 40 million cu.m. has been sourced from page 46; section 3.8 of the same 1987 FSI report mentioned in the previous reply. This has also been clearly indicated in the revised PoA-DD. | |
| Assessment Means of validation / verification | The same needs to be clarified, narration in PoA-DD suggest as some different study by FSI. Assessment (2nd Round) Clarification regarding source of data for production of 40 million cu.m fuelwood has been provided. This has been clarified clearly in revised PoA-DD as well, hence issue is closed. | |
| Adjustment on project design OR | Source of data for fuelwood has been provided with clarity. | |

List of Findings - Compilation and Resolutions - PoA

Version: Final

Project Title: National Programme for Improved Cookstoves in India



| Corrective Action Requests by validation team | | |
|--|--|--|
| Changes in the monitoring report or supporting annexes | | |

| Corrective Action Requests by validation team | | |
|---|--|-----------------------------------|
| | Comments and Results | Conclusion and IRL |
| Issue | Eligibility and Applicability Criteria | Ok. IRL 14, 15, 16, 19, 19, 31 |
| Requirement | Para 14 of EB 65 annex 3, VVS/73, 74 & 76 | |
| Corrective Action Request | <p><u>Corrective Action Request No.8</u></p> <p>The eligibility criteria table is not complete as per requirement in EB 65 Annex 3. It shall be corrected to meet all requirements of EB 65 Annex 3. Following findings also needs to be considered -</p> <ol style="list-style-type: none"> 1. Applicability criteria of applied methodology has to included. 2. Target group needs to be defined 3. Sampling Plan needs to be defined. 4. Performance Level of Stove to be confirmed with contract between CME and CPA implementer. Copy of contract has to be submitted. 5. Proposed means of proof is not adequate for start date. What does it mean by “start date as per CDM definition shall be provided” 6. Applicability criteria do not speak about transfer of carbon rights from users and modalities of doing the same. 7. Double counting at level of ICS shall also be included in eligibility criteria. 8. Only a confirmation from CPA implementer for household contribution is not acceptable. | |
| Response | The following changes have been incorporated in section B.2. of the revised PoA-DD submitted to the validator: | |

List of Findings - Compilation and Resolutions - PoA

Version: Final

Project Title: National Programme for Improved Cookstoves in India



| Corrective Action Requests by validation team | | |
|---|---|--|
| | <ol style="list-style-type: none"> 1. Applicability criteria of methodology have been included as an eligibility criteria 2. Target group has been included as an eligibility criteria 3. Sampling Plan at the PoA level is not required as each CPA under the PoA shall be verified and the same has been mentioned 4. Specifications of technology/measure, including the performance level of the ICS are reflected in the stove test certificate from MNRE approved stove testing center and stove specification sheet from the manufacturer submitted to the validator 5. Proposed means of proof has been revised with reference to CDM guidelines 6. The transfer of carbon rights from the end-user to the CPA Implementer has been included as a part of the eligibility criteria: double counting 7. Double counting at level of ICS has also been included in eligibility criteria 8. CME – CPA Implementer contract has been added as a required means to establish the minimum user contribution criterion <p>Hence the eligibility criteria in the revised PoA-DD is in line with the requirements presented in EB 65, Annex 3.</p> <p>Response (2nd Round):</p> <ol style="list-style-type: none"> 2. The target group has been defined as households (domestic users) and community institutions (non-commercial users) in section A.2. of the revised PoA-DD submitted to the validator. 3. As PoA level sampling is not envisaged and each CPA under the PoA shall be verified therefore there are no sampling requirements at PoA level except for those that are defined in part II. Generic component project activity (CPA) of the PoA-DD. 4. A copy of the contract between CME and CPA implementer has been submitted to the validator. 5. The likely proofs, i.e., likely “suitable documents” for establishment of the CPA start date like project planning/ feasibility study document, ICS rollout records, etc. has been mentioned in part.I, section B.2. of the revised PoA-DD submitted to the validator. | |

List of Findings - Compilation and Resolutions - PoA

Version: Final

Project Title: National Programme for Improved Cookstoves in India



| Corrective Action Requests by validation team | | |
|--|--|--|
| | <p>6. The CME wishes to clarify that relinquishment of carbon rights from the end-user to the CPA implementer is indeed related to double counting; as it shall confirm that the end-user shall not claim carbon credits separately. Hence the requirement of a mechanism for relinquishment of carbon rights from the end-user to the CPA implementer has been added as a sub-point under the eligibility criterion for double counting in the section B.2. of the revised PoA-DD submitted to the validator.</p> | |
| <p>Assessment Means of validation / verification</p> | <p>Description of eligibility criterion are not clear such as start date.. of what? However,</p> <ol style="list-style-type: none"> 1. Each applicability criteria of methodology have been included as eligibility criteria 2. Section A.2 refers intended target group for the PoA are the domestic and other non-commercial populace in India, whereas eligibility criteria refer household (domestic user) or a community institution (non-commercial user). Maintain consistency. 3. Sampling plan still could be one of criteria and can be explained why it is not applicable. 4. Specifications of technology/measure, including the performance level of the ICS are reflected in the stove test certificate from MNRE approved stove testing center and stove specification sheet from the manufacturer has been submitted and found to be in line with requirement. But copy of contract between CME and CPA implementer still to be submitted. 5. What are those proofs. Please explain. Also in eligibility criteria of start date "suitable documents" has been referred, what could be this? 6. The transfer of carbon rights from the end-user and double counting entirely different subjects and can't be covered in one criteria. 7. Double counting has been included in eligibility criteria with proper justification and check points. 8. CME – CPA Implementer contract has been added as a required means to establish the minimum user contribution criterion and is acceptable. | |

List of Findings - Compilation and Resolutions - PoA

Version: Final

Project Title: National Programme for Improved Cookstoves in India



| Corrective Action Requests by validation team | | |
|--|--|--|
| | <p><u>Further response</u></p> <p>Remaining open issue has been clarified and closed.</p> <p>2. The target group has been defined as households (domestic users) and community institutions (non-commercial users) in section A.2. of of the revised PoA-DD .</p> <p>3. As PoA level sampling has not been opted and each CPA under the PoA shall be verified, hence no sampling requirements at PoA level apart from component project activity (CPA) of the PoA-DD.</p> <p>4. A copy of the contract between CME and CPA implementer has been submitted.</p> <p>5. The likely proofs, i.e., likely “suitable documents” for establishment of the CPA start date like project planning/ feasibility study document, ICS rollout records, etc. has been mentioned in part.I, section B.2. of the revised PoA-DD.</p> <p>6. The requirement of a mechanism for relinquishment of carbon rights from the end-user to the CPA implementer has been added as a sub-point under the eligibility criterion for double counting in the section B.2. of the revised PoA-DD.</p> | |
| Adjustment on project design OR Changes in the monitoring report or supporting annexes | Eligibility criteria for CPAs has been modified in PoA-DD in accordance with EB 70, Annex 5. | |

| Corrective Action Requests by validation team | | |
|---|--|--------------------|
| | Comments and Results | Conclusion and IRL |
| Issue | Algorithms and/or formulae used to determine emission reductions | Ok IRL 08, 45 |
| Requirement | VVS/97, 98, | |
| Corrective Action | <u>Corrective Action Request No.9</u> | |

List of Findings - Compilation and Resolutions - PoA

Version: Final

Project Title: National Programme for Improved Cookstoves in India



| Corrective Action Requests by validation team | | |
|---|--|--|
| Request | <ol style="list-style-type: none"> 1. Q_{Biomass}, $f_{\text{NRB}, y}$, –It has been written in PoA-DD “The value for this parameter obtained from the first CPA in a region shall also be used for all subsequent CPAs in that region” Explain how it is correct and revise accordingly. 2. How efficiency test is related to investigation of extent of traditional stove in use after implementation ICS? Clarify <ul style="list-style-type: none"> - What does it mean by “a portion of kitchens exists in which a traditional stove is still used, even in a secondary role”? 3. What is PoA sampling plan referred in N_{fraction}? 4. Please consider following for all parameters - <ul style="list-style-type: none"> - Source of data to be corrected - Measurement methods and procedures is not as per PoA-DD guidelines - QA/QC procedure has to be provided. - Monitoring Frequency has to be provided | |
| Response | <ol style="list-style-type: none"> 1. Please refer to section B.6.2. of the revised PoA-DD submitted to the validator. The parameters Q_{Biomass}, $f_{\text{NRB}, y}$ shall be established for each CPA separately. 2. Please refer to section B.7.2. of the revised PoA-DD submitted to the validator, where appropriate revisions have been made about monitoring of continued usage of traditional cookstoves by means of field visits. 3. Please refer to the sampling plan provided in section B.7.2. of the revised PoA-DD submitted to the validator. 4. Please refer to section B.7.1. of the revised PoA-DD submitted to the validator, where appropriate revisions have been done in the monitoring tables. <p>Response (2nd Round):</p> <ol style="list-style-type: none"> 4. Please refer to section B.7.1. of the revised PoA-DD submitted to the validator, where the following changes have been done: <ol style="list-style-type: none"> a. WBTs shall be performed on the sample of ICS selected. QA/QC measures shall be as per | |

List of Findings - Compilation and Resolutions - PoA

Version: Final

Project Title: National Programme for Improved Cookstoves in India



| Corrective Action Requests by validation team | | |
|---|---|--|
| | <p>sub-point ii: "Quality Assurance/Quality Control" of the point b: "Data" in the sampling plan provided in section B.7.2.</p> <p>b. QA/QC measures shall be as per sub-point ii: "Quality Assurance/Quality Control" of the point b: "Data" in the sampling plan provided in section B.7.2.</p> <p>Further, reference to EB65, Annex 2 has been updated to EB69, Annex 4 and 5 – Sampling standard and guideline respectively.</p> | |
| Assessment Means of validation / verification | <ol style="list-style-type: none"> 1. The required changes in description of parameter Q_{Biomass}, $f_{\text{NRB}, y}$ has been done as per requirement. 2. The appropriate change as per requirement has been done and now monitoring of continued usage of traditional cookstoves by means of field visits referred. 3. A detailed and appropriate sampling plan has now been presented in PoA-DD and is in line with the requirement of EB 65 Annex 2. 4. Required revision has been done however, <ol style="list-style-type: none"> a. η_{new} - Could not understand what does mean by "sampling by performing WBTs", Key point of QA/QC should be added. b. SOF, μ_{old}, f_{old} - Key point of QA/QC should be added. <p>Further Response</p> <p>The parameter description has been corrected and Key point of OA/QC has been added in PoA-DD. The changes are appropriate.</p> | |
| Adjustment on pro- ject design OR Changes in the monitoring report or supporting annexes | <p>Parameters description has been corrected and additional required information has been added in revised PoA-DD. These are also in accordance with EB 69, Annex 4 and 5.</p> | |

List of Findings - Compilation and Resolutions - PoA

Version: Final

Project Title: National Programme for Improved Cookstoves in India



| Corrective Action Requests by validation team | | |
|--|---|--------------------|
| | Comments and Results | Conclusion and IRL |
| Issue | Algorithms and/or formulae used to determine emission reductions | IRL 08 |
| Requirement | VVS/97, 98, | |
| Corrective Action Request | <u>Corrective Action Request No.10</u> As per meth parameter fnrb is a ex-post parameter, however PoA-DD defines this as ex-ante. Clarify. | |
| Response | The approach of the CME to fix the parameter f_{NRB} ex-ante is consistent with the response to the clarification issued by SSC WG dated 06/07/2011 where it is stated that the fraction of non-renewable biomass can be fixed ex ante at the beginning of each crediting period. The quoted clarification request is for the methodology AMS-I.E., but the same concept is also valid for the methodology used in this PoA – AMS-II.G. as the parameter under consideration is the same (f_{NRB}). Reference: http://cdm.unfccc.int/filestorage/0/C/S/0CS7QLNBHZFYUGMK8T4EAJ35OWRVXI/Final%20response.pdf?t=eEt8bTY5d3AwfDDIlreOEpf_C7N9OgoeMLmh | |
| Assessment Means of validation / verification | The justification can be accepted looking at clarification provided by EB on subject matter. | |
| Adjustment on project design OR Changes in the monitoring report or supporting annexes | No changes. | |

| Corrective Action Requests by validation team | | |
|---|----------------------|--------------------|
| | Comments and Results | Conclusion and IRL |

List of Findings - Compilation and Resolutions - PoA

Version: Final

Project Title: National Programme for Improved Cookstoves in India



| Corrective Action Requests by validation team | | |
|--|---|--------|
| Issue | Start Date | IRL 08 |
| Requirement | VVS/106 | |
| Corrective Action Request | <u>Corrective Action Request No.11</u> Start date of PoA is not clear and PP shall also submit the evidence for the same. | |
| Response | The start date of the PoA is the validation start date – 09/05/2012 and evidence for the same is the e-mail notification received by the DOE from UNFCCC about uploading the documents for global stakeholder consultation. | |
| Assessment Means of validation / verification | The adequate revision with respect to clear start date has been done in PoA-DD. Evidence for the same has also been submitted. | |
| Adjustment on project design OR Changes in the monitoring report or supporting annexes | Start date has been corrected with explanation of same. This is also in accordance with EB 70, Annex 5. | |

| Corrective Action Requests by validation team | | |
|---|---|-------------------------|
| | Comments and Results | Conclusion and IRL |
| Issue | Additionality | Ok IRL 4, 09, 44, 45 |
| Requirement | VVS/102, 106, 119, 120 & 121 | |
| Corrective Action Request | <u>Corrective Action Request No.12</u> 1. Only general technological barrier has been discussed not the specific technological barrier to the PoA. As per report of MNRE “35.5 million IC Stoves” were distributed in India and there | |

List of Findings - Compilation and Resolutions - PoA

Version: Final

Project Title: National Programme for Improved Cookstoves in India



| Corrective Action Requests by validation team | | |
|---|---|--|
| | <p>are already two registered CDM project activity hence it further needs to be clarified that if technological barrier still exist for ICS in india.</p> <p>2. Investment analysis has been referred for additionality at CPA level, however it is not clear if Guidance for Investment Analysis has been followed or not.</p> <p>3. Sample sheet for NPV calculation along with NPV sheet for first CPA shall be submitted. Similarly ER calculation sample sheet along with ER sheet for first CPA shall be submitted.</p> | |
| Response | <p>1. The CME wishes to clarify that earlier programmes of improved stove dissemination in India have not been successful on account of stove designs not catering to the needs of end user. As reported, “Many stoves did not accommodate the household cooking pot, or could not withstand the heat required for cooking. Many of the stoves plainly did not offer the assured savings in household firewood consumption”¹. Furthermore, unlike the CDM process, there was no requirement in the previous programmes in the host country pertaining to continuous monitoring of the end-user usage of the improved cookstoves and hence many of the end-users reverted to the use of the traditional cookstoves. Hence it is clear that the previous programmes have not managed to achieve the desired outcome and the earlier “improved” cookstoves were not able to meet the intended requirements, owing to insufficient design.</p> <p>Furthermore, please refer to section B.1. of the revised PoA-DD submitted to the validator, where additionality establishment has been done as per Attachment A of Appendix B for SSC CDM project activities and Guidelines for demonstrating additionality of microscale project activities, where the framework for establishing additionality at the CPA level has been provided.</p> <p>In addition, regarding the existence of two registered CDM projects in India, it may please be noted that registered CDM projects are not counted and neither accounted for in the demonstration of additionality of similar other projects proposed for CDM registration subsequently.</p> <p>2. Please refer to section B.1. of the revised PoA-DD submitted to the validator, where addi-</p> | |

¹ Sinha, B. 2002. “The Indian stove programme: An insider’s view—The role of society, politics, economics and education.” Boiling Point 48: 23–26.<www.hedon.info/tiki-download_item_attachment.php?attId=164>

List of Findings - Compilation and Resolutions - PoA

Version: Final

Project Title: National Programme for Improved Cookstoves in India



| Corrective Action Requests by validation team | | |
|---|--|--|
| | <p>tionality establishment has been done as per Attachment A of Appendix B for SSC CDM project activities and Guidelines for demonstrating additionality of microscale project activities.</p> <p>3. The sample NPV sheet, NPV sheet for 1st CPA, sample ER sheet and the ER sheet for 1st CPA have been submitted to the validator.</p> <p>Response (2nd Round):</p> <p>The PoA-DD has been revised following: “Guidelines for demonstration of additionality of small scale project activities”, version 9.0, EB – 68, Annex – 27 for demonstration of additionality. Please refer to section B.1. of the revised PoA-DD submitted to the validator. In light of referred guideline, the CPA is deemed automatically additional if it can be demonstrated that each ICS results in energy savings under 9 GWh_{th}/year.</p> | |
| Assessment Means of validation / verification | <p>1. Though PP has used Attachment A to Appendix B for explaining additionality but the technical barriers in implementation remain inconclusive and needs further justification.</p> <p>2. In the revised PoA-DD submitted, additionality establishment has been done as per Attachment A of Appendix B for SSC CDM project activities and Guidelines for demonstrating additionality of microscale project activities, which is appropriate to use.</p> <p>3. The sample NPV sheet, NPV sheet for 1st CPA, sample ER sheet and the ER sheet for 1st CPA have been submitted.</p> <p>Further Response</p> <p>The PoA-DD has opted to use: “Guidelines for demonstration of additionality of small scale project activities”, version 9.0, EB – 68, Annex – 27 for demonstration of additionality. A revised PoA-DD submitted and in light of referred guideline, the CPA is deemed automatically additional if it can be demonstrated that each ICS results in energy savings under 9 GWh_{th}/year.</p> <p>The application of new guidelines is appropriate.</p> | |
| Adjustment on project design | The additionality section of PoA-DD has been revised using “Guidelines for demonstration of additionality of small scale project activities”, version 9.0, EB – 68, Annex – 27. | |

List of Findings - Compilation and Resolutions - PoA

Version: Final

Project Title: National Programme for Improved Cookstoves in India



| Corrective Action Requests by validation team | | |
|--|--|--|
| OR Changes in the monitoring report or supporting annexes | | |

| Corrective Action Requests by validation team | | |
|--|--|--------------------|
| | Comments and Results | Conclusion and IRL |
| Issue | Monitoring Plan | Ok. IRL 33, 45 |
| Requirement | VVS/132 a & 132 b | |
| Corrective Action Request | <u>Corrective Action Request No.13</u> It has to be clarified how the unique serial number to each stove will be provided and how it will be maintained? | |
| Response | The CME wishes to clarify that each ICS to be disseminated under the PoA shall be assigned a serial number by the manufacturer. The ICS manufacturer's name, ICS model name and the serial number shall together constitute the unique serial number of that ICS, as indicated in section C of the revised PoA-DD submitted to the validator submitted to the validator. | |
| Assessment Means of validation / verification | The justification and revision is appropriate and is acceptable. | |
| Adjustment on project design OR Changes in the monitoring report or supporting annexes | Revision in PoA-DD regarding unique identification for ICS has been done. | |

List of Findings - Compilation and Resolutions - PoA

Version: Final

Project Title: National Programme for Improved Cookstoves in India



| Clarification Requests by validation team | | |
|---|--|--------------------|
| | Comments and Results | Conclusion and IRL |
| Issue | <u>Letter of Approval & MoC</u> | OK IRL 32, 34 |
| Requirement | LoA - VVS para 39, 40, 48 & 51, MoC – 46, 53 & 59 | |
| Clarification Request | <u>Clarification Request No. 1</u> The host country letter of approval has to be submitted to the validation team once available as well as the Modalities of Communication (MoC). | |
| Response | The Host Country Approval for the PoA is has been submitted to DOE. The Modalities of Communication has been submitted to the validator. | |
| Assessment Means of validation / verification | The LoA with letter no. 4/12/2012-CCC dated 16 th August 2012 has been submitted along with MoC as well. | |
| Adjustment on pro- ject design OR Changes in the monitoring report or supporting annexes | No changes | |
| Clarification Requests by validation team | | |
| | Comments and Results | Conclusion and IRL |
| Issue | <u>Voluntary Action by CME</u> | IRL 45 |
| Requirement | Guidelines to complete F-CDM-SSC-PoA-DD, EB 67, Annex 30, VVS/ 46, 47 | |
| Clarification Request | <u>Clarification Request No. 2</u> | |

List of Findings - Compilation and Resolutions - PoA

Version: Final

Project Title: National Programme for Improved Cookstoves in India



| Clarification Requests by validation team | | |
|---|---|--|
| | It need to be clarified in PoA-DD if CME can also be an implementer. | |
| Response | The CME is not envisaged to be a CPA implementer, as stated in section A.2. of the revised PoA-DD submitted to the validator. | |
| Assessment Means of validation / verification | The required clarification has been provided. | |
| Adjustment on pro- ject design OR Changes in the monitoring report or supporting annexes | No changes. | |

| Clarification Requests by validation team | | |
|---|--|----------------------|
| | Comments and Results | Conclusion and IRL |
| Issue | <u>PoA Description</u> | Ok IRL 23, 24, 45 |
| Requirement | Guidelines to complete F-CDM-SSC-PoA-DD, EB 67, Annex 30, | |
| Clarification Request | <u>Clarification Request No. 3</u> PP has to provide evidences regarding the funding pattern of the PoA and also the proof that ODA has not been used. PoA-DD Part II, A.1 - What does it mean by "If possible, provide micro finance options for the purchase of stoves for poorer households and communities". It need to be explained. | |
| Response | The CME (NIRE), being an autonomous body under the MNRE, Gol and is funded by the MNRE for all its operations, including this PoA. A declaration in this regard has been submitted to the validator. Furthermore, a declaration has been submitted to the validator stating that no | |

List of Findings - Compilation and Resolutions - PoA

Version: Final

Project Title: National Programme for Improved Cookstoves in India



| Clarification Requests by validation team | | |
|--|---|--|
| | <p>public funding that amounts to diversion of ODA is involved for financing of the PoA.</p> <p>The CME at present does not have any plans for providing any financing mechanisms for any CPA implementers or any end users. It is up to the CPA Implementers to design and implement any financing mechanisms for their respective CPAs. Hence the statement has been removed in the revised PoA-DD submitted to the validator to avoid confusion.</p> | |
| Assessment | The justification provided for ODA is reasonable and issue is clarified now. | |
| Means of validation / verification | The required clarification has been provided and related changes in PoA-DD have also been done. | |
| Adjustment on project design OR Changes in the monitoring report or supporting annexes | Explanation on ODA funding has been added in PoA-DD. | |

| Clarification Requests by validation team | | |
|---|--|--------------------|
| | Comments and Results | Conclusion and IRL |
| Issue | Mandatory target or Implementation Policies from Govt. & Voluntary Action | IRL 22, 40 |
| Requirement | Guidelines to complete F-CDM-SSC-PoA-DD, EB 67, Annex 30, VVS/69 | |
| Clarification Request | <p><u>Clarification Request No. 4</u></p> <p>Supporting documentation has to be submitted to the validation team proving that there are no mandatory targets or implementation policies formulated by the government. PP must also establish by means of credible evidences that it is Voluntary action from them.</p> <p>In the case that there should be some kind of government policies for the dissemination of ICS,</p> | |

List of Findings - Compilation and Resolutions - PoA

Version: Final

Project Title: National Programme for Improved Cookstoves in India



| Clarification Requests by validation team | | |
|--|---|--|
| | it should be verified whether these policies fall under E-policy as per EB22, Annex 3. | |
| Response | The CME wishes to clarify that there are no policies or legal mandates for deployment of ICS in India for cooking purpose. A document from the Ministry of New and Renewable Energy, the relevant ministry of the Government of India has been submitted to the validator to further substantiate the same. | |
| Assessment Means of validation / verification | The validation team has also checked with portal of MNRE for any such policy and found that there no existing policy for legal mandate. The letter from MNRE further confirm the same. | |
| Adjustment on project design OR Changes in the monitoring report or supporting annexes | No change. | |

| Clarification Requests by validation team | | |
|---|--|-------------------------------|
| | Comments and Results | Conclusion and IRL |
| Issue | Applicability of Baseline, Monitoring methodology and tools | Ok. IRL 14, 15, 16, 19, 31 |
| Requirement | AMS II G & VVS/76 | |
| Clarification Request | <u>Clarification Request No. 5</u> In section for additionality, investment analysis has been referred however "Guidance for investment Analysis" has not been listed. | |
| Response | Please refer to section B.1. of the revised PoA-DD submitted to the validator, where additionality establishment has been done as per Attachment A of Appendix B for SSC CDM project activities and Guidelines for demonstrating additionality of microscale project activities. | |

List of Findings - Compilation and Resolutions - PoA

Version: Final

Project Title: National Programme for Improved Cookstoves in India



| Clarification Requests by validation team | | |
|---|--|--|
| | <p>Response (2nd Round):</p> <p>The CME has made use of the latest additionality guidelines for SSC-CDM project activities: “Guidelines for demonstration of additionality of small scale project activities”, version 9.0, EB – 68, Annex – 27 for demonstration of additionality. The additionality section has been revised accordingly. Please refer to section B.1. of the revised PoA-DD submitted to the validator.</p> | |
| Assessment Means of validation / verification | <p>In the revised PoA-DD submitted, additionality establishment has been done as per Attachment A of Appendix B for SSC CDM project activities and Guidelines for demonstrating additionality of microscale project activities, which is appropriate to use.</p> <p>However, The PoA-DD has opted to use: “Guidelines for demonstration of additionality of small scale project activities”, version 9.0, EB – 68, Annex – 27 for demonstration of additionality. A revised PoA-DD submitted and in light of referred guideline, the CPA is deemed automatically additional if it can be demonstrated that each ICS results in energy savings under 9 GWh_{thr}/year.</p> <p>The application of new guidelines is appropriate.</p> | |
| Adjustment on pro- ject design OR Changes in the monitoring report or supporting annexes | <p>The additionality section of PoA-DD has been revised using “Guidelines for demonstration of additionality of small scale project activities”, version 9.0, EB – 68, Annex – 27.</p> | |

List of Findings - Compilation and Resolutions - PoA

Version: Final

Project Title: National Programme for Improved Cookstoves in India



| Clarification Requests by validation team | | |
|--|---|--------------------|
| | Comments and Results | Conclusion and IRL |
| Issue | <u>Applicability of Baseline, Monitoring methodology and tools</u> | Ok IRL45 |
| Requirement | AMS II G & VVS/93 | |
| Clarification Request | <u>Clarification Request No. 6</u> Clarify why <u>meth</u> requirement has not been referred in the identification of baseline scenario? Also explain what is <u>significance</u> of referred energy ladder for baseline identification? | |
| Response | The CME wishes to clarify that the PoA has the same baseline scenario as provided in the methodology and the same has been mentioned in section B.4. of the PoA-DD. Hence the baseline scenario has been established in line with the methodology being employed. Furthermore, it may please be noted that the energy ladder was provided merely to further justify the concept of arriving at the values used. | |
| Assessment Means of validation / verification | The clarification regarding use of applied methodology for selection of baseline has been provided and is appropriate and justified. | |
| Adjustment <u>on</u> pro- ject design OR Changes in the monitoring report or supporting annexes | Reference of methodology for selection of baseline scenario has been added in PoA-DD. | |

List of Findings - Compilation and Resolutions - PoA

Version: Final

Project Title: National Programme for Improved Cookstoves in India



| Clarification Requests by validation team | | |
|--|---|----------------------------------|
| | Comments and Results | Conclusion and IRL |
| Issue | Algorithms and/or formulae used to determine emission reductions | Ok IRL 04, 16, 17, 19, 20, 27 |
| Requirement | AMS II G & VVS/93 | |
| Clarification Request | <u>Clarification Request No. 7</u> The calculation approach in Emission Reduction calculation sheet is per household basis, whereas meth refers on the basis of per appliance. It needs to Clarify. | |
| Response | Please refer to the revised ER calculation sheet submitted to the validator in which the calculations have been done on per appliance basis. | |
| Assessment Means of validation / verification | The calculation approach has been changed to appliance basis and revised ER calculation sheet has been submitted. The same has been checked and found to be okay. | |
| Adjustment on project design OR Changes in the monitoring report or supporting annexes | No change. | |

| Clarification Requests by validation team | | |
|---|--|----------------------------------|
| | Comments and Results | Conclusion and IRL |
| Issue | Algorithms and/or formulae used to determine emission reductions | Ok IRL 04, 16, 17, 19, 20, 27 |
| Requirement | AMS II G & VVS/96, 97 & 98 | |
| Clarification Request | <u>Clarification Request No. 8</u> Revised ER excel sheet has to be submitted. All assumption and sources has to be listed | |

List of Findings - Compilation and Resolutions - PoA

Version: Final

Project Title: National Programme for Improved Cookstoves in India



| Clarification Requests by validation team | | |
|--|---|--|
| | along with references and credible evidences. | |
| Response | Please refer to the revised ER calculation sheet submitted to the validator in which all assumptions and sources have been listed and suitable references have been provided. | |
| Assessment Means of validation / verification | The revised ER calculation sheet has been submitted along with reference and evidences. The same has been checked and found to be okay. | |
| Adjustment on project design OR Changes in the monitoring report or supporting annexes | No change. | |

| Clarification Requests by validation team | | |
|---|---|--------------------|
| | Comments and Results | Conclusion and IRL |
| Issue | Algorithms and/or formulae used to determine emission reductions | Ok IRL 8, 45 |
| Requirement | AMS II G & VVS/96, 97 & 98 | |
| Clarification Request | <u>Clarification Request No. 9</u> PoA does not provide any sampling plan in monitoring plan section of PoA-DD for verification. PP needs to add an adequate Sampling plan as per EB65 annex-2. | |
| Response | Please refer to the sampling plan provided in section B.7.2. of the revised PoA-DD submitted to the validator which is in line with the relevant guidelines of EB 69, Annex 4. | |
| Assessment Means of validation / verification | In section B.7.2 a details sampling plan has been added and same in line with the requirement of EB 69, Annex 4. | |

List of Findings - Compilation and Resolutions - PoA

Version: Final

Project Title: National Programme for Improved Cookstoves in India



| Clarification Requests by validation team | | |
|--|--|--|
| Adjustment on project design OR Changes in the monitoring report or supporting annexes | The sampling plan has been added in PoA-DD in section B.7.2. These are also in accordance with EB 69, Annex 4 and 5. | |

| Clarification Requests by validation team | | |
|--|---|--------------------|
| | Comments and Results | Conclusion and IRL |
| Issue | Algorithms and/or formulae used to determine emission reductions | Ok IRL 08, 45 |
| Requirement | AMS II G & VVS/96, 97 & 98 | |
| Clarification Request | <u>Clarification Request No. 10</u> Explain how sampling will be done? Also explain what role CME has to play in regard to sampling and who and how will ensure that it is as per requirement of EB65 Annex 2 and Methodology para 22 & 23. | |
| Response | Please refer to the sampling plan provided in section B.7.2. of the revised PoA-DD submitted to the validator, which is in line with the relevant guidance provided by the sampling guidelines of EB 65, Annex 2 (further updated to EB 69, Annex 4 and 5) as well as the methodology. The role of the CME is to provide these sampling guidelines at the PoA level in order for these to be followed at the CPA level by the CPA Implementers. | |
| Assessment Means of validation / verification | In section B.7.2 a details sampling plan has been added and same in line with the requirement of EB 69, Annex 4 and 5. The role of CME and CPA implementer has been clearly indicated in the same. | |
| Adjustment on project design | The sampling plan has been added in PoA-DD in section B.7.2. along with the role of CME and CPA implementer clearly indicated. These are also in accordance with EB 69, Annex 4 and 5. | |

List of Findings - Compilation and Resolutions - PoA

Version: Final

Project Title: National Programme for Improved Cookstoves in India



| Clarification Requests by validation team | | |
|--|--|--|
| OR Changes in the monitoring report or supporting annexes | | |

| Clarification Requests by validation team | | |
|--|--|----------------------|
| | Comments and Results | Conclusion and IRL |
| Issue | Additionality | Ok IRL 14, 15, 45 |
| Requirement | AMS II G & VVS/101, 102 | |
| Clarification Request | <u>Clarification Request No. 11</u> Price of cookstove that implementer has to collect has been referred as minimum 100 INR. PP needs to clarify whether there will be any maximum defined as well. | |
| Response | It may please be noted that the ICS to be disseminated by the PoA shall be of various types, models and sizes, thus bearing various costs. Hence it is not possible to denote any maximum cost to the ICS to be disseminated under the PoA. On the other hand, the minimum charge of INR 100 per ICS has been kept for the domestic end-users as otherwise free distribution of cookstoves shall limit the users' ownership in the distributed stove. It can only be ensured that the user will value the technology and understanding its benefits and constantly use the stove (and thereby generate carbon credits) in the long-run if the end-user is contributing a minimal amount to obtain the stove. | |
| Assessment Means of validation / verification | The justification has been provided for not fixing any maximum limit but rather minimum limit of 100 INR and is appropriate hence issue is closed. | |
| Adjustment on project design OR | No change. | |

List of Findings - Compilation and Resolutions - PoA

Version: Final

Project Title: National Programme for Improved Cookstoves in India



| Clarification Requests by validation team | | |
|--|--|--|
| Changes in the monitoring report or supporting annexes | | |

| Clarification Requests by validation team | | |
|---|--|--------------------|
| | Comments and Results | Conclusion and IRL |
| Issue | Additionality | Ok IRL 45 |
| Requirement | AMS II G & VVS/101, 102 | |
| Clarification Request | <p><u>Clarification Request No. 12</u></p> <p>The information in document “National Programme for Improved Cookstoves in India Coordinating and Managing Entity Operational Manual’ Version – 01, Date – 11th June 2012 is not consistent with information in PoA-DD. And also PP needs to clarify if all requirement of EB 65 annex 3 has been covered or not.</p> | |
| Response | <p>Please refer to section C of the revised PoA-DD submitted to the validator for the PoA management system to be implemented by the CME that is in compliance with necessary requirements of EB 65, Annex 3.</p> <p>Response (2nd Round):</p> <p>Please refer to section C of the revised PoA-DD submitted to the validator for the PoA management system to be implemented by the CME that is in compliance with necessary requirements of EB 70, Annex 5.</p> | |
| Assessment Means of validation / verification | <p>A revised and updated “National Programme for Improved Cookstoves in India Coordinating and Managing Entity Operational Manual’ has to be submitted.</p> <p><u>Further response</u></p> | |

List of Findings - Compilation and Resolutions - PoA

Version: Final

Project Title: National Programme for Improved Cookstoves in India



| Clarification Requests by validation team | | |
|--|--|--|
| | Section C of the revised PoA-DD has been elaborated for the PoA management system to be implemented by the CME that is in compliance with requirements under para 19 of EB 70, Annex 5. This is appropriate and acceptable, hence issue is closed. | |
| Adjustment on project design OR Changes in the monitoring report or supporting annexes | Section C of the revised PoA-DD has been elaborated for the PoA management system to be implemented by the CME. These are also in accordance with EB 70, Annex 5. | |

| Clarification Requests by validation team | | |
|---|--|--------------------|
| | Comments and Results | Conclusion and IRL |
| Issue | Monitoring plan | Ok IRL 45 |
| Requirement | AMS II G & VVS/131 & 132 | |
| Clarification Request | <p><u>Clarification Request No. 13</u></p> <p>The management system which CME is going to implement under this PoA is not adequate to comply all the requirement of para 17 a –g of EB 65 Annex 3. For eg, the CME operation manual is still in draft stage; the record and document control (IT) is under development; CME resource planning is under budgetary approval process.</p> | |
| Response | <p>Please refer to section C of the revised PoA-DD submitted to the validator for details on the record and document control (IT) and CME resource planning.</p> <p>Response (2nd Round):</p> <p>Please refer to section C of the revised PoA-DD submitted to the validator for the PoA management system to be implemented by the CME that is in compliance with necessary require-</p> | |

List of Findings - Compilation and Resolutions - PoA

Version: Final

Project Title: National Programme for Improved Cookstoves in India



| Clarification Requests by validation team | | |
|--|---|--|
| | ments of EB 70, Annex 5. | |
| Assessment Means of validation / verification | <p>A revised and updated “National Programme for Improved Cookstoves in India Coordinating and Managing Entity Operational Manual” has to be submitted.</p> <p><u>Further response</u></p> <p>Section C of the revised PoA-DD has been elaborated for the PoA management system to be implemented by the CME that is in compliance with requirements under para 19 of EB 70, Annex 5. This is appropriate and acceptable, hence issue is closed.</p> | |
| Adjustment on project design OR Changes in the monitoring report or supporting annexes | <p>Section C of the revised PoA-DD has been elaborated for the PoA management system to be implemented by the CME. These are also in accordance with EB 70, Annex 5.</p> | |

List of Findings - Compilation and Resolutions - CPA

Version: Final

Project Title: National Programme for Improved Cookstoves in India

CPA Title - CPA No. 001 – “SAMUHA”



| Definitions | |
|-----------------------------|---|
| Shall / Should / May | In addition to the definitions contained in the Glossary of CDM terms, the following terms apply in the VVS (VVS/10): <u>Shall</u> is used to indicate requirements to be followed; <u>Should</u> is used to indicate that among several possibilities, one course of action is recommended as particularly suitable; <u>May</u> is used to indicate what is permitted. |
| Credible | Information is credible if it is authentic and is able to inspire belief or trust, and the willingness of persons to accept the quality of evidence. (VVS/17) |
| Reliable | Information is reliable if the quality of evidence is accurate and credible and able to yield the same results on a repeated basis. (VVS/17) |
| CAR | The DOE shall raise a CAR if one of the following situations occur: (VVS/220) (a) Non-compliance with the monitoring plan or methodology are found in monitoring and reporting and has not been sufficiently documented by the project participants, or if the evidence provided to prove conformity is insufficient; (b) Modifications to the implementation, operation and monitoring of the registered project activity has not been sufficiently documented by the project participants; (c) Mistakes have been made in applying assumptions, data or calculations of emission reductions that will impact the quantity of emission reductions; (d) Issues identified in a FAR during validation to be verified during verification or previous verification(s) have not been resolved by the project participants. |
| CL | The DOE shall raise a CL if information is insufficient or not clear enough to determine whether the applicable CDM requirements have been met. (VVS/221) |
| FAR | The DOE shall raise a FAR during verification for actions if the monitoring and reporting require attention and/or adjustment for the next verification period. (VVS/223) |

Compilation and Resolutions of CARs, CRs and FARs

| Corrective Action Requests by validation team | | |
|---|---|--------------------|
| | Comments and Results | Conclusion and IRL |
| Issue | Description of PoA in section A.2 is incomplete | Ok. IRL 44 |
| Requirement | Guidelines to complete F-CDM-SSC-PoA-DD, EB 67, Annex 30 & VVS/62 | |
| Corrective Action Request | <u>Corrective Action Request No.1</u> Table of inclusion & exclusion of gases shall be corrected as per CPA-DD form and justification of exclusion shall be provided. | |
| Response | Please refer to the changes incorporated in the table of gases in section B.3. of the revised | |

List of Findings - Compilation and Resolutions - CPA

Version: Final

Project Title: National Programme for Improved Cookstoves in India

CPA Title - CPA No. 001 – “SAMUHA”



| Corrective Action Requests by validation team | | |
|--|---|--|
| | CPA-DD submitted to the validator. | |
| Assessment Means of validation / verification | The required changes have been done in CPA-DD for correction in table of gases. | |
| Adjustment on project design OR Changes in the monitoring report or supporting annexes | The text of table of gases has been revised in revised CPA-DD and section B.3. | |

| Corrective Action Requests by validation team | | |
|---|---|---------------------|
| | Comments and Results | Conclusion and IRL |
| Issue | CPA Description | Ok IRL 16,17, 44 |
| Requirement | Guidelines to complete F-CDM-SSC-PoA-DD, EB 67, Annex 30 & VVS/69 | |
| Corrective Action Request | <u>Corrective Action Request No.2</u> There is a difference regarding the no. of ICS, household etc between baseline survey report and CPA-DD. Same needs to be corrected and justified. | |
| Response | The PP wishes to clarify that it is intended to disseminate 39,000 ICS in the CPA. As 2 ICSs shall be disseminated in each household, the number of households to be covered is 19,500. The baseline survey and the CPA-DD, version 01 mentions the dissemination of 43,000 ICSs in 21,500 households, as per the envisaged project plan at the time of commencing the baseline survey. However, based on the results of the baseline survey, the project plan was revisited and modified to dissemination of 39,000 ICS in 19,500 households, as appearing in the revised CPA-DD submitted to the validator. | |

List of Findings - Compilation and Resolutions - CPA

Version: Final

Project Title: National Programme for Improved Cookstoves in India

CPA Title - CPA No. 001 – “SAMUHA”



| Corrective Action Requests by validation team | | |
|--|--|--|
| Assessment Means of validation / verification | The revision done in CPA-DD is well explained and are in adherence with requirement of methodology and small scale limits. | |
| Adjustment on project design OR Changes in the monitoring report or supporting annexes | The changes have been done in CPA-DD in terms of plan of distribution and no. of ICS. | |

| Corrective Action Requests by validation team | | |
|---|--|--------------------|
| | Comments and Results | Conclusion and IRL |
| Issue | Geographical CPA boundary | OK IRL 44 |
| Requirement | Guidelines to complete F-CDM-SSC-PoA-DD, EB 67, Annex 30 & VVS/83 | |
| Corrective Action Request | <u>Corrective Action Request No.3</u> CPA-DD refers india as boundary for CPA and in the same para it also says only in Koppal district. PP needs to Clarify. | |
| Response | The PP wishes to clarify that the project boundary for the CPA is the Koppal Taluk, Koppal District, Karnataka State in India. Please refer to section A.7. of the of the revised CPA-DD submitted to the validator for the relevant modifications in this regard. | |
| Assessment Means of validation / verification | Required changes has been done in CPA-DD. | |
| Adjustment on pro- | CPA-DD has been revised to clarify on project boundary of CPA. | |

List of Findings - Compilation and Resolutions - CPA

Version: Final

Project Title: National Programme for Improved Cookstoves in India

CPA Title - CPA No. 001 – “SAMUHA”



| Corrective Action Requests by validation team | | |
|---|--|--|
| ject design OR Changes in the monitoring report or supporting annexes | | |

| Corrective Action Requests by validation team | | |
|---|--|--------------------|
| | Comments and Results | Conclusion and IRL |
| Issue | Description of CPA | Ok IRL 19 |
| Requirement | Guidelines to complete F-CDM-SSC-PoA-DD, EB 67, Annex 30 & VVS/69 | |
| Corrective Action Request | <u>Corrective Action Request No.4</u> Efficiency test Certificate of ICS needs to be submitted. | |
| Response | Energy efficiency test certificate of the ICS model to be disseminated in the CPA (Chullika) is- sued by an MNRE approved cookstove testing center – Institute of Minerals and Materials Technology, Bhubaneshwar has been submitted to the validator. | |
| Assessment Means of validation / verification | Energy efficiency test certificate of the ICS model to be disseminated in the CPA (Chullika) is- sued by an MNRE approved cookstove testing center – Institute of Minerals and Materials Technology, Bhubaneshwar has been submitted and found to be okay. | |
| Adjustment on pro- ject design OR Changes in the monitoring report or | No change. | |

List of Findings - Compilation and Resolutions - CPA

Version: Final

Project Title: National Programme for Improved Cookstoves in India

CPA Title - CPA No. 001 – “SAMUHA”



| Corrective Action Requests by validation team | | |
|---|--|--|
| supporting annexes | | |

| Corrective Action Requests by validation team | | |
|--|---|--------------------|
| | Comments and Results | Conclusion and IRL |
| Issue | Eligibility and Applicability Criteria | OK IRL 9, 44 |
| Requirement | AMS II G, version 3 para 1 to 3 & 22 to 24, VVS/73, 74 & 76 | |
| Corrective Action Request | <u>Corrective Action Request No.5</u> All applicability criteria of applied meth needs to be discussed and justification needs to be provided. Applicability criteria as per meth not fully clear, transparently and retraceably presented and discussed in CPA - or something in this direction. | |
| Response | Please refer to the section D.2. of the revised CPA-DD submitted to the validator for establishment of compliance with the eligibility criteria of the applied methodology and relevant justifications provided. | |
| Assessment Means of validation / verification | All eligibility criteria of meth has been incorporated and justified in revised CPA-DD. | |
| Adjustment on project design OR Changes in the monitoring report or supporting annexes | Eligibility criteria of Meth has been incorporated. | |

List of Findings - Compilation and Resolutions - CPA

Version: Final

Project Title: National Programme for Improved Cookstoves in India

CPA Title - CPA No. 001 – “SAMUHA”



| Corrective Action Requests by validation team | | |
|--|--|--------------------|
| | Comments and Results | Conclusion and IRL |
| Issue | Eligibility and Applicability Criteria | Ok IRL 44 |
| Requirement | Para 14 of EB 65 annex 3, VVS/73, 74 & 76 | |
| Corrective Action Request | <p><u>Corrective Action Request No.6</u></p> <p>The eligibility criteria table is not complete as per requirement in EB 65 Annex 3. All meth applicability criteria shall be included in eligibility criteria of PoA and CPA shall replicate the exact eligibility criteria of PoA. .</p> | |
| Response | <p>Please refer to the section D.5. of the revised CPA-DD submitted to the validator for establishment of the eligibility criteria stated in section B.2. of the revised PoA-DD, along with suitable justifications.</p> <p>Response (2nd Round):</p> <p>The table formatting has been improved in section D.5. of the revised CPA-DD submitted to the validator. Furthermore, the revisions corresponding to the changes in the eligibility criteria in the PoA-DD have also been incorporated. The reference to EB65 Annex 3 has also been updated to EB70, Annex 5.</p> | |
| Assessment Means of validation / verification | <p>Few rows of table used for assessment of eligibility criteria are not visible.</p> <p><u>Further response</u></p> <p>The table formatting has been improved in section D.5. of the revised CPA-DD</p> | |
| Adjustment on project design OR Changes in the | Table in section D.5 has been formatted. | |

List of Findings - Compilation and Resolutions - CPA

Version: Final

Project Title: National Programme for Improved Cookstoves in India

CPA Title - CPA No. 001 – “SAMUHA”



Corrective Action Requests by validation team

| | | |
|---|--|--|
| monitoring report or supporting annexes | | |
|---|--|--|

Corrective Action Requests by validation team

| | Comments and Results | Conclusion and IRL |
|---------------------------|---|--------------------|
| Issue | Algorithms and/or formulae used to determine emission reductions | Ok IRL 09, 44 |
| Requirement | VVS/97, 98, | |
| Corrective Action Request | <p><u>Corrective Action Request No.7</u></p> <p>1. Q_{Biomass}, $f_{\text{NRB}, y}$, –It has been written in PoA-DD “The value for this parameter obtained from the first CPA in a region shall also be used for all subsequent CPAs in that region” Explain how it is correct and revise accordingly.</p> <p>2. How efficiency test is related to investigation of extent of traditional stove in use after implementation ICS? PP needs to Clarify</p> <p>- What does it mean by “a portion of kitchens exists in which a traditional stove is still used, even in a secondary role”?</p> <p>3. What is PoA sampling plan referred in N_{fraction}?</p> <p>4. Please consider following for all parameters -</p> <ul style="list-style-type: none"> - Source of data to be corrected - Measurement methods and procedures is not as per PoA-DD guidelines - QA/QC procedure has to be provided. - Monitoring Frequency has to be provided | |
| Response | 1. Please refer to section B.6.2. of the revised PoA-DD and section D.6.2. of the revised CPA-DD submitted to the validator. The parameters Q_{Biomass} , $f_{\text{NRB}, y}$ shall be established for each CPA separately. | |

List of Findings - Compilation and Resolutions - CPA

Version: Final

Project Title: National Programme for Improved Cookstoves in India

CPA Title - CPA No. 001 – “SAMUHA”



| Corrective Action Requests by validation team | | |
|---|---|--|
| | <ol style="list-style-type: none"> Please refer to section B.6.3. of the revised PoA-DD and section D.6.1. of the revised CPA-DD submitted to the validator, where appropriate revisions have been made about monitoring of continued usage of traditional cookstoves by means of field visits. Please refer to the sampling plan provided in section B.6.3. of the revised PoA-DD and section D.7.2. of the revised CPA-DD, submitted to the validator. Please refer to section B.6.3. of the revised PoA-DD and section D.7.1. of the revised CPA-DD submitted to the validator, where appropriate revisions have been done in the monitoring tables. <p>Response (2nd Round):</p> <ol style="list-style-type: none"> Please refer to section D.7.1. of the revised PoA-DD submitted to the validator, where the following changes have been done: <ol style="list-style-type: none"> WBTs shall be performed on the sample of ICS selected. QA/QC measures shall be as per sub-point ii: “Quality Assurance/Quality Control” of the point b: “Data” in the sampling plan provided in section D.7.2. QA/QC measures shall be as per sub-point ii: “Quality Assurance/Quality Control” of the point b: “Data” in the sampling plan provided in section D.7.2. | |
| Assessment Means of validation / verification | <ol style="list-style-type: none"> The required changes in description of parameter $Q_{\text{Biomass}}, f_{\text{NRB}, y}$ has been done as per requirement. The appropriate change as per requirement has been done and now monitoring of continued usage of traditional cookstoves by means of field visits referred. A detailed and appropriate sampling plan has now been presented in PoA-DD and is in line with the requirement of EB 69 Annex 4 and 5. Required revision has been however, <ol style="list-style-type: none"> η_{new} - Could not understand what does mean by “sampling by performing WBTs”, Key point of QA/QC should be added. | |

List of Findings - Compilation and Resolutions - CPA

Version: Final

Project Title: National Programme for Improved Cookstoves in India

CPA Title - CPA No. 001 – “SAMUHA”



| Corrective Action Requests by validation team | | |
|--|---|--|
| | <p>b. SOF, μ_{old}, f_{old} - Key point of QA/QC should be added.</p> <p>Further Response</p> <p>1. The parameter description has been corrected and Key point of OA/QC has been added in CPA-DD. The changes are appropriate.</p> | |
| Adjustment on project design OR Changes in the monitoring report or supporting annexes | Parameters description has been corrected and additional required information has been added in revised CPA-DD. | |

| Corrective Action Requests by validation team | | |
|---|--|--------------------|
| | Comments and Results | Conclusion and IRL |
| Issue | Algorithms and/or formulae used to determine emission reductions | Ok IRL 45 |
| Requirement | VVS/97, 98, | |
| Corrective Action Request | <p><u>Corrective Action Request No.8</u></p> <p>As per meth parameter f_{NRB} is a ex-post parameter, however PoA-DD defines this as ex-ante. Clarify.</p> | |
| Response | <p>The approach of the PP to fix the parameter f_{NRB} ex-ante is consistent with the response to the clarification issued by SSC WG dated 06/07/2011 where it is stated that the fraction of non-renewable biomass can be fixed ex ante at the beginning of each crediting period. The quoted clarification request is for the methodology AMS-I.E., but the same concept is also valid for the methodology used in this PoA – AMS-II.G. as the parameter under consideration is the same (f_{NRB}). Reference: SSC-Submission number – SSC_543.</p> <p>Furthermore, it is also worth noting that there are two registered CDM projects (reference nos.</p> | |

List of Findings - Compilation and Resolutions - CPA

Version: Final

Project Title: National Programme for Improved Cookstoves in India

CPA Title - CPA No. 001 – “SAMUHA”



| Corrective Action Requests by validation team | | |
|---|--|--|
| | 2711 and 4530) that have fixed this parameter ex-ante, further strengthening the concept. | |
| Assessment Means of validation / verification | The justification can be accepted looking at clarification provided by EB on subject matter. | |
| Adjustment on pro- ject design OR Changes in the monitoring report or supporting annexes | No changes. | |

| Corrective Action Requests by validation team | | |
|---|--|---|
| | Comments and Results | Conclusion and IRL |
| Issue | Additionality | Ok IRL 4, 15, 16, 17, 18,, 44, 45 |
| Requirement | VVS/102, 106, 119, 120 & 121 | |
| Corrective Action Request | <p><u>Corrective Action Request No.9</u></p> <p>Additionality section of CPA-DD is not adequate. Input value and evidence are not being discussed in CPA-DD.</p> <p>1. Investment analysis has been referred for additionality at CPA level, however it is not clear if Guidance for Investment Analysis has been followed or not.</p> <p>2. Submit sheet for NPV calculation along with NPV sheet for first CPA.</p> | |
| Response | 1. Please refer to section D.5. of the revised CPA-DD submitted to the validator, where the additionality has been established in line with Attachment A of Appendix B, using investment barriers. The relevant guidelines of the Guidance for Investment Analysis have also | |

List of Findings - Compilation and Resolutions - CPA

Version: Final

Project Title: National Programme for Improved Cookstoves in India

CPA Title - CPA No. 001 – “SAMUHA”



| Corrective Action Requests by validation team | | |
|---|---|--|
| | <p>been followed, like NPV has been calculated as the financial indicator, values for all parameters have been provided at the investment decision date, spreadsheet has been provided for transparency in calculations, etc.</p> <p>2. Please refer to the NPV calculation spreadsheet submitted to the validator.</p> <p>Response (2nd Round): The PoA-DD and CPA-DD has been revised following: “Guidelines for demonstration of additionality of small scale project activities”, version 9.0, EB – 68, Annex – 27 for demonstration of additionality. The additionality section has been revised accordingly and barriers and NPV analysis previously provided have been removed. Please refer to section D.5. of the revised CPA-DD submitted to the validator. In light of referred guideline, the CPA is deemed automatically additional as it has been demonstrated that each ICS results in energy savings under 9 GWh_{th}/year.</p> | |
| Assessment Means of validation / verification | <p>1. Additionality of CPA has now been established in line with Attachment A of Appendix B, using investment barriers. The relevant guidelines of the Guidance for Investment Analysis have also been followed. All references and evidences has been added in CPA-DD and NPV sheet however, the additionality section need further structured and to be made more clearer.</p> <p>2. NPV calculation sheet has been submitted and all references used has been listed therein.</p> <p><u>Further Response</u> The PoA-DD has opted to use: “Guidelines for demonstration of additionality of small scale project activities”, version 9.0, EB – 68, Annex – 27 for demonstration of additionality. A revised PoA-DD submitted and in light of referred guideline, the CPA is deemed automatically additional if it can be demonstrated that each ICS results in energy savings under 9 GWh_{th}/year.</p> <p>The application of new guidelines is appropriate. Hence issue is closed.</p> | |

List of Findings - Compilation and Resolutions - CPA

Version: Final

Project Title: National Programme for Improved Cookstoves in India

CPA Title - CPA No. 001 – “SAMUHA”



| Corrective Action Requests by validation team | | |
|--|---|--|
| Adjustment on project design OR Changes in the monitoring report or supporting annexes | The additionality section of PoA-DD has been revised using “Guidelines for demonstration of additionality of small scale project activities”, version 9.0, EB – 68, Annex – 27. | |

| Corrective Action Requests by validation team | | |
|---|--|--------------------------|
| | Comments and Results | Conclusion and IRL |
| Issue | <u>Assessment of prior consideration of the clean development mechanism</u> | Ok IRL 14, 15, 16, 44 |
| Requirement | VVS/105 to 111 | |
| Corrective Action Request | <u>Corrective Action Request No.10</u> 1. A clear start date of CPA shall be mentioned and also submit the evidence for the same 2. Length of crediting period shall be aligned with life time of used ICS. Evidence for life time of ICS shall also be submitted. 3. Basis of start date of crediting period shall be mentioned and Implementation plan shall be submitted along with Proof of investment decision and date. | |
| Response | 1. Please refer to the start date: 01/08/2013 mentioned in section A.8.1 of the CPA-DD submitted to the validator. The supportive document for the same – implementation plan in the Detailed Project Report has also been submitted to the validator. 2. The PP wishes to confirm that the expected technical lifetime of the ICS (12 years) is greater than the crediting period of the CPA (10 years), as mentioned in section A.8.2 of the CPA-DD submitted to the validator. The supportive document for the ICS lifetime – the Detailed Project Report has also been submitted to the validator. 3. Please refer to the section A.9 of the CPA-DD submitted to the validator, where it is men- | |

List of Findings - Compilation and Resolutions - CPA

Version: Final

Project Title: National Programme for Improved Cookstoves in India

CPA Title - CPA No. 001 – “SAMUHA”



| Corrective Action Requests by validation team | | |
|--|--|--|
| | <p>tioned that expected start date of the crediting period of the CPA shall be either the envisaged completion of ICS roll-out date (31/03/2014) or the registration of the PoA and the CPA, whichever is later. The supportive document for the same – implementation plan in the Detailed Project Report has also been submitted to the validator.</p> <p>Furthermore, the proof of investment decision date has also been submitted to the validator in the form of the approval note by the management of SAMUHA. The date of investment decision-making was 05/05/2012.</p> | |
| Assessment Means of validation / verification | <ol style="list-style-type: none">1. Start date has been revised and appropriate evidence has also been submitted.2. The detail project report confirms the life time of ICS as 12 years. This has been further cross checked with technical specifications data sheet of Chullika Cookstove from Manufacturer.3. The required changes are in line with the requirement of start date and start date of crediting period. The evidences submitted are also cross checked with the evidences collected during site audit and founds to be okay. | |
| Adjustment on project design OR Changes in the monitoring report or supporting annexes | Changes has been done in CPA start date | |

List of Findings - Compilation and Resolutions - CPA

Version: Final

Project Title: National Programme for Improved Cookstoves in India

CPA Title - CPA No. 001 – “SAMUHA”



| Corrective Action Requests by validation team | | |
|--|--|--------------------|
| | Comments and Results | Conclusion and IRL |
| Issue | Monitoring Plan | Ok IRL 44 |
| Requirement | VVS/132 a & 132 b | |
| Corrective Action Request | <u>Corrective Action Request No.11</u> It has to be clarified how the unique serial number to each stove will be provided and how it will be maintained? | |
| Response | The PP wishes to clarify that each ICS to be disseminated under the PoA shall be assigned a serial number by the manufacturer. The ICS manufacturer's name, ICS model name and the serial number shall together constitute the unique identification number of that ICS, as indicated in section A.5 of the revised CPA-DD submitted to the validator. | |
| Assessment Means of validation / verification | The justification and revision is appropriate and is acceptable. | |
| Adjustment on project design OR Changes in the monitoring report or supporting annexes | The method of providing unique identification no. to ICS has been indicated in section A.5 of the revised CPA-DD | |

List of Findings - Compilation and Resolutions - CPA

Version: Final

Project Title: National Programme for Improved Cookstoves in India

CPA Title - CPA No. 001 – “SAMUHA”



| Clarification Requests by validation team | | |
|---|--|--------------------|
| | Comments and Results | Conclusion and IRL |
| Issue | Letter of Approval & MoC | OK IRL 32, 34 |
| Requirement | LoA - VVS para 39, 40, 48 & 51, MoC – 46, 53 & 59 | |
| Clarification Request | <u>Clarification Request No. 1</u> The host country letter of approval has to be submitted to the validation team. | |
| Response | The Host Country Approval for the PoA has been submitted to DOE. The Modalities of Communication has been submitted to the validator. | |
| Assessment Means of validation / verification | The LoA with letter no. 4/12/2012-CCC dated 16 th August 2012 has been submitted along with MoC as well. | |
| Adjustment on pro- ject design OR Changes in the monitoring report or supporting annexes | No changes | |
| Clarification Requests by validation team | | |

| Clarification Requests by validation team | | |
|---|---|--------------------|
| | Comments and Results | Conclusion and IRL |
| Issue | PoA Description | Ok |
| Requirement | Guidelines to complete F-CDM-SSC-PoA-DD, EB 67, Annex 30, | |

List of Findings - Compilation and Resolutions - CPA

Version: Final

Project Title: National Programme for Improved Cookstoves in India

CPA Title - CPA No. 001 – “SAMUHA”



| Clarification Requests by validation team | | |
|--|--|----------------|
| Clarification Request | <u>Clarification Request No. 2</u> PP has to provide evidences regarding the funding pattern of the CPA and also to proof that ODA has not been used. A declaration of ODA not being used shall also be submitted if applicable. | IRL 23, 24, 44 |
| Response | The PP wishes to confirm that the sources of finance and the funding pattern of the CPA are yet to be determined. Furthermore, a declaration has been submitted to the validator stating that no public funding that amounts to diversion of ODA is involved in the CPA. | |
| Assessment | The justification provided for ODA is reasonable and issue is clarified now. | |
| Means of validation / verification | The required clarification has been provided and related changes in PoA-DD have also been done. | |
| Adjustment on project design OR Changes in the monitoring report or supporting annexes | Clarification regarding ODA has been provided in PoA and CPA DD. | |

| Clarification Requests by validation team | | |
|---|--|--------------------|
| | Comments and Results | Conclusion and IRL |
| Issue | Mandatory target or Implementation Policies from Govt. & Voluntary Action | IRL 18, 19, 44 |
| Requirement | Guidelines to complete F-CDM-SSC-PoA-DD, EB 67, Annex 30, VVS/69 | |
| Clarification Request | <u>Clarification Request No. 3</u> Technical details of ICS have to be provided. | |

List of Findings - Compilation and Resolutions - CPA

Version: Final

Project Title: National Programme for Improved Cookstoves in India

CPA Title - CPA No. 001 – “SAMUHA”



| Clarification Requests by validation team | | |
|--|--|--|
| Response | Please refer to section A.5. of the revised CPA-DD and the manufacturer's specifications document submitted to the validator, where the technical details of the ICS to be disseminated by the CPA have been provided. | |
| Assessment Means of validation / verification | The manufacturer specification has been provided and are consistence with information provided in revised CPA-DD. | |
| Adjustment on project design OR Changes in the monitoring report or supporting annexes | Technical details has been added in revised CPA-DD. | |

| Clarification Requests by validation team | | |
|---|---|-------------------------------|
| | Comments and Results | Conclusion and IRL |
| Issue | Applicability of Baseline, Monitoring methodology and tools | Ok. IRL 14, 15, 16, 19, 31 |
| Requirement | AMS II G & VVS/76 | |
| Clarification Request | <u>Clarification Request No. 4</u> In section for additionality, investment analysis has been referred however “Guidance for investment Analysis” has not been listed. | |
| Response | Please refer to section D.5. of the revised CPA-DD submitted to the validator, where the additionality has been established in line with Attachment A of Appendix B, using investment barriers. The relevant guidelines of the Guidance for Investment Analysis have also been followed, like NPV has been calculated as the financial indicator, values for all parameters have been provided at the investment decision date, spreadsheet has been provided for transparency in | |

List of Findings - Compilation and Resolutions - CPA

Version: Final

Project Title: National Programme for Improved Cookstoves in India

CPA Title - CPA No. 001 – “SAMUHA”



| Clarification Requests by validation team | | |
|--|---|--|
| | <p>calculations, etc.</p> <p>Response (2nd Round):</p> <p>The PoA-DD and CPA-DD has been revised following: “Guidelines for demonstration of additionality of small scale project activities”, version 9.0, EB – 68, Annex – 27 for demonstration of additionality. The additionality section has been revised accordingly and barriers and NPV analysis previously provided have been removed. Please refer to section D.5. of the revised CPA-DD submitted to the validator. In light of referred guideline, the CPA is deemed automatically additional as it has been demonstrated that each ICS results in energy savings under 9 GWhth/year.</p> | |
| Assessment Means of validation / verification | <p>In the revised PoA and CPA DDs submitted, additionality establishment has been done as per Attachment A of Appendix B for SSC CDM project activities and Guidelines for demonstrating additionality of microscale project activities, which is appropriate to use.</p> <p>However, The PoA and CPA DD has opted to use: “Guidelines for demonstration of additionality of small scale project activities”, version 9.0, EB – 68, Annex – 27 for demonstration of additionality. Revised PoA and CPA DDs have been submitted and in light of referred guideline, the CPA is deemed automatically additional if it can be demonstrated that each ICS results in energy savings under 9 GWh_{th}/year.</p> <p>The application of new guidelines is appropriate.</p> | |
| Adjustment on project design OR Changes in the monitoring report or supporting annexes | <p>The additionality section of PoA and CPA DDs have been revised using “Guidelines for demonstration of additionality of small scale project activities”, version 9.0, EB – 68, Annex – 27.</p> | |

List of Findings - Compilation and Resolutions - CPA

Version: Final

Project Title: National Programme for Improved Cookstoves in India

CPA Title - CPA No. 001 – “SAMUHA”



| Clarification Requests by validation team | | |
|---|---|--------------------|
| | Comments and Results | Conclusion and IRL |
| Issue | Applicability of Baseline, Monitoring methodology and tools | Ok IRL 44 |
| Requirement | AMS II G & VVS/93 | |
| Clarification Request | <u>Clarification Request No. 5</u> Clarify why meth requirement has not been referred in the identification of baseline scenario? | |
| Response | Please refer to section D.4. of the revised CPA-DD submitted to the validator, where the base-line scenario has been selected and described in line with the requirements of the applied methodology. | |
| Assessment Means of validation / verification | The require changes has been done in revised CPA-DD. | |
| Adjustment on pro- ject design OR Changes in the monitoring report or supporting annexes | Reference of methodology for selection of baseline has been provided in CPA-DD. | |

| Clarification Requests by validation team | | |
|---|--|--------------------|
| | Comments and Results | Conclusion and IRL |
| Issue | Algorithms and/or formulae used to determine emission reductions | Ok |
| Requirement | AMS II G & VVS/93 | |

List of Findings - Compilation and Resolutions - CPA

Version: Final

Project Title: National Programme for Improved Cookstoves in India

CPA Title - CPA No. 001 – “SAMUHA”



| Clarification Requests by validation team | | |
|--|--|----------------------------|
| Clarification Request | <u>Clarification Request No. 6</u> The calculation approach in Emission Reduction calculation sheet is per household basis, whereas meth refers on the basis of per appliance. Clarify and correct. ER sheet shall be corrected as per baseline survey and revised ER sheet shall be submitted | IRL 04, 16, 17, 19, 20, 27 |
| Response | Please refer to the revised GHG ER calculation spreadsheet submitted to the validator in which the calculations have been done on per appliance basis, in line with the applied methodology. The revised GHG ER calculation spreadsheet also incorporates the results of the baseline survey report. | |
| Assessment Means of validation / verification | The calculation approach has been changed to appliance basis and revised ER calculation sheet has been submitted. The same has been checked and found to be okay. | |
| Adjustment on project design OR Changes in the monitoring report or supporting annexes | No change. | |

| Clarification Requests by validation team | | |
|---|---|----------------------------------|
| | Comments and Results | Conclusion and IRL |
| Issue | Algorithms and/or formulae used to determine emission reductions | Ok IRL 04, 16, 17, 19, 20, 27 |
| Requirement | AMS II G & VVS/96, 97 & 98 | |
| Clarification Request | <u>Clarification Request No. 7</u> ER excel sheet has to be submitted. All assumption and sources has to be listed along with | |

List of Findings - Compilation and Resolutions - CPA

Version: Final

Project Title: National Programme for Improved Cookstoves in India

CPA Title - CPA No. 001 – “SAMUHA”



| Clarification Requests by validation team | | |
|--|---|--|
| | references and credible evidences. | |
| Response | Please refer to the revised GHG ER calculation spreadsheet submitted to the validator listing all input values and assumptions for calculations along with suitable references. Relevant supportive documents/evidences for each input value have also been submitted to the validator. | |
| Assessment Means of validation / verification | The revised ER calculation sheet has been submitted along with reference and evidences. The same has been checked and found to be okay. | |
| Adjustment on project design OR Changes in the monitoring report or supporting annexes | No change. | |

| Clarification Requests by validation team | | |
|---|---|--------------------------|
| | Comments and Results | Conclusion and IRL |
| Issue | Algorithms and/or formulae used to determine emission reductions | Ok IRL 16, 17, 20, 44 |
| Requirement | AMS II G & VVS/96, 97 & 98 | |
| Clarification Request | <p><u>Clarification Request No. 8</u></p> <p>Following needs to be clarified regarding baseline survey done at CPA Level --</p> <ol style="list-style-type: none"> How 22 villages will be discussed? Why Sample was stratified? What was the basis of selection 498 households? How randomness of sample selection was maintained? | |

List of Findings - Compilation and Resolutions - CPA

Version: Final

Project Title: National Programme for Improved Cookstoves in India

CPA Title - CPA No. 001 – “SAMUHA”



| Clarification Requests by validation team | | |
|---|---|--|
| | <ul style="list-style-type: none"> d. What was population and sample size and unit Household or stoves? e. Confirm if any cross check measures were applied to check correctness of data collected. f. A para should be added in baseline survey report explaining how the survey procedure and calculation are in compliance with EB 65, Annex-2 g. What was purpose of conducting Pilot survey? Standard deviation figure has been taken from Pilot survey, explain correctness of the same. What was the rationale used for selection sample household under pilot survey. h. In pilot survey 6 villages and 4 HH per village covered and why it has been included in baseline survey when baseline survey says 25 HH per village | |
| Response | <ul style="list-style-type: none"> a. The villages were drawn out in random, but ensured that it is well spread out to in the project area by means of stratified multi stage sampling, as mentioned in the Baseline Survey Report submitted to the validator. b. Stratified multi stage sampling has been used for the survey, as mentioned in section 5.5: sampling method of the Baseline Survey Report submitted to the validator. c. The minimum number of households that needs to be selected that is statistically valid is 186 households. The number of villages that needed to be sampled at a minimum household sampling size of 25 was 12 villages (section 5.6.1.3 of the Baseline Survey Report submitted to the validator). To have a better representation of the population, wherein the confidence level is high, 4 villages from each of the hobli was sampled, making to 400 households minimum. In each of the village, 2-3 teams went in different directions and sampled, many a times totaling to more than the requisite 25 households, which added to more that the requisite of minimum number of households. Hence, randomness of selections of households in the sample was maintained. d. Please refer to the Baseline Survey Report and the detailed survey result calculation sheet submitted to the validator that contains details on the population and sample size and unit Household or stoves. e. Please refer to section 6.2 of the Baseline Survey Report submitted to the validator for details on the cross check measures were applied to check correctness of data collected. | |

List of Findings - Compilation and Resolutions - CPA

Version: Final

Project Title: National Programme for Improved Cookstoves in India

CPA Title - CPA No. 001 – “SAMUHA”



Clarification Requests by validation team

- f. Please refer to section 5 of the Baseline Survey Report submitted to the validator that details the sampling plan followed for the survey and is in line with the requirements of EB 65, Annex 2
- g. When developing a sampling plan, project proponents shall calculate the sample size, which can be based on expected variance (or standard deviation) for that measure in the sample, based on results from pilot studies. Thus the pilot study was conducted based on which the minimum number of households to be surveyed was arrived at to achieve the required level of reliability. The standard deviation figure has been taken from the results of the pilot survey and this is correct, as the final survey has also been conducted in the same area consisting of similar type of households. The concept behind selection of households under the pilot survey is that teams in a village went in different directions and picked up certain number of households without any bias to ensure randomness
- h. The villages covered in the pilot survey are part of the project boundary. The pilot survey covering those households and villages was done to arrive at the total number households and villages to achieve the required level of reliability. Otherwise these are not different from the households and villages covered in the final survey as the final survey has also been conducted in the same area consisting of similar type of households. Hence it was included in the final calculations too.

Response (2nd Round):

d) The target population for the baseline survey conducted was 140 villages, in 35 Gram Panchayats covering 4 Hoblis of Koppal Taluk, Koppal District of Karnataka State, India. The list of the villages has been presented in Table 1 of the Baseline Survey Report submitted to the validator. Furthermore, the sample size of the number of unit households to be covered for the survey has been calculated considering a 90/10 confidence/precision and a minimum sample size was calculated as 186 households. Nevertheless, a sample size (number of households) of 400 was decided upon for the survey for better representation. The survey also covered the aspect of number of stoves per household. For further details in this aspect, please refer to section 5.6.1.2. of the Baseline Survey Report submitted to the validator.

List of Findings - Compilation and Resolutions - CPA

Version: Final

Project Title: National Programme for Improved Cookstoves in India

CPA Title - CPA No. 001 – “SAMUHA”



Clarification Requests by validation team

| | | |
|--|---|--|
| | <p>e) Cross check measures were applied to check correctness of data collected during the survey. The data was entered by the field staff, which was checked and verified by data entry staff. A valuator further cross-checked each entry with the physical form for any typographic mistakes or to clarify any sort of confusion in the data. The field staff, the data entry staff and the valutors were all well-educated. The triangulation approach was used to cross check the primary data collected. Focal groups and interviews with key informants were conducted at village level. During these meetings, the team randomly checked to corroborate and complement the survey findings. The data entry in Microsoft excel sheet was cross-checked with the questionnaire by valutors. The statistical analysis of data for standard deviation and confidence/precision levels also ensures correctness of data collection. This was triangulated with secondary source of data. The technical team of the agency responsible for the survey analysed the data periodically to ensure its correctness. Please refer to section 6.2 of the Baseline Survey Report submitted to the validator for further details in this regard.</p> | |
| <p>Assessment Means of validation / verification</p> | <p>a) Response is okay. b) Used method of sampling is as per the requirement of EB 69 annex 4 and 5, hence accepted. c) The no. of selected household is more than required as per the requirement and randomness of sample was also evidenced during site visit of villages. d) Response is not adequate. Details on sampling size and population not provided. e) Response is not adequate, no explanation has been provided. f) Details provided in baseline survey report are adequate as it confirms to the requirements of EB 69 annex 4 and 5. g) The explanations provided on pilot survey, standard deviation and selection of household is well justified and are in line with requirement stated in EB69, Annex – 4 and 5. h) Justification and clarification has been provided on household selection for pilot survey and actual survey. Explanation adequate.</p> | |

List of Findings - Compilation and Resolutions - CPA

Version: Final

Project Title: National Programme for Improved Cookstoves in India

CPA Title - CPA No. 001 – “SAMUHA”



| Clarification Requests by validation team | | |
|--|---|--|
| | <p><u>Further response</u></p> <p>d) Required details on target population sample size and sampling basis has been explained and is in accordance with the requirement. Hence issue is closed.</p> <p>e) Adequate justification regarding Cross check measures to check correctness of data collected during the survey has been provided.</p> | |
| Adjustment on project design OR Changes in the monitoring report or supporting annexes | Additional information on sampling and survey has been provided in CPA-DD. | |

| Clarification Requests by validation team | | |
|---|--|------------------------------|
| | Comments and Results | Conclusion and IRL |
| Issue | Additionality of a project activity | Ok IRL 14, 15, 16, 19, 31 |
| Requirement | AMS II G & VVS/101, 102 | |
| Clarification Request | <p><u>Clarification Request No. 9</u></p> <p>All input value shall be listed along with evidence of assumptions in NPV sheet. It also shall be in conformity of Guidance to Investment Analysis. Evidences shall be submitted for each entry.</p> | |
| Response | Please refer to the revised NPV calculation spreadsheet submitted to the validator listing all input values and assumptions for calculations along with suitable references. Relevant supportive documents/evidences for each input value have also been submitted to the validator. The relevant guidelines of the Guidance for Investment Analysis have also been followed, like NPV | |

List of Findings - Compilation and Resolutions - CPA

Version: Final

Project Title: National Programme for Improved Cookstoves in India

CPA Title - CPA No. 001 – “SAMUHA”



| Clarification Requests by validation team | | |
|---|---|--|
| | <p>has been calculated as the financial indicator, values for all parameters have been provided at the investment decision date, spreadsheet has been provided for transparency in calculations, etc.</p> <p>Response (2nd Round):</p> <p>The PoA-DD and CPA-DD has been revised following: “Guidelines for demonstration of additionality of small scale project activities”, version 9.0, EB – 68, Annex – 27 for demonstration of additionality. The additionality section has been revised accordingly and barriers and NPV analysis previously provided have been removed. Please refer to section D.5. of the revised CPA-DD submitted to the validator. In light of referred guideline, the CPA is deemed automatically additional as it has been demonstrated that each ICS results in energy savings under 9 GWhth/year.</p> | |
| Assessment Means of validation / verification | <p>The revised NPV sheet along with all assumption listed has been submitted. The evidence of reference has also been submitted. The same has been checked for correctness and found to be okay and inline with guidance for investment analysis as well</p> <p>However, The PoA-DD has opted to use: “Guidelines for demonstration of additionality of small scale project activities”, version 9.0, EB – 68, Annex – 27 for demonstration of additionality. A revised PoA-DD submitted and in light of referred guideline, the CPA is deemed automatically additional if it can be demonstrated that each ICS results in energy savings under 9 GWhth/year.</p> <p>The application of new guidelines is appropriate.</p> | |
| Adjustment on pro- ject design OR Changes in the monitoring report or | <p>The additionality section of PoA-DD has been revised using “Guidelines for demonstration of additionality of small scale project activities”, version 9.0, EB – 68, Annex – 27.</p> | |

List of Findings - Compilation and Resolutions - CPA

Version: Final

Project Title: National Programme for Improved Cookstoves in India

CPA Title - CPA No. 001 – “SAMUHA”



| Clarification Requests by validation team | | |
|---|--|--|
| supporting annexes | | |

| Clarification Requests by validation team | | |
|---|--|--------------------|
| | Comments and Results | Conclusion and IRL |
| Issue | Algorithms and/or formulae used to determine emission reductions | Ok IRL 44 |
| Requirement | AMS II G & VVS/96, 97 & 98 | |
| Clarification Request | <u>Clarification Request No. 10</u> Sampling plan shall be included in CPA-DD in line with EB 65 annex-2. | |
| Response | Please refer to the sampling plan provided in section D.7.1. of the revised CPA-DD submitted to the validator, which is in line with the relevant guidance provided by the sampling guidelines of EB 69, Annex 4 and 5 as well as the methodology. | |
| Assessment Means of validation / verification | In section D.7.1 a details sampling plan has been added and same in line with the requirement of EB 69, Annex 4 and 5. | |
| Adjustment on pro- ject design OR Changes in the monitoring report or supporting annexes | | |

List of Findings - Compilation and Resolutions - CPA

Version: Final

Project Title: National Programme for Improved Cookstoves in India

CPA Title - CPA No. 001 – “SAMUHA”



| Clarification Requests by validation team | | |
|---|--|--------------------|
| | Comments and Results | Conclusion and IRL |
| Issue | Additionality of a project activity | Ok IRL 44 |
| Requirement | AMS II G & VVS/131 & 132 | |
| Clarification Request | <p><u>Clarification Request No. 11</u></p> <p>The information in document “National Programme for Improved Cookstoves in India Coordinating and Managing Entity Operational Manual’ Version – 01, Date – 11th June 2012 is not consistent with information in PoA-DD. It is not evident if all requirement of EB 65 annex 3 has been covered or not.</p> | |
| Response | <p>Please refer to section C of the revised PoA-DD submitted to the validator for the PoA management system to be implemented by the CME that is in compliance with necessary requirements of EB 65, Annex 3.</p> <p>Response (2nd Round):</p> <p>Please refer to section C of the revised PoA-DD submitted to the validator for the PoA management system to be implemented by the CME that is in compliance with necessary requirements of EB 70, Annex 5. Revised CPA –DD follows the same management system.</p> | |
| Assessment Means of validation / verification | <p>A revised and updated “National Programme for Improved Cookstoves in India Coordinating and Managing Entity Operational Manual’ has to be submitted.</p> <p><u>Further response</u></p> <p>Section C of the revised PoA-DD and CPA-DD has been elaborated for the PoA management system to be implemented by the CME that is in compliance with necessary requirements of EB 70, Annex 5. This is appropriate and acceptable.</p> | |
| Adjustment on pro- | Section C of the revised PoA-DD and CPA-DD has been elaborated for the PoA management | |

List of Findings - Compilation and Resolutions - CPA

Version: Final

Project Title: National Programme for Improved Cookstoves in India

CPA Title - CPA No. 001 – “SAMUHA”



| Clarification Requests by validation team | | |
|---|--------------------------------------|--|
| ject design OR Changes in the monitoring report or supporting annexes | system to be implemented by the CME. | |

| Clarification Requests by validation team | | |
|---|---|--------------------|
| | Comments and Results | Conclusion and IRL |
| Issue | Monitoring plan | Ok IRL 44 |
| Requirement | AMS II G & VVS/131 & 132 | |
| Clarification Request | <p>Clarification Request No. 12</p> <p>The management system which CME is going to implement under this PoA is not adequate to comply all the requirement of para 17 a –g of EB 65 Annex 3. For eg, the CME operation manual is still in draft stage; the record and document control (IT) is under development; CME resource planning is under budgetary approval process.</p> | |
| Response | <p>Please refer to section C of the revised PoA-DD submitted to the validator for details on the record and document control (IT) and CME resource planning.</p> <p>Response (2nd Round):</p> <p>Please refer to section C of the revised PoA-DD submitted to the validator for the PoA management system to be implemented by the CME that is in compliance with necessary requirements of EB 70, Annex 5.</p> | |
| Assessment Means of validation / | A revised and updated “National Programme for Improved Cookstoves in India Coordinating | |

List of Findings - Compilation and Resolutions - CPA

Version: Final

Project Title: National Programme for Improved Cookstoves in India

CPA Title - CPA No. 001 – “SAMUHA”



| Clarification Requests by validation team | | |
|--|---|--|
| verification | <p>and Managing Entity Operational Manual’ has to be submitted.</p> <p><u>Further response</u></p> <p>Section C of the revised PoA-DD has been elaborated for the PoA management system to be implemented by the CME that is in compliance with necessary requirements of EB 70, Annex 5. This appropriate and acceptable.</p> | |
| Adjustment on project design OR Changes in the monitoring report or supporting annexes | <p>Section C of the revised PoA-DD has been elaborated for the PoA management system to be implemented by the CME.</p> | |



South Asia

Annex 2

Information Reference List


Project title: “National Programme for Improved Cookstoves in India”

Interviewed Persons during onsite assessment:


| Name | Function | Company |
|---------------------|---------------------------------|------------------------------------|
| Dr. A. K. Jain | Director | NIRE |
| Dr. S. K. Tyagi | Scientist ‘E’ | NIRE |
| Dr. Sachin Kumar | Scientist ‘B’ | NIRE |
| Mr. M. Narayanswamy | Director & Ex-Officio Secretary | SAMUHA |
| Mr. T. Pradeep | Institutional Advisor | SAMUHA |
| Mr. K. Kartick | Head of Implementation | South Pole Carbon Asset Management |
| Mr. Sandeep Kanda | Technical Director | South Pole Carbon Asset Management |
| Mr. Onkar Nath | Technical Expert | GIZ |

Other Interviewed Persons (not during onsite assessment):


| Name | Function | Institution/Company | Date of Interview |
|------|----------|---------------------|-------------------|
| NA | - | - | - |

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|----------------------------|------------------------------------|----------------|---|
| Information Reference List | Validation/Verification of CDM PoA | Page 2 of 5 |  South Asia |
|----------------------------|------------------------------------|----------------|---|


| Ref. No. | Author/Editor / Issuer | Title/Type of Document. Publication place | Issuance and/or submission date (dd/mm/yyyy) | Additional Information (Relevance in CDM Context) |
|----------|--|--|--|---|
| 1. | UNFCCC Webpage | "Name of the project" https://cdm.unfccc.int/ProgrammeOfActivities/Validation/DB/9R2Y94IFSW03BU0VPJFARVVVPBSR5D/view.html | NA | PoA & CPA DDs |
| 2. | PP Company | Design Document for the CDM PoA "National Programme for Improved Cookstoves in India", version 01 | 12/04/2012 | PoA & CPA DDs |
| 3. | PP Company | Design Document for the CPA "CPA No. 001, "SAMUHA"", version 01 | 12/04/2012 | PoA & CPA DDs |
| 4. | PP Company | GHG ER and energy savings calculation sheet for SAMUHA CPA | 12/04/2012 | PoA & CPA DDs |
| 5. | PP Company | Generic GHG ER and energy savings calculation sheet for any CPA | 12/04/2012 | PoA & CPA DDs |
| 6. | PP Company | Design Document for the CDM PoA "National Programme for Improved Cookstoves in India", dated 01/08/2012, Version-02. | 1/08/2012 | PoA & CPA DDs |
| 7. | PP Company | Design Document for the CPA "CPA No. 001, "SAMUHA"", dated 01/08/2012, Version-02. | 1/08/2012 | PoA & CPA DDs |
| 8. | UNFCCC Webpage | Approved Methodology AMS-II.G, version 3: Energy Efficiency Measures in Thermal Applications of Non-Renewable Biomass | -- | PoA & CPA DDs |
| 9. | UNFCCC Webpage | "Guidelines for demonstration of additionality of small scale project activities", version 9.0, EB – 68, Annex – 27 | -- | PoA & CPA DDs |
| 10. | PP Company | Shrimali, G., et al., Improved stoves in India: A study of sustainable business models. Energy Policy (2011), doi:10.1016/j.enpol.2011.07.031 | -- | PoA & CPA DDs |
| 11. | The World Bank | Household Cookstoves, Environment, Health, and Climate Change – A New Look at an Old Problem: by The World Bank, May 2011 | May 2011 | PoA & CPA DDs |
| 12. | National Programme on Improved Chulhas | Kishore VVN, Ramana PV. Improved cookstoves in rural India: how improved are they?: a critique of the perceived benefits from the National Programme on Improved Chulhas (NPIC). Energy 2002;27:47–63 | 2002 | PoA & CPA DDs |

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|----------------------------|------------------------------------|----------------|---|
| Information Reference List | Validation/Verification of CDM PoA | Page 3 of 5 |  South Asia |
|----------------------------|------------------------------------|----------------|---|

| Ref. No. | Author/Editor / Issuer | Title/Type of Document. Publication place | Issuance and/or submission date (dd/mm/yyyy) | Additional Information (Relevance in CDM Context) |
|----------|--|---|--|---|
| 13. | PP Company | Viswanathan, B. Kavi Kumar, KS, Cooking fuel use patterns in India:1983–2000, Energy Policy, vol. 33 (2005), pp. 1022 | 2005 | PoA & CPA DDs |
| 14. | PP Company | Agreement between NIRE and SAMUHA, | 24/05/2012 | PoA & CPA DDs |
| 15. | PP Company | Amendment to agreement between NIRE and SAMUHA | 11/07/2012 | PoA & CPA DDs |
| 16. | PP Company | Detailed Project Report for CPA by Advanced Characterization and Testing Systems Pvt. Ltd., | 27/04/2012 | PoA & CPA DDs |
| 17. | PP Company | Addendum to Detailed Project Report for CPA by Advanced Characterization and Testing Systems Pvt. Ltd., | 18/06/2012 | PoA & CPA DDs |
| 18. | iSquaredD | Technical specifications data sheet of Chullika Cookstove from iSquaredD | 16/06/2012 | PoA & CPA DDs |
| 19. | Institute of Materials and Minerals Technology (IMMT), Bhubaneswar | Test Report of Chullika Cookstove by Institute of Materials and Minerals Technology (IMMT), Bhubaneswar, India | 02/04/2012 | PoA & CPA DDs |
| 20. | Fair Climate Network | Study Report: “Baseline Information: Koppal Taluk, Karnataka” by Fair Climate Network, dated | 15/05/2012 | PoA & CPA DDs |
| 21. | MNRE | Letter from MNRE regarding cookstove test centers, | 13/07/2012 | PoA & CPA DDs |
| 22. | MNRE | Letter from MNRE regarding absence of any legal mandate for usage of improved cookstoves, | 13/07/2012 | PoA & CPA DDs |
| 23. | PP Company | Declaration from NIRE regarding funding pattern, | 09/07/2012 | PoA & CPA DDs |
| 24. | PP Company | Declaration from NIRE regarding usage of no ODA for PoA, | 04/07/2012 | PoA & CPA DDs |
| 25. | PP Company | Declaration from SAMUHA regarding usage of no ODA for CPA | | PoA & CPA DDs |

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| Information Reference List | Validation/Verification of CDM PoA | Page 4 of 5 |  South Asia |
|----------------------------|------------------------------------|----------------|---|

| Ref. No. | Author/Editor / Issuer | Title/Type of Document. Publication place | Issuance and/or submission date (dd/mm/yyyy) | Additional Information (Relevance in CDM Context) |
|----------|-------------------------------|--|--|---|
| 26. | PP Company | Extracts of Minutes of Meeting of SAMUHA Board for decision making of the CPA | 05/05/2012 | PoA & CPA DDs |
| 27. | Forest Survey of India | State of Forest Report, 1987 & 2001 by Ministry of Environment and Forest and Forest Survey of India | 05/06/1988 | PoA & CPA DDs |
| 28. | PP Company | PoA Stakeholder Consultation Report, | 15/05/2012 | PoA & CPA DDs |
| 29. | PP Company | PoA Local Stakeholder Consultation Report, | 29/05/2012 | PoA & CPA DDs |
| 30. | PP Company | Records of Local Stakeholder Consultation meeting in Koppal, Karnataka, India like posters, invitation letters, meeting records, photographs, etc. | 16/06/2012 | PoA & CPA DDs |
| 31. | PP Company | Template of end-user agreement for cookstove dissemination by SAMUHA | 16/06/2012 | PoA & CPA DDs |
| 32. | National CDM Authority, India | Host Country Approval letter by National CDM Authority, Ministry of Environment and Forests, the Designated National Authority | 16/08/2012 | PoA & CPA DDs |
| 33. | PP Company | CME Manual, version 01 | 16/06/2012 | PoA & CPA DDs |
| 34. | PP Company | Modalities of Communication signed by NIRE, | 02/07/2012 | PoA & CPA DDs |
| 35. | TUV SUD | Photographs of site visit, audit team of TUV South Asia and TUV SUD, dated 12th to 16th June 2012 | 16/06/2012 | PoA & CPA DDs |
| 36. | PP Company | Carbon Markets for Improved Cooking Stoves: A GIZ guide for project operators | 2011 | PoA & CPA DDs |
| 37. | UNFCCC Webpage | http://cdm.unfccc.int/Projects/DB/PJR%20CDM1304601410.01/view | -- | PoA & CPA DDs |
| 38. | UNFCCC Webpage | http://cdm.unfccc.int/Projects/DB/PJR%20CDM1297320586.35/view | -- | PoA & CPA DDs |
| 39. | UNFCCC Webpage | Standard for demonstration of additionality, development of eligibility criteria and application of multiple methodologies for programme of activities | -- | PoA & CPA DDs |
| 40. | MoEF | EIA notification 2006, http://envfor.nic.in/legis/eia/so1533.pdf | -- | PoA & CPA DDs |

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| Information Reference List | Validation/Verification of CDM PoA | Page 5 of 5 |  South Asia |
|----------------------------|------------------------------------|----------------|---|

| Ref. No. | Author/Editor / Issuer | Title/Type of Document. Publication place | Issuance and/or submission date (dd/mm/yyyy) | Additional Information (Relevance in CDM Context) |
|----------|------------------------|---|--|---|
| 41. | PP Company | Design Document for the CDM PoA “National Programme for Improved Cookstoves in India”, version 03 & 4 | 01/10/2012 | PoA & CPA DDs |
| 42. | PP Company | Design Document for the CPA “CPA No. 001, “SAMUHA””, version 03 & 4 | 01/10/2012 | PoA & CPA DDs |
| 43. | UNFCCC Webpage | “Guidelines for demonstration of additionality of small scale project activities”, version 9.0, EB – 68, Annex – 27 | -- | PoA & CPA DDs |
| 44. | PP Company | Design Document for the CPA “CPA No. 001, “SAMUHA””, version 05 | 16.12.2012 | PoA & CPA DDs |
| 45. | PP Company | Design Document for the CDM PoA “National Programme for Improved Cookstoves in India”, version 05 | 16.12.2012 | PoA & CPA DDs |
| 46. | PP Company | Minutes of 18th meeting of Governing council, SSS-NIRE | 23.04.2012 | MOC |
| 47. | PP Company | Geospatial mapping of bioenergy potential in Karnataka, India, Journal of Energy & Environment, Vol 6, May 2007 | 18/06/2012 | PoA & CPA DDs |



South Asia

Annex 3

Appointment Certificates



South Asia

CERTIFICATE OF APPOINTMENT

Mr. Agarwal, Nikunj fulfills the requirements of the Certification Body "Environment and Energy" of TÜV SÜD South Asia Pvt Ltd to participate in audits.

| Qualification applicable to | | | | | |
|-----------------------------|----------|----|-----|-----|-------|
| Standard | CDM | GS | VCS | VER | Other |
| Date | 22.03.12 | | | | |

| Qualification as | | | | | | |
|------------------|---------|-----------|----------|-------------|--------------------|-------------------------------------|
| Status | Trainee | Validator | Verifier | Team Leader | Technical Reviewer | Technical Expert |
| Date | | 22.03.12 | 22.03.12 | 22.03.12 | 22.03.12 | 1.1,1.2, 3.1, 4.10, 13.1,13.2, 15.2 |

| Other qualification | | | | | | |
|---------------------|------------|---|---|---|---|-------|
| Country Expertise | | | | | | |
| Region | 1 | 2 | 3 | 4 | 5 | Other |
| Date | 22.03.12 | | | | | |
| Further countries | | | | | | |
| Financial Expertise | | | | | | |
| Date | 22.03.2012 | | | | | |

| Qualification in technical areas | |
|--|----------|
| Technical Area | Date |
| 1.2_Energy generation from renewable energy source | 22.03.12 |
| 13.1_Waste handling and disposal | 22.03.12 |
| 3.1_Energy demand | 22.03.12 |
| 13.2_15.2_Animal waste management | 22.03.12 |
| 1.1_4.10_Thermal energy generation.. | 23.11.12 |

This appointment is valid until 28.02.2013 and is bound by internal requirements of the Certification Body "Environment and Energy" of TÜV SÜD South Asia Pvt Ltd.

In case of loss of validity of this certificate as per result of an assessment according to internal procedures or due to any other reason, it will be properly communicated to you.

Your Certificate has the internal reference no. CB-IND-CCP-0001/001.

| Date | Signature |
|------------|-----------|
| 23.11.2012 | |
| | |
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| | |



South Asia

CERTIFICATE OF APPOINTMENT

Mr. V. Vijayanand fulfills the requirements of the Certification Body "Environment and Energy" of TÜV SÜD South Asia Pvt Ltd to participate in audits.

| Qualification applicable to | | | | | |
|-----------------------------|----------|----|-----|-----|-------|
| Standard | CDM | GS | VCS | VER | Other |
| Date | 30.03.12 | | | | |

| Qualification as | | | | | | |
|------------------|---------|-----------|----------|-------------|--------------------|------------------|
| Status | Trainee | Validator | Verifier | Team Leader | Technical Reviewer | Technical Expert |
| Date | | 30.03.12 | 30.03.12 | | | 1.2 |

| Other qualification | | | | | | |
|---------------------|----------|---|---|---|---|-------|
| Country Expertise | | | | | | |
| Region | 1 | 2 | 3 | 4 | 5 | Other |
| Date | 30.03.12 | | | | | |
| Further countries | | | | | | |
| Financial Expertise | | | | | | |
| Date | 30.03.12 | | | | | |

| Qualification in technical areas | |
|--|----------|
| Technical Area | Date |
| 1.2_Energy generation from renewable energy source | 30.03.12 |
| | |
| | |
| | |
| | |

This appointment is valid until 28.02.2013 and is bound by internal requirements of the Certification Body "Environment and Energy" of TÜV SÜD South Asia Pvt Ltd.

In case of loss of validity of this certificate as per result of an assessment according to internal procedures or due to any other reason, it will be properly communicated to you.

Your Certificate has the internal reference no. CB-IND-CCP-0047/001.

| Date | Signature |
|-----------------------------------|-----------|
| 21.11.2012: Extension of Validity | |
| | |
| | |

CERTIFICATE OF APPOINTMENT

Mr. Roy, Bratin fulfills the requirements of the Certification Body "Environment and Energy" of TÜV SÜD South Asia Pvt Ltd to participate in audits.

| Qualification applicable to | | | | | |
|-----------------------------|----------|----|-----|-----|-------|
| Standard | CDM | GS | VCS | VER | Other |
| Date | 22.11.12 | | | | |

| Qualification as | | | | | | |
|------------------|---------|-----------|----------|-------------|--------------------|---------------------------|
| Status | Trainee | Validator | Verifier | Team Leader | Technical Reviewer | Technical Expert |
| Date | | 22.11.12 | 22.11.12 | 22.11.12 | 22.11.12 | 1.1, 1.2, 3.1, 4.10, 13.1 |

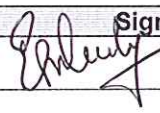
| Other qualification | | | | | | |
|---------------------|----------|---|---|---|---|-------|
| Country Expertise | | | | | | |
| Region | 1 | 2 | 3 | 4 | 5 | Other |
| Date | 22.11.12 | | | | | |
| Further countries | | | | | | |
| Financial Expertise | | | | | | |
| Date | 22.11.12 | | | | | |

| Qualification in technical areas | |
|--|----------|
| Technical Area | Date |
| 1.1_4.10_Thermal energy generation | 22.11.12 |
| 1.2_Energy generation from renewable energy source | 22.11.12 |
| 3.1_Energy demand | 22.11.12 |
| 13.1_Waste handling and disposal | 22.11.12 |
| | |
| | |

This appointment is valid until 28.02.2013 and is bound by internal requirements of the Certification Body "Environment and Energy" of TÜV SÜD South Asia Pvt Ltd.

In case of loss of validity of this certificate as per result of an assessment according to internal procedures or due to any other reason, it will be properly communicated to you.

Your Certificate has the internal reference no. CB-IND-CCP-0038/001.

| Date | Signature |
|------------|---|
| 22.11.2012 |  |
| | |
| | |

CERTIFICATE OF APPOINTMENT

Mr. Sharma, Shivraj fulfills the requirements of the Certification Body "Environment and Energy" of TÜV SÜD South Asia Pvt Ltd to participate in audits.

| Qualification applicable to | | | | | |
|-----------------------------|----------|----|-----|-----|-------|
| Standard | CDM | GS | VCS | VER | Other |
| Date | 23.11.12 | | | | |

| Qualification as | | | | | | |
|------------------|---------|-----------|----------|-------------|--------------------|------------------|
| Status | Trainee | Validator | Verifier | Team Leader | Technical Reviewer | Technical Expert |
| Date | | 23.11.12 | 23.11.12 | 23.11.12 | | 1.2, 3.1 |

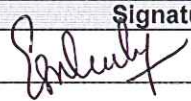
| Other qualification | | | | | | |
|---------------------|----------|---|---|---|---|-------|
| Country Expertise | | | | | | |
| Region | 1 | 2 | 3 | 4 | 5 | Other |
| Date | 23.11.12 | | | | | |
| Further countries | | | | | | |
| Financial Expertise | | | | | | |
| Date | | | | | | |

| Qualification in technical areas | |
|--|----------|
| Technical Area | Date |
| 1.2_Energy generation from renewable energy source | 23.11.12 |
| 3.1_Energy demand | 23.11.12 |
| | |
| | |
| | |

This appointment is valid until 28.02.2013 and is bound by internal requirements of the Certification Body "Environment and Energy" of TÜV SÜD South Asia Pvt Ltd.

In case of loss of validity of this certificate as per result of an assessment according to internal procedures or due to any other reason, it will be properly communicated to you.

Your Certificate has the internal reference no. CB-IND-CCP-0060/001.

| Date | Signature |
|------------|---|
| 23.11.2012 |  |
| | |
| | |



South Asia

CERTIFICATE OF APPOINTMENT

Mr. Kleiser Thomas fulfills the requirements of the Certification Body "Environment and Energy" of TÜV SÜD South Asia Pvt Ltd to participate in audits.

| Qualification applicable to | | | | | |
|-----------------------------|----------|----|-----|-----|-------|
| Standard | CDM | GS | VCS | VER | Other |
| Date | 25.03.12 | | | | |

| Qualification as | | | | | | |
|------------------|---------|-----------|----------|-------------|--------------------|---------------------|
| Status | Trainee | Validator | Verifier | Team Leader | Technical Reviewer | Technical Expert |
| Date | | 25.03.12 | 25.03.12 | 25.03.12 | 25.03.12 | 1.1, 1.2, 4.1, 4.10 |

| Other qualification | | | | | | |
|---------------------|----------|---|---|---|---|-------|
| Country Expertise | | | | | | |
| Region | 1 | 2 | 3 | 4 | 5 | Other |
| Date | 25.03.12 | | | | | |
| Further countries | | | | | | |
| Financial Expertise | | | | | | |
| Date | 25.03.12 | | | | | |

| Qualification in technical areas | |
|--|----------|
| Technical Area | Date |
| 1.1_4.10_Thermal energy generation.... | 25.03.12 |
| 1.2_Energy generation from renewable energy source | 25.03.12 |
| 4.1_Cement sector | 25.03.12 |
| | |
| | |
| | |

This appointment is valid until 28.02.2013 and is bound by internal requirements of the Certification Body "Environment and Energy" of TÜV SÜD South Asia Pvt Ltd.

In case of loss of validity of this certificate as per result of an assessment according to internal procedures or due to any other reason, it will be properly communicated to you.

Your Certificate has the internal reference no. CB-IND-CCP-0022/001.

| Date | Signature |
|-----------------------------------|-----------|
| 21.11.2012: Extension of Validity | |
| | |
| | |