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Validation Report

VALIDATION OF THE CDM-POA:
FUEL EFFICIENT STOVES IN ZAMBIA

REPORT No. 600500523

26 December 2011

TÜV SÜD Industrie Service GmbH
Carbon Management Service
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Subject: Validation of the CDM PoA “Fuel Efficient Stoves in Zambia”			
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Project Participant: 3 Rocks Ltd (Managing Entity) 17A, York Street St Helier, Jersey United Kingdom			
Project Site(s): Republic of Zambia Latitude: 15.0000° to Longitude: 30.0000°			
Applied Methodology / Version: AMS.II.G / Version 02		Scope(s): 3 Technical Area(s): 3.1	
First PoA-DD Version (GSP): Date of issuance: 15-11-2010 Version No.: 01 Starting Date of GSP 24-11-2010		Final PoA-DD version: Date of issuance: 08-12-2011 Version No.: 06	
Assessment Team Leader: Nikunj Agarwal Assessment Team Members: * Eswar Murty, Sandeep Kanda†		Technical Reviewer: Thomas Kleiser, Bratin Roy†, Cuiyun (Rachel) Zhang Responsible Certification Body: Eric Tolcach	

† Left the Organization

‡ Not appointed as TR but he is the part of the TR team to cover the Technical aspects in TA 3.1



Summary of the PoA Validation Opinion:

- ☒ The review of the project design documentation and the subsequent follow-up interviews have provided TÜV SÜD with sufficient evidence for the determination of the PoA's fulfilment of all stated criteria. In our opinion, the PoA meets all relevant UNFCCC requirements for the CDM. Therefore, TÜV SÜD recommends the PoA for registration by the CDM Executive Board if the letters of approval of all Parties involved will be available before the expiring date of the applied methodology(ies) or the applied methodology version respectively.
- ☐ The review of the project design documentation and the subsequent follow-up interviews have not provided TÜV SÜD with sufficient evidence for the determination of the PoA's fulfilment of all stated criteria. Therefore, TÜV SÜD will not recommend the PoA for registration by the CDM Executive Board and will inform the project participants and the CDM Executive Board of this decision.



ABBREVIATIONS

AMS	Approved Methodology Small scale
3RL	3 Rocks Ltd
CAR	Corrective Action Request
CDM	Clean Development Mechanism
CDM EB	CDM Executive Board
CER	Certified Emission Reduction
CMP	Conference of the Parties serving as the Meeting of the Parties to the Kyoto Protocol
CPA	CDM Programme activity
CPA-DD	CDM Programme Activity Design Document
CR / 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)
IPCC	Intergovernmental Panel on Climate Change
IRL	Information Reference List
KP	Kyoto Protocol
MP	Monitoring Plan
MoA	Memorandum of Agreement
NRB	Non Renewable Biomass
MoC	Modalities of Communication
PDD	Project Design Document
PoA	Programme of Activities
PoA-DD	Programme of activities design document
PP	Project Participant
PO	Partner Organisation
TÜV SÜD	TÜV SÜD Industrie Service GmbH
UNFCCC	United Nations Framework Convention on Climate Change
VVM	Validation and Verification Manual

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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 CDM Programme Activity (CPA) template with generic information applicable to all CPAs under that PoA and the associated real case CPA-DD.

The assessment involves the evaluation of the PoA basis and design identified in the PoA Design Document (PoA-DD), template CPA design document (CPA-DD) and the associated real case CPA-DD using the defined criteria outlined by the registration under the Clean Development Mechanism (CDM). Validation is part of the CDM project cycle and results in a conclusion by the executing DOE on whether or not a PoA is valid to be submitted for registration to the CDM Executive Board (CDM-EB). The ultimate decision on the registration of a proposed PoA rests with the CDM-EB and the Parties involved.

The PoA addressed in this validation report has been submitted under the following title:

Fuel Efficient Stoves in Zambia

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:

- Ø The Kyoto Protocol, in particular § 12 and modalities and procedures for the CDM
- Ø Decision 2/CMP1 and Decision 3/CMP.1 (Marrakech Accords)
- Ø Further COP/MOP decisions with reference to the CDM (e.g. decisions 4 – 8/CMP.1)
- Ø Decisions and specific guidance outlined by the EB which are published under <http://cdm.unfccc.int>
- Ø Guidelines for Completing the PoA Design Document (PoA-PDD), CDM programme of activities template and design document (CPA-DD) and the applied CDM methodology including the sections especially dedicated to PoA
- Ø Management systems and auditing methods
- Ø Environmental issues relevant to the applicable sectoral scope
- Ø Applicable environmental and social impacts and aspects of CDM project activity
- Ø Sector specific technologies and their applications
- Ø 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 for the PoA Managing Entity, CPA Implementer(s) and/or project participant(s) (PP). However, stated requests for clarifications, corrective actions, and/or forward actions may provide input for improvement of the project design.

Once TÜV SÜD receives the PoA-DD and supporting CPA template and completed CPA-DD of the real case, it is made publicly available on the UNFCCC website and on TÜV SÜD's website, which initiates a 30 day global stakeholder consultation process (GSP). In special circumstances, such as



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when a PoA design changes, the GSP may need to be repeated. Information on the PoA-DD is presented on page 1 of this report.

The purpose of validation is to demonstrate compliance or non-compliance of the PoA with all stated and valid UNFCCC and host party requirements. Additionally, the purpose of validation is to enable the registration of PoA, which is only a part of the total CDM project cycle. Therefore, TÜV SÜD cannot be held liable by any party for decisions made, or not made, based on the validation opinion that go beyond this purpose.

2 VALIDATION METHODOLOGY

The PoA assessment is based on the “Clean Development Mechanism Validation and Verification Manual” and is conducted using standard auditing techniques to assess the correctness of the information provided by the project participants. Before the assessment begins, members of the team covering the technical scope(s), sectoral scope(s), and relevant host country experience for evaluating the CDM PoA are appointed. Once the project 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 “Climate and Energy” before being submitted to the CDM-EB.

In order to ensure transparency, assumptions must be clear and stated explicitly and background material must also be referenced. TÜV SÜD has developed a methodology-specific protocol customized for the PoA. The protocol demonstrates, in a transparent manner, the PoA criteria (requirements), discussion on each criterion by the assessment team, and the results from validating the identified criteria.

The validation protocol serves the following purposes:

- To organize the details and provision of clarifications on the requirements of which a CDM-PoA and its CPA-DD are expected to meet
- To elucidate how a particular requirement has been validated as well as to document the results of the validation and any adjustments made to the PoA-DD.

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

Validation Protocol Table 1: Conformity of CDM Programme of Activities				
Checklist Topic / Question	Reference	Comments	GSP	Final
<i>The checklist is organised in sections following the arrangement of the applied PoA-DD version. Each section is then subdivided. The lowest level constitutes a checklist question / criterion.</i>	<i>The section gives reference to documents in which the answer to the checklist question or item is found in case the comment refers to documents other than the PoA-DD.</i>	<i>The section is used to elaborate and discuss the checklist question and/or the conformance to the question. It is used to explain the conclusions reached. In some cases sub-checklists are applied indicating yes/no decisions on the compliance with the stated criterion. Any Request has to be substantiated within this column.</i>	<i>The section is used to present conclusions based on the assessment of the first PoA-DD version. The PoA-DD is either acceptable based on evidence provided (p) or a Corrective Action Request (CAR) is issued due to non-compliance with the checklist question (See below). Clarification Request (CR) is used when the validation team has identified a need for further clarification. Forward Action Request is issued to highlight issues related to project implementation that require review during the first verification.</i>	<i>Conclusions are presented in the same manner based on the assessment of the final PoA-DD version and further documents including assumptions presented in the documentation.</i>

Validation Protocol Table 2: Compilation and Resolutions of CARs, CRs and FARs			
	Comments and Results	Ref	Conclusion and IRL
Issue	<i>Corrective Action, Clarification or Forward Action Requests.</i>	<i>Reference to the checklist question number in Table 1</i>	<i>Final conclusions and relevant references.</i>
Response	<i>The responses given by the client or other project participants during communication with the validation team.</i>		
Assessment	<i>Summary of the discussion and revision of project documentation together with the validation team's responses</i>		

In case it is found that the project activity does not meet CDM requirements, more detailed information on this decision is presented in Table 3.

Validation Protocol Table 3: Unresolved Corrective Action and Clarification Requests		
Clarifications and corrective action requests	Id. of CAR/CR	Explanation of the Conclusion for Denial
<i>Referenced request if final conclusions from table 2 resulted in a denial.</i>	<i>Identifier of the Request.</i>	<i>Detailed explanation of why the PoA is considered non-compliant with a criterion and a clear reference to the criterion</i>

The completed validation protocol is enclosed in Annex 1.

2.1 Appointment of the Assessment Team

According to the technical scopes and experiences in the sectoral or national business environment, TÜV SÜD has composed a project team in accordance with the appointment rules of the TÜV SÜD certification body "Climate 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 four qualification levels for team members that are assigned by formal appointment rules:

- Ø Assessment Team Leader (ATL)
- Ø Validator (V)
- Ø Validator Trainee (T)
- Ø Technical Experts (TE)

It is required that the sectoral scope(s) and the technical area(s) linked to the methodology and project have to be covered by the assessment team.

Assessment team:

Name	Qualification	Coverage of sectoral scope	Coverage of technical area	Coverage of financial aspect	Host country experience
Nikunj Agarwal	ATL	p	p	p	p

Sandeep Kanda*	V	---	---	---	---
Eswar Murty	V	---	---	---	p

Technical Reviewers: Thomas Kleiser, Bratin Roy, Cuiyun (Rachel) Zhang

2.2 Review of Documents

The PoA-DD and completed CPA-DD for the GSP was submitted to the DOE in November 2010. The PoA-DD and additional background documents related to the PoA 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 has been done as an initial step of the validation process. A complete list of all documents and evidence material reviewed is attached as Annex 2 to this report.

2.3 Follow-up Interviews

During the period 7th – 11th February 2011, TÜV SÜD performed interviews and physical site inspections with project stakeholders to confirm relevant information, and to resolve issues identified in the document review. The following table provides a list of all key persons interviewed in this process.

Name	Organisation
Nick Marshall	Carbon Compliance (3RL)
Karin Sosis	Project Manager (3RL)
Steve Scott	Regional Director (3RL)
Prof. Chingambo	Director (3RL)
Prof. Francis Yamba,	Director (CEEEZ)
Alex Hanyuma	Consultant (CEEEZ)
Lulian Zulu	Consultant (CEEEZ)

2.4 Cross-check

During the validation process the team has made reference to available information related to similar projects or technologies as the CDM PoA. 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, clarifications, and any other outstanding issues which need to be clarified for TÜV SÜD's conclusion on the PoA design. The CARs and CRs raised by TÜV SÜD are resolved during communication between the managing entity and TÜV SÜD. To guarantee the transparency of the validation process, the

* Left the Organization but he covered the TA 3.1 during on site visit

concerns raised and responses that have been given are documented in more detail in the validation protocol in Annex 1.

The final PoA-DD version-06 that was submitted in December 2011 serves as the basis for the final assessment presented herewith. Additional changes to the project during the validation process are not considered to be significant with respect to the main CDM objectives. The two CDM main objectives are the reduction of anthropogenic GHG emissions and the contribution of sustainable development to the host country.

2.6 Internal Quality Control

Internal quality control is the final step of the validation process and is conducted by the CB “Climate and Energy” who checks the final documentation, which includes the validation report and annexes. The completion of the quality control indicates that each report submitted has been approved either by the head of the CB or the deputy. In projects where either the Head of the CB or the deputy is part of the assessment team, the approval is given by the one not serving on the project team.

After confirmation by the Managing Entity and/ or CPA Implementer(s) and/ or PP, the validation opinion and relevant documents are submitted to the EB through the UNFCCC web-platform.

3 SUMMARY

The assessment work and the main results are described below in accordance with the VVM reporting requirements. The reference documents indicated in this section and Annex 1 are stated in Annex 2 of this report.

3.1 Approval

The project participant and managing entity of the PoA is 3 Rocks Ltd (3RL) from Zambia, which is the implementing agency in the host country Zambia. The involved party meet the requirements to participate in the CDM.

The DNA of Zambia has issued a Letter of Approval (LoA) on 15th April 2011 authorizing 3 Rocks Limited as a project participant [20]. TÜV SÜD received this letter from the project participant directly and considers the provided letter as authentic.

Furthermore, after checking the provided LoA, TÜV SÜD confirms that the letter refers to the precise proposed CDM programme of activity title in line with the title in the PoA-DD "Fuel Efficient Stoves in Zambia"

The letter also indicates that participating Party is a Party to the Kyoto Protocol, and that the participation in the "Fuel Efficient Stoves in Zambia" project is voluntary. The Zambian LoA also confirms that the proposed CDM project activity contributes to the sustainable development in Zambia (host country) and authorizes 3 Rocks Limited to participate in the PoA and the first CPA. Based on the information given in the letter, TÜV SÜD considers the approval as unconditional with respect to these items.

The LoA has been issued by the host Party's DNA, Ministry of Tourism, Environment and Natural Resources, Republic of Zambia. TÜV SÜD therefore considers that the requirements of VVM (§§ 45-48) have been met.

The LoA does not refer to a specific version of the PDD or validation report.

3.2 Participation

The participant of the project activity has been approved by the corresponding Party, which is confirmed by the issued LoA.

The means of validation used are similar to the ones described in Section 3.1, specifically in regard to the approval process of the project activity.

3.3 Programme of Activities 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.

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 protocol included in Annex 1.

3.4 Programme Description

The following description of the programme as per PoA-DD was verified:

The PoA involves replacement of three stone traditional stove with Fuel Efficient Stoves in entire Zambia. 3 Rocks Ltd (3RL) will be the coordinating and managing entity of the Fuel Efficient Stoves in Zambia and also the sole implementing agency to distribute the stoves in host country. The CDM programme activities (CPAs) under the PoA will be implemented in the host country Zambia. Although there are no mandatory policies or regulations for the adoption of Fuel Efficient Stoves use in Zambia, National Energy Policy of 2008 seeks to “promote the use of efficient cook stoves” 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 – 3RL[[IRL# 7, 8, 13, 16, 17, 18](#)].

Under the PoA, traditional three stove would be replaced by SSC-CPA implementer(s) with Fuel Efficient stove in Host country. The three stone traditional stoves are commonly used in the host country as the majority of Zambian families cook on an open fire, utilizing the ‘three rocks’ method for heating pots. These stoves are simply made of three rocks or bricks placed on the floor.. One of the three spaces in between these raised points is used as fuel gases feed hole and other two for flue gases exits. However, the PoA will provide energy efficient cooking stoves based on the ‘rocket stove’ design. This technology ensures a 29.5% thermal efficiency against the 10% methodology default for the traditional 3-rock fire [[IRL# 9, 10, 23, 24, 28](#)].

The PoA is funded entirely by 3RL and does not form a part of any government-funded or supported programme in Zambia. It has been verified that there is no diversion of ODA involved [[IRL# 15](#)]. The starting date of the PoA is 22nd December 2010 based on the date of commitment of expenditures related to PoA. The length of the PoA is taken as a renewable crediting period of 7 years [[IRL# 10](#)].

As the stoves 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.

3.5 Eligibility Criteria for CPA Inclusion

The managing entity employs clear and unambiguous criteria for the inclusion of the CPA. The eligibility criteria's have been stated are verifiable with regards to the applicability of the applied methodology. The following documents have been assessed to check the eligibility criteria for CPA inclusion.

- AMS.II.G version 02 [[IRL#4](#)].
- Maximum energy saving 180 GWhr/year [[IRL# 5, 31](#)].
- Agreements between 3RL and the technology supplier Envirofit [[IRL#9](#)].
- Stove Efficiency and Performance test report [[IRL#23, 28](#)].

- Non renewable biomass assessment report [IRL# 41].
- An Emissions Rights Acknowledgement with stove recipients where users will ensure that they have no right to claim for CERs and these belong to 3RL [IRL# 16, 17]
- Cost analysis spreadsheets and supporting documents [IRL# 34, 44, 45].

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

3.6 Operational and Management Plan

A clear and transparent description of the operational and management arrangement has been established by 3RL and stated in the PoA-DD. This has been verified during site audit.

There is a record keeping system for each CPA under the PoA. The CPAs will follow the CPA implementation plan. 3RL and PO's will be checking the records for each CPA before submission to the DOE [IRL # 46].

The system to avoid double counting has been indicated in the PoA-DD. This will be done by 3RL through credentials check and information available on UNFCCC website. Also, as each CPA will have a unique number in host country Zambia, thus it can be checked whether a CPA under the PoA already is 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 3RL and PO's ensure that those operating the CPA are aware of and have agreed that their activity is being subscribed to the PoA.

3.7 Monitoring Plan

Monitoring is undertaken at the PoA level using a sampling approach. The sampling procedure has been defined in line with Annex-30 of EB 50 "General Guidelines for Sampling and Surveys for Small Scale CDM Project Activities" version 01 and applied methodology. 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 3RL through review of information provided by SSC-CPA with information available with UNFCCC. Also, as each CPA 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.

Leakage Monitoring:

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 sampling size is determined with minimum 90% confidence interval and maximum 10% error margin. The minimum sample size of the stoves to be taken is 68 in accordance with the methodology requirements and sampling procedure as per Annex-30 of EB 50. The NRB baseline assessment report demonstrates that only 7% of biomass in Zambia can be considered renewable. Only a very few households using wood and 3 stones have access to renewable biomass [IRL # 41]. However, this potential source of leakage would be assessed from ex post surveys of users and areas from where woody biomass is

sourced (using 90/30 precision for selection of samples) when proposing CPAs under this PoA. Therefore, this potential source of leakage will be monitored as per methodology [IRL # 29, 71].

As per paragraph 15 of the methodology, the NRB baseline assessment for the proposed PoA incorporates the fuel saved by CDM Lusaka Sustainable Energy Project (LSEP) and therefore accounts for this potential source of leakage. The f_{NRB} parameter will be monitored annually to assess the ongoing impact. Hence this potential source of leakage will not be monitored. The same has been assessed from the NRB calculation report. Also the project will not increase the use of non-renewable biomass outside the country of Zambia. The PoA will reduce the overall demand for biomass in Zambia and thereby increases the potential supply of biomass. Zambian households do not currently source wood fuel from across international borders, due to the sufficient availability of biomass within Zambia. Hence this potential source of leakage will not be monitored. This has been assessed from the FAO wood fuel assessment report, Forestry data and NRB calculation report [IRL # 41, 55, 56].

3.8 Baseline and Monitoring Methodology

3.8.1 Applicability of the selected methodology

Compliance with each applicability condition as listed in the chosen baseline and monitoring methodology AMS-II.G Version 02 has been demonstrated below:

Applicability Criteria	Project Case (as per PoA-DD)	Auditor's Conclusion
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 cook stoves or ovens or dryers and/or improvement of energy efficiency of existing biomass fired cook stoves or ovens or dryers.	The methodology category II.G. requires that the technology used in the project shall be small appliances involving efficiency improvements in the thermal applications of non-renewable biomass, including efficient biomass cooking stoves, which is the technology disseminated under this PoA. The proposed PoA include the introduction of high efficiency biomass-fired cooking stoves, and is the stated goal of each CPA.	The project is dissemination of fuel efficient cooking stoves in Zambia under this PoA. This technology ensures a 29.5% thermal efficiency against the 10% methodology default for the traditional 3-rock fire. The stove efficiency certificate and the performance test reports confirms the efficiency. hence applicable to this category. þ [IRL # 23, 28].
If any similar registered CDM project activities exist in the same region as the proposed project activity then it must be ensured that the proposed project activity is not saving the non-renewable biomass accounted for by the already registered project activities.	A similar registered CDM project exists in the same region as the proposed PoA. The CDM Lusaka Sustainable Energy Project (LSEP), CDM ref. 2969, applies a different methodology (AMS.I.E. <i>Switch from non-renewable biomass for thermal applications by the user</i>) from the proposed PoA. This project relies on	The CDM Lusaka Sustainable Energy project is one such similar registered CDM project in Lusaka, Zambia, which uses a different small scale methodology. The biomass saved in the PoA does not include the biomass saved by this CDM project and the same has been assessed in the NRB report.



	<p>carbon finance to subsidize the planned sale of 30,000 stoves. It is a fuel-switching project, focusing on the selling a replacement to charcoal stoves, and managing the fuel supply chain, in the urban market of Lusaka.</p> <p>The amount of non-renewable biomass saved by LSEP has been incorporated into the calculation of the baseline <i>f_{NRB}</i> for the proposed PoA, by accounting for reduced fuel demand in Zambia due to LSEP (see Annex 3).</p>	<p>p [IRL # 30, 41, 53].</p>
<p>Project participants are able to show that non-renewable biomass has been used since 31 December 1989, using survey methods.</p>	<p>Between 1990 and 2000, Zambia lost, on average, 444,800 hectares of forest per year. This amounts to an average annual deforestation rate of 0.91%. Between 2000 and 2005, the rate of forest change increased by 10.0% to 1.00% per annum. In total, between 1990 and 2005, Zambia lost 13.6% of its forest cover, or around 6,672,000 hectares. Measuring the total rate of habitat conversion (defined as change in forest area plus change in woodland area minus net plantation expansion) for the 1990-2005 interval, Zambia lost 14.3% of its forest and woodland habitat.</p>	<p>Non-renewable biomass has been used since 31 December 1989 in Zambia. This methodology condition has been verified from the Global Forests Resources Assessment 2010, FAO (http://www.fao.org/forestry/fra/fra2010/en/) and also below weblink http://rainforests.mongabay.com/deforestation/2000/Zambia.htm :</p> <p>A Non Renewable biomass assessment (NRB) report prepared by third party consultants also confirmed that deforestation is continuing between 1980 and 1990</p> <p>From above indicators, DOE has confirmed that carbon stocks were depleting in the Zambia.</p> <p>Hence applicable to this category</p> <p>p [IRL # 39, 41, 55].</p>

The assessment was carried out for each applicability criterion and included, among other checks, a compliance check of the PoA with the applicability conditions in regard to baseline setting and eligible project measures. This assessment also included the review of secondary sources to demonstrate the compliance with applicability conditions.

The methodology-specific protocol, included in Annex 1, documents the assessment process. The results of the compliance check as well as relevant evidence are detailed in the protocol and the information reference list.

- Fuel Efficient Stoves will be replaced with traditional cooking stoves within Zambia.
- CPA's under this POA will not be considered as a de-bundled component of a large scale activity.
- The energy savings by a single CPA is not expected to exceed the equivalent of 180 GWh per year
- The SSC WG has allowed thermal energy saving limit 180 GWh per year in the clarification request response no SSC_233 dated on 04.11.2008
(http://cdm.unfccc.int/UserManagement/FileStorage/AM_CLAR_VIIC5MTUUWR9PRPJL0EXOT3G2CKSFQ)
- The operation and management plan of each CPA would be followed as procedure defined in POA DD and implementation plan.
- An Emissions Rights Acknowledgement with stove recipients where users will ensure that they have no right to claim for CERs and these belong to 3RL [IRL # 16].

Fuel Efficient Stoves will be installed with unique serial number including record of a location of the stove and all records would be screened by CME. The records will also be cross checked with PO reports and logistics record which will confirm that the records are authentic and no double counting has occurred.

TÜV SÜD confirms that the chosen baseline and monitoring methodology is applicable to the PoA project activity. Emission sources, not addressed by the applied methodology and expected to contribute more than 1% of the overall expected average annual emission reductions, have not been identified.

3.8.2 CPA boundary

The CPA boundary was assessed considering information gathered from the physical site inspection, interviews, and secondary evidence received on the design of the PoA. The information includes the location of the CPA villages, GPS coordinates of the specific household, stove design and feedback from the stakeholders regarding stove usage.

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 due to CO₂ due to combustion of fire wood for cooking by 3 stone method. TÜV SÜD confirms that the identified boundary, the selected sources, and gases as documented in the CPA-DD are justified for the project activity and are fully in line with the requirements set by the applied methodology.

3.8.3 Baseline identification

The Zambia PoA is a voluntary coordinated action as evident through implementation plan. As per the PoA-DD, the possible alternative scenarios are:

- Continued usage of traditional stove
- Installation of domestic fuel-efficient cooking stoves cost-free without the benefit of carbon finance.

Based on the on-site interviews with 3RL and the host country experience of the audit team it is confirmed that there is no mandatory legal requirement for replacing traditional stove with fuel efficient

ones in households in Zambia. The Zambia National Policy on Environment and Zambia Energy Policy have been checked to confirm this criteria [IRL# 7, 8].

The feasible fossil fuel alternatives to wood and charcoal are: coal (briquettes), kerosene and liquid petroleum gas (LPG). According to different sources and statistics of Zambia for this project, the most likely baseline fuel is Coal briquettes. A 10kg bag of coal briquettes costs about US\$1.50, while Zambians have to pay US\$5 for the same amount of charcoal, and 1.3kg of coal briquettes can burn for six hours, while the same weight of charcoal will burn for only one and a half hours. This was validated from the Zambia Fuel prices reports and World Bank survey reports [IRL# 67, 68, 69, 70]. Zambia has no proven reserves of crude oil from which paraffin and kerosene are derived. As Zambia is landlocked, oil must be imported and transported over great distances, incurring high transportation and insurance charges. Kerosene is primarily used for lighting in Zambia. Cooking with kerosene is the most expensive common means of cooking in both economic and foreign exchange terms. Affordability of kerosene and its appliances are the major constraints, particularly in rural areas, where it cannot compete effectively with freely available energy sources such as wood, crop residues and cow dung. LPG is not generally used by low-income households and its use is restricted to industry and the catering trade [67, 68, 69, 70]. Although it is perceived that LPG could be an important household energy source, current limited availability and poor distribution infrastructure limits its use.

Thus in light of the above, coal briquettes has been identified as the likely baseline scenario fuel (projected fossil fuel as per methodology) [IRL # 4, 67, 68, 69, 70].

The information presented in the PoA-DD has been verified during the on-site visit and by review of non renewable biomass assessment report prepared by C4 Eco Solutions in June 2010 for this project [41]. The sources referenced in the PoA-DD have been quoted correctly.

TÜV SÜD has determined that no reasonable alternative scenario has been excluded.

Based on the validated assumptions used for project activity calculations, TÜV SÜD considers that the identified baseline scenario is reasonable.

Taking the definition of the baseline scenario into account, TÜV SÜD confirms that all relevant CDM requirements, including relevant and/or sectoral policies and circumstances, have been identified correctly in the project PoA-DD.

A verifiable description of the baseline scenario has been included in the PoA-DD.

TÜV SÜD confirms the following statements:

- (a) All the assumptions and data used by the project participants are listed in the PoA-DD, including their references and sources;
- (b) All documentation used is relevant for establishing the baseline scenario and correctly quoted and interpreted in the PoA-DD;
- (c) Assumptions and data used in the identification of the baseline scenario are justified appropriately, supported by evidence, and can be deemed reasonable;
- (d) Relevant national and/or sectoral policies and circumstances are considered and listed in the PoA-DD;
- (e) 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 project activity.

3.9 Additionality

3.9.1 Prior consideration of the clean development mechanism

The starting date of the PoA is 22nd December 2010 based on the date of commitment of expenditures related to PoA. This has been checked based on the Purchase Order for the supply of Stoves [10]. The Start Date is in line with the Glossary of CDM Terms. The start date of the PoA is after the start of the Global Stakeholder Process (24th November 2010) which clearly shows that the PP has considered CDM in the decision to proceed with the programme of activity [IRL # 2, 10, 11]. This is in line with paragraphs 97(a) and 98 of VVM.

3.9.2 Additionality of PoA

The additionality of the programme has been presented in section A.4.3 of the PoA-DD. The approach used in the PoA-DD has been assessed initially through the document review followed by on-site discussions. Finally, the data, rationales, assumptions, justifications, and documentation provided have been verified using local knowledge as well as sectoral and financial expertise.

The additionality at the PoA level has been demonstrated using the Tool for the demonstration and assessment of additionality" (Version 05.2) as follows:

Step 1: Identification of alternatives to the project activity consistent with current laws and regulations

- Installation of domestic fuel-efficient cooking stoves cost-free without the benefit of carbon finance.

Based on the on-site interviews with 3RL and the host country experience of the audit team it is confirmed that there is no mandatory legal requirement for replacing traditional stove with fuel efficient ones in household and commercial stove user in Zambia.

- The stoves will be distributed either free of cost to users or user will pay back the cost in installment basis. However, same cost does cover nominal amount of the production cost. Further, other associated cost such as regular training and maintenance would also require to run this program. There have been projects implementing domestic fuel-efficient cooking stoves in Zambia, such as the GTZ's Programme for Basic Energy Conservation in Southern Africa - Probec. However, these have involved the small-scale sale of energy efficient stoves, where the economic case makes sense, i.e. where users purchase fuel (e.g. charcoal) for cooking purposes, mostly in urban areas or at the institutional level. This type of funding is also unsustainable, as GTZ financial development support for Probec ended in 2010. Also in the Government funded projects, only 0.2% of planned investments in the public investment plan are allocated to energy efficiency systems (Ministry of Finance and National Planning, 2002 [73, 74]. These programs have not received any financial assistance either from Zambia government or any private player as program is non income earning activity; the only way to recover cost is from CDM revenues. Hence alternative that project activity being implemented without the CDM can't be considered as the baseline for the PoA.
- 3RL Continued usage of traditional stove

It has been clearly demonstrated that there is no mandatory policy or regulation in the host country India enforcing residential users to replace traditional stoves with Fuel efficient ones. Also, there are no regulations prohibiting the continuing use of traditional stoves. This was confirmed based on the on-site interviews with 3RL, local stakeholders and the host country experience of the audit team. Although there are no mandatory policies or regulations for the adoption of Fuel Efficient Stoves use in Zambia, National Energy Policy of 2008 seeks to

“promote the use of efficient cook stoves” through “innovative financing schemes designed to reduce the initial cost problem for low income households.” [IRL # 7, 8, 26].

Step 2: Investment Analysis:

The investment analysis has been demonstrated at CPA level.

Step 3: Barrier analysis

The PP has chosen Step 2: Investment analysis instead of Step 3: barrier analysis.

Step 4: Common practice analysis:

Sub-step 4a: Analyze other activities similar to the proposed project activity:

The region considered for common practice analysis is the country of Zambia. Since the stoves are to be distributed all across Zambia, the region for analysis is justified. The scale of technological penetration of the fuel efficient stoves is very less in the rural areas of Zambia. Hence the common practice in Zambia, outside of urban areas, is to use traditional 3 rock fires for domestic purposes. This has been validated based on reference documents mentioned below:

Energy, Environment and Development Network for Africa:

(http://www.afrepren.org/adb_finesse/Presentations/Module%204%20-%20Traditional%20and%20Improved%20Biomass%20Part%201.ppt) [50];

Only one project has been registered as a CDM project, but this one is a fuel-switching project, CDM Lusaka Sustainable Energy Project (LSEP) [53];

Sub-step 4b: Discuss any similar Options that are occurring:

The similar options in the host country are the PROBEC programme which focussed on disseminating charcoal burning stoves to households and not wood burning stoves, which is an essential distinction from the proposed PoA. It also incorporates institutional stoves and tobacco barns. GTZ funding for Probec has ended in December 2010, demonstrating that it has been incapable of delivering sustainability in its funding and activities. Hence this is not an option which is similar to the PoA scale [IRL #73, 74].

Based on the aforementioned approach, TÜV SÜD confirms that the proposed PoA is additional.

3.9.3 Approach for demonstrating CPA additionality

As the PoA applies the small scale methodology, therefore the additionality can be demonstrated using the Tool for the demonstration and assessment of additionality”. The PoA-DD indicates that the investment analysis will be carried out at the CPA level, by calculating a simple cost analysis (Option I) in each CPA-DD and this would be used to demonstrate the additionality of CPAs.

Based on the aforementioned approach, TÜV SÜD confirms that additionality can be appropriately demonstrated for a typical CPA.

3.10 Emission Reductions from a typical CPA

The procedures provided in the methodology are correctly depicted in the PoA-DD and the template CPA-DD.

- Fraction of Biomass saved by the project activity in year as 0.93 which is based on the third party NRB report
- Number of appliances. This parameter would be counted annually
- Efficiency of Stoves would be monitored annually.

- Non operational stoves would also be counted annually.
- IPCC default value for Coal Briquettes (97.5 tCO₂/TJ)
- All SSC-CPAs will apply the default value of efficiency as 0.10 given in the applied methodology.
- All SSC-CPAs will apply the default value of net calorific value of the non renewable biomass as 0.015TJ/tonne given in applied methodology.

The formulae are correctly presented for the determination of emission reductions.

TÜV SÜD has assessed the calculations of emission reductions. Corresponding calculations have been carried out based on calculation spreadsheets. The parameters and equations presented in the PoA-DD, as well as other applicable documents, have been compared with the information and requirements presented in the methodology. An equation comparison has been made to ensure consistency between all the formulae presented in the PoA-DD, template CPA-DD, calculation files, methodology AMS.II.G version 02.

The assumptions and data used to determine the emission reductions are listed in the PoA-DD and all the sources have been checked and are reasonable.

Based on the information reviewed it is confirmed that the sources used are correctly quoted and interpreted in the PoA-DD.

In summary, the calculation of emission reductions are considered correct and are replicable. The baseline methodology has been applied correctly according to requirements.

3.11 Monitoring Plan of a typical CPA

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 will be conducted at the PoA level. The total number of stoves to be selected for Activity Sample Group monitoring during each monitoring period will be a simple random sample of installed stoves which are in operation and are calculated according to a 90/10 precision (90% confidence interval and 10% margin of error) according to the methodology. The individual participants in the survey will be selected by a random selection programme in the PoA monitoring database during each monitoring period. The sampling frame will consist of installed stoves that would be in operation during the monitoring period and this simple random sample will generate the participants in the sample group.

The procedures have been reviewed by the assessment team through document review and interviews with the relevant personnel. The option (a) as per paragraph 6 is chosen to determine B_y and hence the paragraph 13 as per AMS II.G. version 02 is not applicable, where it is required to monitor the thermal energy generated. 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.

3.11.1 Parameters determined ex-ante

The parameters that are determined ex-ante are:

$NCV_{biomass}$ – The applied methodology default value of 0.0015 TJ/tonne is taken for the net calorific value of the wood used as cooking fuel;

$EF_{projected_fossilfuel}$ – The applied methodology default value for Coal Briquettes (97.5 tCO₂/TJ) is taken for the emission factor for the substitution of non renewable biomass by similar consumer; The coal briquette as mentioned in the PoA-DD considered by a pilot project in Zambia is a blended product from traditional lignite/brown coal, bagasse and molasses, since the waste is coming from a sugar industry. This is a pilot project cited by PP to demonstrate the potential for commercialization of coal briquettes in Zambia where only 3 tonnes of blended briquettes are produced in a month. This does not represent a realistic scenario for supplying briquettes on a national basis, as required for the ex-ante estimation of the projected fossil fuel. However on a national scale, the coal briquettes does not contain any molasses or bagasse and the total quantity of traditional brown coal briquettes available is far more compared to the quantity of available blended coal briquettes mentioned in the pilot project. This has been checked from the statistical data of lignite briquettes [IRL# 83]. The traditional brown coal briquettes does not contain any molasses or bagasse as per IPCC definition [IRL# 82].

Hence the consideration of coal briquettes for the ex ante estimation of projected fossil fuel is justified and appropriate.

n_{old} - The value 0.10 (i.e.10%) is taken for the efficiency of the system (traditional stove). The value has been taken from the methodology AMS II.G.

B_y – The value of 4.1 tonnes/year has been taken from the Consolidated Baseline Survey Report by third party consultants. The baseline survey assessed the average domestic biomass usage for cooking and water heating per household per annum amongst users of traditional 3-rock fires, according to interviews. The selection of four regions for baseline survey in Zambia is appropriate as the four regions represent the four geographical boundaries (North, South, East & West) of Zambia under a geographical cluster sample. A sample of 30 households was selected per each region and the villages were selected in random within the regions which constitute a representative sample of 120 respondents in total for each seasonal survey. This method of survey is in line with the multi stage geographical cluster sampling approach as per p.27 EB 50 Annex 30 guidance. As per this guidance, clusters consist of geographical areas and since geographically dispersed population can be expensive to survey, greater economy than simple random sampling can be achieved by treating several respondents within a local area as a cluster. This approach was found to be appropriate in case of the selection of four regions for baseline survey in Zambia. Therefore this data is appropriate and conservative and is according to: General Guidelines For Sampling And Surveys For Small-Scale CDM Project Activities (Version 01); CDM EB50 Annex 30 [IRL # 31, 32, 33, 40, 56, 79, 81, 83].

The minimum sample size of the stoves to be taken for a simple random sample is 68, in accordance with the methodology requirements for precision and accuracy. In order to get a higher degree of accuracy under the geographical cluster sampling approach selected by the PP, the sample size was enhanced to 120 accordingly, which delivers greater precision and demonstrates a significant degree of oversampling, as recommended by the guidance provided in p.28 of EB50 Annex 30. [IRL # 29, 71, 81]. The PP has calculated the Design Effect (DEFF) for each of the baseline woodfuel surveys (wet and dry season samples of 120 each), with the outliers removed (top and bottom 5%) and calibrated to 108. The DEFF calculation is an adjustment method used to determine survey sample size. The DEFF is basically the ratio of the actual variance, under the sampling method actually used, to the variance computed under the assumption of simple random sampling. This procedure is as per standard statistical methods and the same has been validated by the audit team [IRL# 84]. This calculation shows an average factor of 0.475 (wet season DEFF 0.54 & dry season DEFF 0.41) versus the simple random sample approach. A DEFF factor of 1 or lower demonstrates an equivalent level of accuracy between cluster sampling and simple random sampling, while a value over 1 indicates that clustering introduces some bias and therefore more samples would be required. Therefore, according to the

calculations, more than twice the number of random sample cases would have needed to be selected to obtain a similar accuracy in the baseline survey. This clearly demonstrates that the potential level of variance has been taken into account in the calculation of a cluster sample size and compensated accordingly by oversampling. The calculation sheets of wet and dry season fuel data with DEFF calculations were checked by the audit team. The letter provided by the independent third party consultants C4 Eco solutions also confirms the accuracy of the sampling [IRL# 78, 80].

$f_{NRB,y}$ - The value 0.93 is taken for Fraction of biomass in year y that has been established based on survey method given in AMS.II G, version.02. The survey report has been prepared by third party consultants. The calculated value of the overall biomass usage in Zambia and according to independently published sources, ascertained the proportion of that biomass used in Zambia which is non-renewable. The calculation of $f_{NRB,y}$ includes charcoal in order to present a realistic picture of the NRB utilization in Zambia. The proportion of woody biomass consumption which is non renewable also includes charcoal as this is the case in Zambia and hence the exclusion of this value will not present a conservative estimate of emission reductions. The NRB report prepared by third party consultants and the letter provided by them were assessed by the audit team to confirm the inclusion of charcoal [IRL# 77]. Charcoal is also classified as a type of biomass under IPCC Biomass classification [IRL # 82]. Hence as per p.91 of VVM, the selection of the ex ante parameter $f_{NRB,y}$ is justified and is appropriate. However this is also an ex-post monitoring parameter [IRL # 30, 39, 41, 42, 43, 57, 58, 59, 60, 61, 62, 72].

In summary, the parameters determined ex-ante are conservative and appropriate and they have been presented correctly according to requirements of the applied methodology.

3.11.2 Parameters determined ex-post

The parameters that are to be monitored ex-post are:

n_{new} - Crediting period year stove manufacturers' Emissions & Performance Test Protocol (EPTP) test. This value would be obtained through sampling and survey method.

NS- Number of stoves still operation during the monitoring period

OD- Total stove operating days in monitoring period

L_y - Amount of woody biomass saved under the project activity that is used by non-project households/users (who previously used renewable energy sources)

$B_{y,i}$ - Quantity of biomass saved per stove per annum

If the baseline 3-rock for domestic usage continues during implementation, monitoring shall ensure that the wood fuel consumption of those appliances is excluded from B_y . The Sample Group survey will check the presence of domestic 3-rock fires in the household of stove recipients and the existing measurements of wood usage shall be taken. The survey questionnaire would be used to ascertain the patterns of usage of each appliance. An average proportion of usage of 3 rock fires shall then be calculated across the Sample Group and a deduction made to the baseline B_y , wherever applicable. The format of the Sample Group survey questionnaire has been checked [IRL # 76].

$f_{NRB,y}$ -Non-renewable biomass usage in Zambia, as a proportion of total biomass usage

In summary, the parameters determined ex-post are reasonable and have been presented correctly according to requirements of the applied methodology

Ex-post sampling method - 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 sampling size is determined with minimum 90% confidence interval and maximum 10% error margin. The minimum sample size of the stoves to be taken for a simple random sample is 68 in accordance with the methodology requirements for precision and accuracy. A simple

random sample will be employed where appropriate to monitor each parameter ex-post, as required by the methodology. This simple random sample will be calculated during every monitoring period and the total number of stoves installed and operating during the monitoring period would be taken for sampling. The sample will be estimated from the PoA stove population and not derived from each CPA.

As per p.16 EB50 Annex 30, *"Simple random sampling has the advantages that it is the most conceptually straightforward way of obtaining a representative estimate based on a random subset of the population. Using random sampling methods is recommended when potentially more efficient sampling techniques are infeasible or impractical. Simple random sampling is best suited for relatively homogeneous population"*.

Since the sample frame is relatively homogenous (i.e. installed stoves that are in operation under the PoA during the relevant monitoring period), the simple random sample approach is appropriate. The sample will be calculated on a 90/10 confidence/precision basis, as required by the methodology. This simple random sample will then be drawn from the total population of stoves installed according to the monitoring database. The following methods would be employed during expost monitoring:

Survey 1: Sample size calculation for the determination of an unbiased and reliable estimate of the mean value of the Thermal Efficiency of the Stoves in accordance with EB 50 Annex 30.

An annual sample of each vintage of stoves will be selected at random, calculated on a 90/10 confidence/precision basis as required by the methodology. The mean value which results from this efficiency testing is representative of the population and will therefore be used to calculate the emission reductions for each vintage in the monitoring report.

Survey 2: Sample size calculation for the determination of an unbiased and reliable estimate of the mean value of the number of the proportion of stoves still operating and presence of 3-stone fires in the households of the stove recipients in accordance with EB 50 Annex 30.

Each monitoring period a random sample of installed stoves in operation during the monitoring period will be selected. The sample size will be calculated on the 90/10 confidence/precision basis required by the methodology. The results will be representative of the population and will therefore be used to calculate the emissions reductions in line with the PoA-DD.

Hence it could be confirmed that the sampling procedures are in line with EB 50 annex 30 requirements.

The operational and management structure has been clearly described and in compliance with the envisioned situation. The responsibilities and institutional arrangements for data collection and archiving has been clearly provided. The information provided in the PoA-DD could be confirmed based on the on-site interviews and also through the submitted documentary evidence - implementation plan. Hence it could be confirmed that the PP would be able to implement monitoring plan as per the methodology and UNFCCC requirements.

3.12 Stakeholder Consultation

It has been indicated that the local stakeholder consultation is done at the PoA level. The justification of doing local stakeholder consultation at the PoA level has been provided. The stakeholder consultations of PoA cover the districts of Nyimba and Katete of Zambia and the National level meeting with various departments.

The relevant local stakeholders have been invited through invitation letter and email [IRL # 36]. 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 # 35, 37, 38].

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.

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

3.13 Environmental Analysis

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 Zambian regulations, an EIA is not required for typical CPAs included in the proposed PoA. This has been confirmed by the Environmental Council of Zambia, indicating that the project has positive impacts on the environment. However, likely environmental impacts have been discussed in the PoA-DD [IRL# 7, 48, 54].

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

4 COMMENTS BY PARTIES, STAKEHOLDERS AND NGOS

TÜV SÜD published the project documents on the UNFCCC website and invited comments by affected Parties, stakeholders, and non-governmental organisations during a 30 day period.

All key information gathered is presented in the table below

GSP Comments

website: http://cdm.unfccc.int/filestorage/M/C/U/MCUG56RLBVY20THX3DKF8S1QOA9NPZ/PoA%20DD.pdf?t=STJ8MTMwODU0NzU5OC45Ng== Ya4Eu0kz5nM2vMbEz-3bMcEE-8k=	
Starting date of the global stakeholder consultation process: 2010-11-24	
Comment submitted by: None	Issues raised: -
Response by TÜV SÜD: -	

5 VALIDATION OPINION

TÜV SÜD has performed a validation of the following proposed CDM PoA project:

Fuel Efficient Stoves in Zambia

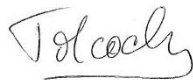
Standard auditing techniques have been used for the validation of the project. A methodology-specific protocol for the PoA has been prepared to conduct the audit in a transparent and comprehensive manner.

The review of the PoA 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 meets all relevant UNFCCC requirements for the CDM if the underlying assumptions do not change. TÜV SÜD recommends the PoA project for registration by the CDM Executive Board.

An analysis, as provided by the applied methodology, demonstrates that the proposed PoA is not a likely baseline scenario. Emission reductions attributable to the PoA are additional to any that would occur in the absence of the project activity. Given that the PoA is 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 VVM 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.

Munich, 26-12-2011



Eric Tolcach

Certification Body "Climate and Energy"
TÜV SÜD Industrie Service GmbH

Munich, 26-12-2011



Nikunj Agarwal

Assessment Team Leader



Annex 1: Validation Protocol

Validation Protocol CDM-PoA-DD

PoA Title: Fuel Efficient Stoves in Zambia

Date of Completion: 26-12-2011



Industrie Service

Table 1 Conformity of CDM Programme of Activities

CHECKLIST TOPIC / QUESTION	Ref.	COMMENTS	GSP	Final
A. General description of small-scale programme of activities (PoA)				
A.1. Title of the small-scale programme of activities (PoA)				
A.1.1. Does the used PoA title clearly enable to identify the unique CDM programme of activities?	2	Yes, the PoA title clearly enables to identify the unique CDM PoA.	p	p
A.1.2. Are there any indications concerning the revision number and the date of the revision?	2,6	Yes, the GSP-PoA-DD is indicated version number 01 and dated 15/11/2010. <u>Corrective Action Request No 1</u> Please update the version number and date of PoA-DD upon every revision.	CAR	p
A.1.3. Is this consistent with the time line of the programme's history?	2	Yes, this is considered consistent	p	p
A.2. Description of the small-scale programme of activities				
A.2.1. Is the description delivering a transparent overview of the general operating and implementing framework of the PoA?	2,6	The CDM programme activities (CPAs) included in the PoA will be implemented in Zambia. The PoA involves distribution of fuel efficient cooking stoves by 3 Rocks Limited (3RL) in Zambia with higher efficiency replacing the traditional Three stone stoves. <u>Clarification Request No. 1.</u> Please clarify on the following points: a) Whether the CPAs would be defined based on geographical areas or the number of stoves? b) Is the design developed by 3RL? c) Is the word Company used in context of 3RL? d) Whether it is relative thermal efficiency testing of the stove? e) Definition of rural in context of the PoA.	CR	p

Validation Protocol CDM-PoA-DD

PoA Title: Fuel Efficient Stoves in Zambia

Date of Completion: 26-12-2011



Industrie Service

CHECKLIST TOPIC / QUESTION	Ref.	COMMENTS	GSP	Final
		<u>Clarification Request No. 2.</u> Please submit documents for the following: <ul style="list-style-type: none"> a) clarifying the distribution methodology of cooking stoves; b) Financial model to demonstrate that the PoA is not part of any government funded supportive programme in Zambia; and c) Data management system. 		
A.2.2. Is the policy/measure or stated goal of the PoA clearly and unambiguously presented?	2	Yes, it has been clearly presented that the PoA objective is to install fuel efficient cooking stoves in rural Zambia.	p	p
A.2.3. What proofs are available demonstrating that the project description is in compliance with the actual situation or planning?	11, 12, 13, 14, 15	The following documents were verified on site and have been submitted <ol style="list-style-type: none"> 1. Company Incorporation documents 2. 3RL Articles of association 3. Memorandum of Agreement (MoA) between the stove manufacturer (Envirofit) and 3RL for supply of stoves 4. No Objection Certificate (NOC) for the PoA from Ministry of Environment. 5. Minutes of Board meeting of 3RL 	p	p
A.2.4. Is the information provided by these proofs consistent with the information provided by the PoA-DD?	2	Yes, the information provided by the proofs consistent with the information provided by the PoA-DD	p	p
A.2.5. Is there a valid confirmation that the proposed PoA is a voluntary action by the coordinating/managing entity?	2	Yes, 3RL is the coordinating entity for the PoA and it is a voluntary action by them. The NOC from Ministry, 3RL articles of association and the Board Minutes are verified to confirm this.	p	p
A.2.6. Does the description of the technology to be applied provide sufficient and transparent input to evaluate its impact on the greenhouse gas balance?	2	Yes, the improved cook stoves would result in reduction of non-renewable biomass consumption thereby leading to lesser GHG emissions.	p	p

Validation Protocol CDM-PoA-DD

PoA Title: Fuel Efficient Stoves in Zambia

Date of Completion: 26-12-2011



Industrie Service

CHECKLIST TOPIC / QUESTION	Ref.	COMMENTS	GSP	Final
A.2.7. Is the brief explanation how the programme will reduce greenhouse gas emission transparent and suitable?	2	Yes, the explanation is transparent and suitable.	p	p
A.3. Coordinating/managing entity and participants of SSC-PoA				
A.3.1. Is the form required for the indication of project participants correctly applied?	2	Yes, the form has been correctly applied.	p	p
A.3.2. Is the participation of the listed entities or Parties in the PoA confirmed by each one of them?	20	The Modalities of communication (MoC) has been submitted. Clarification Request No. 3. Please provide the Host Country Approval letter for the PoA.	CR	p
A.3.3. Is all information on participants / Parties provided in consistency with details provided by further chapters of the PDD (in particular annex 1)?	2	It has been understood that 3 Rocks Ltd is the coordinating/managing entity and same has been consistently included in Annex-1.	p	p
A.3.4. Is it evident that the coordinating or managing entity of the PoA is the entity which communicates with the Executive Board (EB)?	2	Yes, the MoC confirms that 3RL is the managing entity of the PoA which communicates with the Executive Board	p	p
A.3.5. Is it evident whether individual project participants are involved in one of the CPAs related to the PoA?	2	3RL is the only project participant.	p	p
A.4. Technical description of the small-scale programme of activities				
A.4.1. Location of the programme of activities				
A.4.1.1. Does the information provided on the location of the programme allow for a clear definition identification of the boundary for the PoA in terms of a geographical area, within which all CPAs included in this PoA will be implemented?	6	The CPAs under the PoA will be implemented throughout the Zambia. Clarification Request No. 4. Please clarify whether the PoA is to be implemented over entire Zambia or just rural? Please maintain this consistent throughout the	CR	p

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		PoA-DD.		
A.4.1.2. Is the consideration of all applicable national and/or sectoral policies and regulations of each host country within the boundary evident and substantiated?	7,8	<u>Corrective Action Request No 2</u> Please include the information on all applicable national and/or sectoral policies and regulations which are relevant to the PoA.	CAR	p
A.4.1.3. Is/are the Host Party(ies) stated?		Zambia has been stated as the host party.	p	p
A.4.2. Description of a typical small-scale CDM programme activity (CPA)				
A.4.2.1. Is it unambiguously stated which technology or measures are to be employed by the SSC-CPA?	6	<u>Clarification Request No. 5.</u> Please clarify on the following: a) Significance of the stated number 14799; and b) How individual household are receiving stoves.	CR	p
A.4.2.2. Does the technical design of the project activity reflect current good practices?	6	The PoA envisages using energy efficient cooking stoves in place of traditional cooking stove system and thus reflect current good practices. The technical specification of the Rocket stove design under the PoA has been submitted.	p	p
A.4.2.3. Does the implementation of the project activity require any technology transfer from Annex-I-countries to the host country (ies)?	6	<u>Corrective Action Request No 3</u> Please indicate whether the implementation of the project activity requires any technology transfer from Annex-I-countries to the host country.	CAR	p
A.4.2.4. Is the technology implemented by the project activity environmentally safe?	6	Yes, the technology implemented by the PoA programme is environmentally safe	p	p
A.4.2.5. Is the information provided in compliance with actual situation or planning?	9	<u>Clarification Request No. 6.</u> Please clarify which stove model is being implemented. The PoA-DD and the Memorandum of Agreement (between 3RL and Envirofit) refers to G3300 whereas the purchase order indicates Z3000.	CR	p
A.4.2.6. Does the project use state of the art technology and / or does the technology	9	Yes, the usages of stoves under the PoA are better performing than the traditional 3 stone stoves. The Memorandum of Agreement (be-	p	p

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result in a significantly better performance than any commonly used technologies in the host country?		tween 3RL and Envirofit) and the Emissions and Performance Report prepared by Colorado State University indicate around 29% as the stove efficiency.		
A.4.2.7. Is the project technology likely to be substituted by other or more efficient technologies within the project period?	6	<u>Clarification Request No. 7.</u> Please clarify the possibility of replacement of the cooking stoves under the PoA by other or more efficient technologies within the project period.	CR	p
A.4.2.8. Does the project require extensive initial training and maintenance efforts in order to be carried out as scheduled during the project period?	6	<u>Clarification Request No. 8.</u> Whether any initial training for stove implementation and maintenance has been provided by 3RL? Please submit the training manual, if available.	CR	p
A.4.2.9. Is information available on the demand and requirements for training and maintenance?	6	Please refer CR8 above.	CR	p
A.4.2.10. Are there clear and unambiguous eligibility criteria for the inclusion of a SSC-CPA into the PoA?	6	<u>Corrective Action Request No 4</u> The eligibility criteria for inclusion of a CPA into PoA needs to be demonstrated clearly for all the points listed in the PoA-DD. Relevant supporting documents/references need to be provided.	CAR	p
A.4.3. Description of how the anthropogenic emissions of GHG by sources are reduced by a SSC-CPA below those that would have occurred in the absence of the registered PoA (assessment and demonstration of additionality of the PoA as a whole)				
A.4.3.1. Is it evident and clearly documented that the proposed PoA is a voluntary coordinated action?	18	Yes, 3RL is the coordinating and managing entity for the PoA and it is a voluntary action taken by them. The NOC from Zambian 'Ministry of Tourism, Environment and Natural Resources', 3RL articles of association and the Board Minutes are verified to confirm this.	p	p
A.4.3.2. Is it evident and substantiated that this voluntary coordinated action would not be implemented in the absence of the PoA?	6,72, 74	Yes, it is evident through the template agreement between 3RL and the householders. The stoves would be provided at no cost to the householders in exchange to the transfer of carbon credits. <u>Corrective Action Request No 5</u>	CAR	p

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		Please include updated information on other similar initiatives of cook stoves in Zambia.		
A.4.3.3. Is it evident and substantiated that in case the PoA implements a mandatory policy or regulation this would not be enforced otherwise?	7,8	There are no mandatory policies or regulations in Zambia enforcing implementation of high efficiency stoves.	p	p
A.4.3.4. Is it evident and substantiated that in case the PoA implements a mandatory policy or regulation that is enforced the PoA will lead to a greater level of enforcement?	6	Not applicable	p	p
A.4.4. Operational, management and monitoring plan for the programme of activities (PoA)				
A.4.4.1. Is there a clear and transparent description of the operational and management arrangements established by the coordinating/managing entity?	46	Clarification Request No.9 Please submit the organizational chart of 3RL.	CR	p
A.4.4.2. Is there a record keeping system for each CPA under the PoA?	6	Yes, the 3RL as the managing entity would ensure that the record keeping system is done appropriately by the SSC-CPA investor. Please refer CR2.	CR	p
A.4.4.3. Is there a system or procedure to avoid double accounting, i.e. to avoid that an included CPA under this PoA already is a registered CDM project or CPA in another PoA?	6	Corrective Action Request No 6 The indicated procedure to avoid double counting seems to be inadequate with respect to the stoves being registered as a separate CDM project. Please elaborate how this aspect is addressed.	CAR	p
A.4.4.4. Is there a system or procedure to detect whether a SSC-CPA to be included in the PoA is not a de-bundled component of another CPA or CDM project?	6	As per EB 54, Annex 13 it is clearly explained that the CPA of PoA is exempted from performing de-bundling check.	p	p
A.4.4.5. Are provisions in place to ensure that those operating the CPA are aware of and have agreed that their activity is being subscribed to the PoA?	6	Yes, it is evident through the following: 1. 3RL would be CME and also the implementer of the CPAs; and	CR	p

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		<p>2. Template agreement between 3RL and the householders. The stoves would be provided at no cost to the householders in exchange to the transfer of carbon credits.</p> <p><u>Clarification Request No.10</u></p> <p>Please clarify how it is ensured that stove manufacturer (e.g. Envi-rofit) would not claim for any carbon credits for the stoves implemented under the CPAs.</p>		
A.4.4.6. Is there a monitoring plan for the PoA, including a description of the proposed statistically sound sampling methods or procedures to be used by the DOE for the verification (please consider sampling among CPAs and within CPAs)?	6	<p><u>Corrective Action Request No 7</u></p> <p>The information presented in the PoA-DD is not clear whether sampling would be done for CPAs or each CPA would be verified. Please elaborate on the selected approach.</p>	CAR	p
A.4.4.7. In case the coordinating/managing entity opts for a verification method that does not use sampling but verifies each CPA, does the monitoring plan provide a transparent system to ensure that no double accounting occurs and that the status of verification can be determined any time for each CPA?	6	Please refer CAR7 above	CAR	p
A.4.5. Public funding of the small-scale project activity				
A.4.5.1. Is the information provided on public funding provided in compliance with the actual situation or planning as available by the project participants?	6	The signed minutes of meeting of the board of directors of 3RL has been checked to confirm that there is no public funding. Justification has been provided in the 3RL board minute dated 12 th July 2011 confirming that no public funding is involved in the PoA.	p	p
A.4.5.2. Is all information provided consistent with the details given in remaining chapters of the PoA-DD (in particular annex 2)?	6	Yes, the information has been consistently provided.	p	p

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B. Duration of the programme of activities				
B.1. Starting date of the programme of activities				
B.1.1. Is the programme's starting date clearly defined and reasonable?	9	Clarification Request No.11 Please clarify the basis of the indicated start date of the PoA. The MoA with Envirofit is dated 2 nd December 2010 and subsequently the purchase order for stoves from Envirofit is signed on 23 rd December 2010.	CR	p
B.2. Length of the programme of activities (PoA)				
B.2.1. Is the assumed length of the PoA clearly defined by the coordinating managing entity and reasonable (max 28 years)?	6	Clarification Request No.12 Please clarify the basis of the indicated length of the PoA as 28 years.	CR	p
C. Environmental Analysis				
C.1. Definition of the level at which environmental analysis as per requirements of the CDM modalities and procedures is undertaken:				
C.1.1. Is it defined whether the environmental analysis takes place at PoA or CPA level?	6	Yes, it has been indicated that the environmental analysis takes place at PoA level.	p	p
C.1.2. Is the choice whether the environmental analysis takes place at PoA or CPA level justified?	6	Yes, it has been appropriately justified.	p	p
C.2. Documentation on the analysis of the environmental impacts of the PoA, including transboundary impacts:				
C.2.1. Are there any Host Party requirements for an Environmental Impact Assessment (EIA), and if yes, has an EIA been approved?	6	There are no host country requirements for EIA for this kind of programme – replacement of traditional stoves with fuel efficient stoves.	p	p
C.2.2. Has the analysis of the environmental	6	Corrective Action Request No 8	CAR	p

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impacts of the project activity been sufficiently described?		Please include the positive/negative impacts of air pollution and the biodiversity aspect due to the activities under the PoA.		
C.2.3. Will the project create any adverse environmental effects?	6	Project is not expected to create any adverse environmental effects	p	p
C.2.4. Were trans-boundary environmental impacts identified in the analysis?	46	Clarification Request No. 13. The letter from Environmental Council of Zambia is dated 28 Oct 2009 where as in the PoA-DD it mentions as a different date. Please clarify and revise accordingly.	CR	p
C.3. Please state whether in accordance with the host Party laws/regulations, an environmental impact assessment is required for a typical CPA of the PoA:				
C.3.1. Have the identified environmental impacts been addressed in the project design sufficiently?	6	Not applicable	p	p
C.3.2. Does the project comply with environmental legislation in the host country?	6	Yes, this could be confirmed from the letter issued by the Environmental Council of Zambia.	p	p
C.3.3. As per host country laws/regulations, is an environmental impact assessment necessary for a typical CPA?	6	The letter from the Environmental Council of Zambia confirms that no EIA is required to be done for the activities under the PoA.	p	p
D. Stakeholders' comments				
D.1. Please indicate the level at which local stakeholder comments are invited. Justify the choice:				
D.1.1. Is there a clear statement whether the stakeholder comments will be invited at PoA or CPA level?	6	Yes, there is a clear statement that stakeholder comments will be invited at CPA level	p	p
D.1.2. Is the choice justified in a clear and reasonable manner?	6	Corrective Action Request No 9 Please justify the choice of conducting local stakeholder consultation at the CPA level.	CAR	p

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D.1.3. If the stakeholder comments will be invited at PoA level, is there sufficient information provided, on how comments by local stakeholders were invited?	6	It has been stated that the stakeholder consultation would be carried out at CPA level.	p	p
D.1.4. If the stakeholder comments will be invited at PoA level, is there a summary of the contents?	6	NA	p	p
D.1.5. If the stakeholder comments will be invited at PoA level, is there sufficient information provided, on how due account was taken of any comments received?	6	NA	p	p
D.2. Brief description how comments by local stakeholders have been invited and compiled				
D.2.1. Have relevant stakeholders been consulted?	6	Please refer above	p	p
D.2.2. Have appropriate media been used to invite comments by local stakeholders?	6	Please refer above	p	p
D.2.3. If a stakeholder consultation process is required by regulations/laws in the host country, has the stakeholder consultation process been carried out in accordance with such regulations/laws?	6	Please refer above	p	p
D.2.4. Is the undertaken stakeholder process that was carried out described in a complete and transparent manner?	6	Please refer above	p	p
D.3. Summary of the comments received				
D.3.1. Is a summary of the received stakeholder comments provided?	6	Please refer above	p	p

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D.4. Report on how due account was taken of any comments received												
D.4.1. Has due account been taken of any stakeholder comments received?	6	Please refer above	p	p								
E. Application of a baseline and monitoring methodology to a typical SSC-CPA												
E.1.Title and reference of the approved SSC baseline and monitoring methodology applied to SSC-CPA included in the PoA												
E.1.1.1.Are reference number, version number, and title of the baseline and monitoring methodology clearly indicated?	4	Yes, the methodology AMS II.G, Energy Efficiency Measures in Thermal Application of Non- Renewable biomass --- Version 2 - has been indicated.	p	p								
E.1.1.2.Is the applied version the most recent one and / or is this version still applicable?	4	Yes, the version used is the most recent one at the time of uploading the project for GSP.	p	p								
E.1.1.3.Is the applied SSC methodology approved by the board, for use in PoA?	4	Yes, the applied SSC methodology has been approved by the board, for use in PoA.	p	p								
E.2.Justification of the choice of the methodology and why it is applicable to a SSC-CPA												
E.2.1. Is the applied methodology considered the most appropriate one?	4	Yes, the applied methodology AMS II.G- Energy Efficiency Measures in Thermal Application of Non-Renewable biomass is the most appropriate small scale methodology for this kind of program which involves replacement of traditional cooking system with the energy efficient cooking stoves.	p	p								
E.2.2. Criterion 1: This category comprises of 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 cook stoves or ovens or dryers and/or improvement of energy efficiency	4	<table><tr><td>Applicability checklist</td><td>Yes / No / NA</td></tr><tr><td>Criterion discussed in the PDD?</td><td>Yes</td></tr><tr><td>Compliance provable?</td><td>Yes</td></tr><tr><td>Compliance verified?</td><td>Yes</td></tr></table> <p>The PoA involves introduction of high efficiency biomass-fired cooking stoves.</p>	Applicability checklist	Yes / No / NA	Criterion discussed in the PDD?	Yes	Compliance provable?	Yes	Compliance verified?	Yes	p	p
Applicability checklist	Yes / No / NA											
Criterion discussed in the PDD?	Yes											
Compliance provable?	Yes											
Compliance verified?	Yes											

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of existing biomass fired cook stoves or ovens or dryers.												
E.2.3. Criterion 2: If any similar registered CDM project activities exist in the same region as the proposed project activity then it must be ensured that the proposed project activity is not saving the nonrenewable biomass accounted for by the already registered project activities.	4	<table><tr><td>Applicability checklist</td><td>Yes / No / NA</td></tr><tr><td>Criterion discussed in the PDD?</td><td>Yes</td></tr><tr><td>Compliance provable?</td><td>Yes</td></tr><tr><td>Compliance verified?</td><td>No</td></tr></table> <p>Clarification Request No.14</p> <p>Another registered stove project (Lusaka Project) has been discussed. Although the Lusaka project applies AMS.I.E and is related to charcoal based stoves, nevertheless, as it is understood that a part of the charcoal is being produced from non-renewable biomass, therefore further justification needs to be provided.</p>	Applicability checklist	Yes / No / NA	Criterion discussed in the PDD?	Yes	Compliance provable?	Yes	Compliance verified?	No	CR	p
Applicability checklist	Yes / No / NA											
Criterion discussed in the PDD?	Yes											
Compliance provable?	Yes											
Compliance verified?	No											
E.2.4. Criterion 3: Project participants are able to show that non-renewable biomass has been used since 31 December 1989, using survey methods.	4	<table><tr><td>Applicability checklist</td><td>Yes / No / NA</td></tr><tr><td>Criterion discussed in the PDD?</td><td>Yes</td></tr><tr><td>Compliance provable?</td><td>Yes</td></tr><tr><td>Compliance verified?</td><td>No</td></tr></table> <p>Clarification Request No.15</p> <p>Please provide valid references/evidences with source to support the annual deforestation rate, rate of forest change and forest cover in Zambia since 1989.</p>	Applicability checklist	Yes / No / NA	Criterion discussed in the PDD?	Yes	Compliance provable?	Yes	Compliance verified?	No	CR	p
Applicability checklist	Yes / No / NA											
Criterion discussed in the PDD?	Yes											
Compliance provable?	Yes											
Compliance verified?	No											
E.3.Description of the sources and gases included in the SSC-CPA boundary												
E.3.1. Does the SSC-CPA boundary include the physical and geographical site of the efficient system using?	4	<p>Corrective Action Request No 10</p> <p>Please define the project boundary clearly in the PoA as per the applied methodology.</p>	CAR	p								
E.3.2. Are all sources and gases within the boundary considered in a clear manner?	4	Yes.	p	p								

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E.3.3. Do the spatial and technological boundaries as verified on-site comply with the discussion provided by / indication included to the PoA-DD?	4	Yes	p	p
E.4. Description of how the baseline scenario is identified and description of the identified baseline scenario:				
E.4.1. Have all technically feasible baseline scenario alternatives to the PoA been identified and discussed by the PoA-DD? Why can this list be considered as being complete?	6	Yes, technically feasible alternative is indicated as continuation of current cooking method using 3 stones in rural Zambia.	p	p
E.4.2. Does project identify correctly and exclude those options not in line with regulatory or legal requirements?	6	Please refer CAR2 above	CAR	p
E.4.3. Have applicable regulatory or legal requirements been identified?	6	Please refer CAR2 above.	CAR	p
E.4.4. Does the PoA-DD identify the most likely baseline scenario in absence of the project activity?	6	Yes	p	p
E.4.5. Is this identification supported by official and/or verifiable documents (e.g. studies, web pages, certificates, etc)?	6	Yes.	p	p
E.4.6. Is the identified baseline scenario in line with regulatory or legal requirements?	6	Yes	p	p
E.5. Description of how the anthropogenic emissions of GHG by sources are reduced below those that would have occurred in the absence of a typical SSC-CPA, included in a registered PoA (assessment and demonstration of additionality):				
E.5.1. Are the key criteria and data for assessing additionality of a SSC-CPA that is to be	6	Yes, It has been stated in the PoA that Additionality tool is used.	p	p

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	included into the PoA clearly and unambiguously stated?															
E.5.2.	Are the key criteria and data for assessing additionality of a SSC-CPA that is to be included into the PoA based on the additionality assessment in section E.5.1 of the PoA-DD?	6	<u>Clarification Request No.16</u> Please clarify which steps and options of the additionality tool would be followed for CPA additionality assessment.			CR	p									
E.5.3.	Is the choice of the criteria justified, based on the analysis in section E.5.1 of the PoA-DD?	6	Please see CR16 above			CR	p									
E.5.4.	Does it become evident how these criteria would be applied to assess the additionality of a typical CPA at the time of inclusion?	6	Please see CR16 above			CR	p									
E.5.5.	Is this information incorporated into the specific CDM-SSC-CPA-DD (“real case”)?	6	Please see CR16 above			CR	p									
E.5.6.	If the starting date of the programme activity is before the date of validation, is evidence available to prove that incentive from the CDM was seriously considered in the decision to proceed with the programme activity?	6	Please see CR9 above <u>Corrective Action Request No 11</u> Please include information regarding prior CDM consideration.			CR, CAR	p									
E.5.7.	Is a complete list of barriers developed that prevents the project activity to occur?	6	<u>Corrective Action Request No 12</u> It is not clear whether the barriers mentioned in the PoA-DD are in line with the Additionality tool. Please mention the different types of barriers clearly.			CAR	p									
E.5.8.	Does this list include at least one of the following barriers?	6	<table><tr><th>Barrier</th><th>Discussed?</th><th>Verifiable?</th></tr><tr><td>Investment</td><td>NA</td><td>NA</td></tr><tr><td>Technological</td><td>No</td><td>No</td></tr></table>	Barrier	Discussed?	Verifiable?	Investment	NA	NA	Technological	No	No			CAR	p
Barrier	Discussed?	Verifiable?														
Investment	NA	NA														
Technological	No	No														

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			<table><tr><td>Due to prevailing practice</td><td>No</td><td>No</td></tr><tr><td>Other</td><td>No</td><td>No</td></tr></table>			Due to prevailing practice	No	No	Other	No	No		
Due to prevailing practice	No	No											
Other	No	No											
			See CAR12 above.										
E.5.9.	Does the discussion sufficiently take into account relevant national and/or sectoral policies?	6	Please refer CAR2 above			CAR	p						
E.5.10.	Is transparent and documented evidence provided on the existence and significance of these barriers?	6	Please refer CAR12 above			CAR	p						
E.5.11.	Is it appropriately explained how the approval of the project activity will help to overcome the identified barriers?	6	Please refer CAR2 and CR16 above			CAR CR	p						
E.6.Estimation of Emission reductions of a CPA													
E.6.1. Explanation of methodological choices, provided in the approved baseline and monitoring methodology applied, selected for a typical CPA													
E.6.1.1.	Is it explained how the procedures provided in the methodology are applied by the proposed SSC-CPA?	6	<u>Corrective Action Request No 13</u> Please include the methodological choices, provided in the approved baseline and monitoring methodology applied, selected for a typical SSC-CPA.			CAR	p						
E.6.1.2.	Is every selection of options offered by the methodology correctly justified and is this justification in line with the situation verified on-site?	6	Please refer CAR13 above. <u>Corrective Action Request No 14</u> Please include the latest statistics data available (e.g., Census data etc.).			CAR	p						
E.6.2. Equations, including fixed parametric values, to be used for calculation of emission reductions of a SSC-CPA:													
E.6.2.1.	Are the formulae required for the determination of emission reductions correctly presented, enabling a complete identification of parameters to be used	6	Yes, the formulae and the equations as per the methodology are applied by the proposed PoA. <u>Corrective Action Request No 15</u> Please clarify how coal briquettes are taken as the projected fossil			CAR CR	p						

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and / or monitored?		fuel. The Justification provided in the PoA-DD is not conclusive for selection of the projected fossil fuel. <u>Corrective Action Request No 16</u> Please mention all the default values taken for each parameter in section E.6.2 of the PoA-DD. <u>Clarification Request No.17</u> Please submit the detailed spreadsheet of the emission reduction calculations.			
E.6.2.2.Are the equations, including fixed parametric values, to be used for calculation of emission reductions of a SSC-CPA, completely presented?	6	<u>Corrective Action Request No 17</u> The Calculation of B _y is not as per the methodology in the PoA-DD. Please clarify and revise accordingly.	CAR	p	
E.6.3. Data and parameters that are to be reported in CDM-SSC-CPA-DD form					
E.6.3.1.Is the list of parameters presented in chapter B.6.2 considered to be complete with regard to the requirements of the applied methodology?	6	Please refer CARs below in this section	CAR	p	
E.6.3.2.Comment on any line answered with “No”					
E.6.3.2.1. Parameter Title: Estimate of average annual consumption of woody biomass per appliance (tonnes/year)	6	Data Checklist	Yes / No / NA	CR	p
		Title in line with methodology?	Yes		
		Data unit correctly expressed?	Yes		
		Appropriate description of parameter?	Yes		
		Source clearly referenced?	Yes		
		Correct value provided?	No		
		Has this value been verified?	No		
		Choice of data correctly justified?	No		
		Measurement method correctly described?	No		
<u>Clarification Request No.18</u>					

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		Please submit the baseline survey report. Also clarify whether the baseline survey accounts for the seasonal variations in biomass consumption.			
E.6.3.2.2. Parameter Title: NCV _{biomass} Net calorific value of the non- renewable woody biomass that is substituted (IPCC default for wood fuel, 0.015 TJ/tonne)	6	Data Checklist	Yes / No / NA	p	p
		Title in line with methodology?	Yes		
		Data unit correctly expressed?	Yes		
		Appropriate description of parameter?	Yes		
		Source clearly referenced?	Yes		
		Correct value provided?	Yes		
		Has this value been verified?	Yes		
		Choice of data correctly justified?	Yes		
		Measurement method correctly described?	Yes		
E.6.3.2.3. Parameter Title: EF _{projected_fossilfuel} Emission factor for the substitution of non-renewable woody biomass by similar consumers. The substitution fuel likely to be used by similar consumers is taken: 71.5 tCO2/TJ for Kerosene, 63.0 tCO2/TJ for Liquefied Petroleum Gas (LPG) or the IPCC default value of other relevant fuel	6	Data Checklist	Yes / No / NA	CAR	p
		Title in line with methodology?	Yes		
		Data unit correctly expressed?	Yes		
		Appropriate description of parameter?	Yes		
		Source clearly referenced?	Yes		
		Correct value provided?	Yes		
		Has this value been verified?	Yes		
		Choice of data correctly justified?	No		
		Measurement method correctly described?	Yes		
		Please see CAR15 above.			
E.6.3.2.4. Parameter Title: • _{old} : Efficiency of the system being replaced, measured using representative sampling methods or based on referenced literature values (fraction),	6	Data Checklist	Yes / No / NA	p	p
		Title in line with methodology?	Yes		
		Data unit correctly expressed?	Yes		
		Appropriate description of parameter?	Yes		
		Source clearly referenced?	Yes		
		Correct value provided?	Yes		
		Has this value been verified?	Yes		

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		Choice of data correctly justified?	Yes		
		Measurement method correctly described?	Yes		
E.6.3.2.5. Parameter Title: • _{new} : Efficiency of the system being deployed as part of the project activity (fraction)	6	Data Checklist	Yes / No / NA	CAR	p
		Title in line with methodology?	Yes		
		Data unit correctly expressed?	Yes		
		Appropriate description of parameter?	No		
		Source clearly referenced?	Yes		
		Correct value provided?	No		
		Has this value been verified?	Yes		
		Choice of data correctly justified?	Yes		
		Measurement method correctly described?	Yes		
		Corrective Action Request No 18			
		Please correct the description of the parameter ‘• _{new} ’ and also state the efficiency value consistently throughout the document.			
E.6.3.2.6. Parameter Title: DRB: Demonstrably Renewable woody biomass	6	Corrective Action Request No 19		CAR	p
		It is to be noted that f _{NRB,y} is a calculated value (based on number of appliances, average wood consumption per appliance and DRB) and is to be updated based on the woody biomass saved by the project activity in year y (monitoring period). Please revise accordingly. Please include the parameter DRB in the section E.6.3 of the PoA-DD and submit necessary supporting documents.			
E.7.Application of the monitoring methodology and description of the monitoring plan					
E.7.1. Data and parameters to be monitored by each SSC-CPA					
E.7.1.1.Is the list of parameters presented in chapter B.7.1 considered to be complete with regard to the requirements of the applied methodology?	6	Please refer CARs and CRs below in this section		CR, CAR	p
E.7.1.2.Number of appliances	6	Monitoring Checklist	Yes / No / NA	CAR	p
		Title in line with methodology?	Yes		

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		<table><tr><td>Data unit correctly expressed?</td><td>NA</td></tr><tr><td>Appropriate description of parameter?</td><td>Yes</td></tr><tr><td>Source clearly referenced?</td><td>Yes</td></tr><tr><td>Correct value provided for estimation?</td><td>NA</td></tr><tr><td>Has this value been verified?</td><td>NA</td></tr><tr><td>Measurement method correctly described?</td><td>NA</td></tr><tr><td>Correct reference to standards?</td><td>NA</td></tr><tr><td>Indication of accuracy provided?</td><td>NA</td></tr><tr><td>QA/QC procedures described?</td><td>Yes</td></tr><tr><td>QA/QC procedures appropriate?</td><td>Yes</td></tr></table> <p><u>Corrective Action Request No 20</u></p> <p>The parameter ‘Number of appliances’ N_y should be included under the monitoring parameters.</p>	Data unit correctly expressed?	NA	Appropriate description of parameter?	Yes	Source clearly referenced?	Yes	Correct value provided for estimation?	NA	Has this value been verified?	NA	Measurement method correctly described?	NA	Correct reference to standards?	NA	Indication of accuracy provided?	NA	QA/QC procedures described?	Yes	QA/QC procedures appropriate?	Yes			
Data unit correctly expressed?	NA																								
Appropriate description of parameter?	Yes																								
Source clearly referenced?	Yes																								
Correct value provided for estimation?	NA																								
Has this value been verified?	NA																								
Measurement method correctly described?	NA																								
Correct reference to standards?	NA																								
Indication of accuracy provided?	NA																								
QA/QC procedures described?	Yes																								
QA/QC procedures appropriate?	Yes																								
E.7.1.3. Annual check of efficiency of all appliances or a representative sample of the system being deployed as part of the project activity (fraction)	6	<table><tr><td>Data Checklist</td><td>Yes / No / NA</td></tr><tr><td>Title in line with methodology?</td><td>Yes</td></tr><tr><td>Data unit correctly expressed?</td><td>Yes</td></tr><tr><td>Appropriate description of parameter?</td><td>Yes</td></tr><tr><td>Source clearly referenced?</td><td>Yes</td></tr><tr><td>Correct value provided?</td><td>No</td></tr><tr><td>Has this value been verified?</td><td>Yes</td></tr><tr><td>Choice of data correctly justified?</td><td>No</td></tr><tr><td>Measurement method correctly described?</td><td>No</td></tr></table> <p><u>Corrective Action Request No 21</u></p> <p>Please elaborate the QA/QC procedures for the annual check of efficiency of the stoves being deployed. Please justify the monitoring of 3 stoves per each monitoring period. How does this ensure a representative sample?</p> <p><u>Corrective Action Request No 22</u></p> <p>Please explain the Random sampling method clearly and provide</p>	Data Checklist	Yes / No / NA	Title in line with methodology?	Yes	Data unit correctly expressed?	Yes	Appropriate description of parameter?	Yes	Source clearly referenced?	Yes	Correct value provided?	No	Has this value been verified?	Yes	Choice of data correctly justified?	No	Measurement method correctly described?	No		CAR	p		
Data Checklist	Yes / No / NA																								
Title in line with methodology?	Yes																								
Data unit correctly expressed?	Yes																								
Appropriate description of parameter?	Yes																								
Source clearly referenced?	Yes																								
Correct value provided?	No																								
Has this value been verified?	Yes																								
Choice of data correctly justified?	No																								
Measurement method correctly described?	No																								

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		detailed spreadsheet for the same.		
E.7.1.4. Data on the amount of woody biomass saved	6	<u>Corrective Action Request No 23</u> Monitoring should include the data on the amount of biomass saved under the project activity that is used by non-project households/users (who previously used renewable energy sources). Please include the parameter accordingly.	CAR	p
E.7.1.5. Disposal of low efficiency appliance or wood fuel consumption of baseline stoves	6	<u>Corrective Action Request No 24</u> Please include information as to how it is ensured that the replaced low efficiency appliances are disposed off and not used within the boundary (or within the region); or if the baseline stoves usage continues then the wood fuel consumption of those stoves need to be monitored.	CAR	p
E.7.2. Description of the monitoring plan for a SSC-CPA				
E.7.2.1. Is the operational and management structure clearly described and in compliance with the envisioned situation?	6	<u>Corrective Action Request No 25</u> The sample size of 68 needs to be justified with respect to the sampling procedures. Also see CAR 23. <u>Corrective Action Request No 26</u> How the sample size of 68 is in line with EB 50 annex 30? The DEFF sampling size of 120 is not clear in the excel sheets as they show a sample of 108 in the excel spreadsheet "DEFF"	CAR	p
E.7.2.2. Are responsibilities and institutional arrangements for data collection and archiving clearly provided?	6	<u>Clarification Request No.19</u> Please submit the monitoring chart of 3RL in the PoA.	CR	p
E.7.2.3. Does the monitoring plan provide current good monitoring practice?	6	Yes	p	p
E.7.2.4. If applicable: Does annex 4 provide	6	Information on monitoring has been provided in Annex-4 of the PoA-	CR	p

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useful information enabling a better understanding of the envisioned monitoring provisions?		DD. However Please refer CRs above		
E.8.Date of completion of the application of the baseline study and monitoring methodology and the name of the responsible person(s)/entity(ies)				
E.8.1.1.Is there any indication of a date when the baseline was determined?	6	Yes, the date has been given as 1 st November 2010.	p	p
E.8.1.2.Has dd/mm/yyyy format been used to indicate the date.	6	<u>Corrective Action Request No 27</u> Please use the dd/mm/yyyy format in the PoA DD.	CAR	p
E.8.1.3.Is this consistent with the time line of the PoA-DD history?	6	Yes.	p	p
E.8.1.4.Is the information on the person(s) / entity (ies) responsible for the application of the baseline and monitoring methodology provided consistent with the actual situation?	6	Yes, the information has been provided in the PoA-DD.	p	p
E.8.1.5.Is information provided whether this person / entity is also considered a project participant?	6	No	p	p
F. Annexes 1 – 4				
F.1.Annex 1: Contact Information				
F.1.1. Is the information provided consistent with the one given under section A.3?	6	Yes	p	p
F.1.2. Is the information on all private participants and directly involved Parties presented?	6	Yes	p	p

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CHECKLIST TOPIC / QUESTION	Ref.	COMMENTS	GSP	Final
F.2. Annex 2: Information regarding public funding				
F.2.1. Is the information provided on the inclusion of public funding (if any) in consistency with the actual situation presented by the project participants?	6	Yes	p	p
F.2.2. If necessary: Is an affirmation available that any such funding from Annex-I-countries does not result in a diversion of ODA?	6	Yes	p	p
F.3. Annex 3: Baseline information				
F.3.1. If additional background information on baseline data is provided: Is this information consistent with data presented by other sections of the PDD?	6	<p><u>Clarification Request No.20</u> Provide all the documents that are used to calculate the baseline. The relevant information needs to be added in section A.4.3 and E.5 of PoA-DD as well.</p> <p><u>Corrective Action Request No 28</u> Calculation of By with reference to foot note 16 and 19 in the PoA-DD needs to be clarified and spreadsheets need to be submitted.</p> <p><u>Corrective Action Request No 29</u> How it the prior consideration of CDM clearly demonstrated. Please mention the relevant EB guidance clearly.</p> <p><u>Corrective Action Request No 30</u> The sub-step 4b of the additionality tool has not been addressed. Please include this and provide supporting evidences.</p> <p><u>Corrective Action Request No 31</u> Please include the extent of GPS coordinates of the country Zambia</p> <p><u>Corrective Action Request No 32</u> Please provide justification that there is no public funding involved in</p>	CR CAR	p

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		the PoA and the kind of evidences submitted <u>Clarification Request No. 21.</u> Please submit the calculation sheets of NRB, DRB <u>Clarification Request No. 22.</u> Please clarify why these were not considered as start date for PoA. 1. MoA between 3RL and Dunavant, Zambia (24 th Nov 2010) 2. MoA between 3RL and African Carbon Credit Exchange Ltd (19 th October 2010)		
F.3.2. Is the data provided verifiable? Has sufficient evidence been provided to the validation team?	6	Please refer CR above	CR	p
F.3.3. Does the additional information substantiate / support statements given in other sections of the PDD?	6	Please refer above CR	CR	p
F.4. Annex 4: Monitoring information				
F.4.1. If additional background information on monitoring is provided: Is this information consistent with data presented in other sections of the PoA-DD?	6	Yes, additional background information on monitoring is provided in Annex-4 and the same is consistent with information presented in other sections of the PoA DD.	p	p
F.4.2. Is the information provided verifiable? Has sufficient evidence been provided to the validation team?	6	<u>Corrective Action Request No 33</u> How the sampling size is estimated considering the total number of Zambian households instead of the number of stoves installed.	CAR	p
F.4.3. Do the additional information and / or documented procedures substantiate / support statements given in other sections of the PoA-DD?	6	Please refer CAR23 and CAR26 above	CAR	p

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Table 2 Resolution of Corrective Action and Clarification Requests

CAR	Comments and Results	Ref	Conclusion and IRL
Issue 1	Please update the version number and date of PoA-DD upon every revision.	A.1.2	p 6
Response	The latest PDD has been updated as version 2 and will be updated on every subsequent revision		
Assessment	The PoA-DD has been updated with the latest version and will be done for subsequent revisions as per response provided. Hence the issue remains closed.		
Issue 2	Please include the information on all applicable national and/or sectoral policies and regulations which are relevant to the PoA.	A.4.1.2	p 7,8
Response	Information on the Zambian National Policy on the Environment (2007) and National Energy Policy (2008) has been included in section A.4.1.2.		
Assessment	The relevant policies of Zambia applicable to PoA have been included in the DD. Hence the issue remains closed.		
Issue 3	Please indicate whether the implementation of the project activity requires any technology transfer from Annex-I-countries to the host country.	A.4.2.3	p 6
Response	A section on Technology Transfer has been included in section A.4.3.		
Assessment	Please specify from which Annex 1 country the technology transfer is done.		
Response	See section A.4.3: The technology was originally designed in the USA and is transferred from that Annex 1 country.		
Assessment	Hence this issue is closed.		

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Issue 4	The eligibility criteria for inclusion of a CPA into PoA needs to be demonstrated clearly for all the points listed in the PoA-DD. Relevant supporting documents/references need to be provided.	A.4.2.10	p 6
Response	The eligibility criteria for each CPA have been updated. The application of these criteria will be demonstrated with supporting references at the CPA level, in each CPA-DD.		
Assessment	The eligibility criteria have been re-defined. As it has been indicated that simple cost analysis would be applied to demonstrate CPA additionality therefore the eligibility criteria should also ensure that there are no other revenue source other than CDM from the project activity.		
Response	A new eligibility criteria has been included. Eligibility Criteria 4: Each CPA will demonstrate that no revenues, other than those from the sale of CERs, are attributable to the programme activity		
Assessment	It needs to be demonstrated with supportive evidence/documents that this eligibility criteria is fulfilled in each CPA. Please refer CAR8 of CPA VP.		
Response	<p>Cash flows are modelled on a PoA-wide basis by 3RL. The PoA cash flow model is based on a total number of stoves anticipated to be installed under the PoA, which is 400,000 stoves. The small scale threshold limit for each CPA is calculated as 15,939 stoves and therefore 3RL anticipates approximately 25 CPAs to be included in the PoA. The following cash flow numbers, specific to this CPA, are therefore calculated as 1/25 of the total PoA cash flows:</p> <p>The analysis demonstrates that no revenues, other than the income from CERs, are required to generate a positive cash flow, and so no other revenues are attributable to the project.</p> <p>For a detailed cost breakdown see 'cashflow assumptions' sheet on business model v2 spreadsheet. A model illustration of costs was originally supplied and an actual cost analysis is now supplied, with updated materials and labour costs; all outlined in 'cashflow assumptions' sheet. The total stove cost is the same under both the model illustration and the actual cost analysis and therefore the cash flow analysis remains the same. All input values are supported with associated documentation.</p>		
Assessment	The supporting documents with respect to cash flow assumptions have been submitted. The cost analysis sheet as well as Business model spreadsheet is now revised which includes		

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	the actual costs of stoves, material and labour costs as well as transportation costs. Hence the issue is closed.		
Issue 5	Please include updated information on other similar initiatives of cook stoves in Zambia.	A.4.3.2	p 6
Response	Updated information has been provided in section A.4.3.		
Assessment	The updated information has been included. Please also provide web links/references in the PoA-DD wherever applicable.		
Response	This has been provided in section A.4.3: (http://cdm.unfccc.int/Projects/DB/TUEV-SUED1252930846.25/view)		
Assessment	Hence this issue is closed.		
Issue 6	The indicated procedure to avoid double counting seems to be inadequate with respect to the stoves being registered as a separate CDM project. Please elaborate how this aspect is addressed	A.4.4.3	p 6
Response	A check will be made on the existence of other registered CDM projects within the project boundary for each CPA. Furthermore, double counting is avoided by the unique GPS referencing of each stove and specific recipient data that is collected (name, address/location, and government ID number). See section A.4.4.1.		
Assessment	The aspect of double counting has been addressed in the PoA-DD. Hence the issue is closed.		
Issue 7	The information presented in the PoA-DD is not clear whether sampling would be done for CPAs or each CPA would be verified. Please elaborate on the selected approach.	A.4.4.6	p 6
Response	Sampling, for the purposes of emissions calculations, and verification will be conducted at the PoA level. See A.4.4.2.		
Assessment	Please provide necessary references for the sampling procedures. The EB guideline, source		

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	for the total population needs to be presented in the PoA-DD. The revised meth version also needs to be taken into account for further assessment.		
Response	The EB guideline for sampling is clearly referenced in section A.4.4.2 and the source of the total population used in the calculation of the sample size is clearly referenced in the sample size calculation in Annex 4. The new version of the methodology is not being applied.		
Assessment	Hence this issue is closed.		
Issue 8	Please include the positive/negative impacts of air pollution and the biodiversity aspect due to the activities under the PoA.	C.2.2	6
Response	An overview of these impacts has been included in section C.2.2.		
Assessment	The impacts have been summarized in the revised DD. Hence the issue is closed.		
Issue 9	Please justify the choice of conducting local stakeholder consultation at the CPA level.	D.1.2	6
Response	Stakeholder comments were invited at the PoA level to assess the appropriateness and acceptability of the proposed PoA design. The boundary of the PoA is Zambia and, as CPAs are not defined geographically (only numerically, by total numbers of stoves), it was important to consult stakeholders at the PoA level to ensure that the consultations were inclusive. See section D.		
Assessment	The stakeholder consultations were conducted initially at CPA level. However 3RL has decided to conduct the stakeholders meeting subsequently at PoA level. Please submit the minutes of regional stakeholder meetings and stove user trials in Katete District and National level stakeholder meetings of March 2011. Also the invitations sent to different stakeholders need to be submitted as well.		
Response	A series of documents related to all stakeholder engagement events are submitted.		
Assessment	Hence the issue is closed.		

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Issue 10	Please define the project boundary clearly in the PoA as per the applied methodology.	E.3.1	p 6
Response	The project boundary has been defined, as per the methodology, in section E.3.		
Assessment	The project boundary is still not clear on the physical, geographical site of the biomass efficient systems. Please explain clearly.		
Response	Section E.3: Under the proposed PoA, each CPA is within the country of Zambia and the physical, geographical site of each stove will be within a single household in Zambia which will be identified by a specific unique GPS referenced location.		
Assessment	Hence the issue is closed.		
Issue 11	Please include information regarding the prior CDM consideration	E.5.6	p 6
Response	A description of prior consideration of the CDM has been included in section A.4.3.		
Assessment	The PoA-DD has been revised. As the starting date is after the GSP therefore this issue is closed.		
Issue 12	It is not clear whether the barriers mentioned in the PoA-DD are in line with the Additionality tool. Please mention the different types of barriers clearly.	E.5.7	p 6
Response	The barrier analysis has been skipped in favour of an investment analysis which will be conducted at the CPA level. See section A.4.3		
Assessment	The barriers part has been removed in the revised PoA-DD. Hence the issue remains closed.		
Issue 13	Please include the methodological choices, provided in the approved baseline and monitoring methodology applied, selected for a typical SSC-CPA.	E.6.1.1	p
Response	Methodological choices are included in E.6.1. and those for emissions calculations are outlined in section E.6.2.		

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Assessment	The methodological choices are included in E.6.1 of the revised DD.		
Issue 14	Please include the latest statistics data available (e.g., Census data etc.).	E.6.1.2	p 72
Response	Latest statistics have been included, where possible. Only preliminary 2010 census data is currently available, the full 2010 census report will not be published until 2012. Therefore, detailed 2000 census data is included, as it remains the most current.		
Assessment	The census data presented in the PoA-DD is the 2000 data while the population taken for sample size calculation is the latest data. In this context, how the number of I households considered for the PoA is justified? Please present a consistent data for the total population. Also see the response for CAR25.		
Response	The population used in the calculation of the sample size is clearly referenced in the sample size calculation in Annex 4 and it originates from the 2000 census data. It is clearly referenced as the total household heads in Zambia. 2010 preliminary census data does not include data on household heads in Zambia, so 2000 census data is the most current. The most recent data has been used where possible.		
Assessment	Hence the issue is closed.		
Issue 15	Please clarify how coal briquettes are taken as the projected fossil fuel. The Justification provided in the PoA-DD is not conclusive for selection of the projected fossil fuel.	E.6.2.1	p 73,74
Response	As requested, a price comparison between kerosene and coal briquettes has been completed, supporting the original conclusions. This justification is outlined in Annex 3. Furthermore, the registered Lusaka Sustainable Energy CDM Project adopts coal briquettes as its fossil fuel baseline.		
Assessment	Justification has been provided in PoA-DD regarding the selection of coal briquettes as projected fossil fuel. The various options have been explained clearly with comparison of prices. Also one registered CDM project in Zambia used coal briquettes as fossil fuel baseline. Therefore the response could be accepted. Hence the issue remains closed.		

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Issue 16	Please mention all the default values taken for each parameter in section E.6.2 of the PoA-DD.	E.6.2.1	p 4
Response	All parameters have been listed and default values included.		
Assessment	Hence the issue remains closed.		
Issue 17	The Calculation of B_y is not as per the methodology in the PoA-DD. Please clarify and revise accordingly.	E.6.2.2	p 4
Response	The calculations have been changed according to methodology equations.		
Assessment	Please see the response to CAR27.		
Response	Please see the response to CAR27.		
Assessment	Please refer CAR 27		
Issue 18	Please correct the description of the parameter ' \bullet_{new} ' and also state the efficiency value consistently throughout the document.	E.6.3.2.5	p 4
Response	This has been corrected and all efficiency values updated.		
Assessment	The PoA-DD has been revised with the correct description of the parameter ' \bullet_{new} ' and also the efficiency value has been stated consistently throughout the document. Hence the issue is closed.		
Issue 19	It is to be noted that $f_{NRB,y}$ is a calculated value (based on number of appliances, average wood consumption per appliance and DRB) and is to be updated based on the woody biomass saved by the project activity in year y (monitoring period). Please revise accordingly. Please include the parameter DRB in the section E.6.3 of the PoA-DD and submit necessary supporting documents.	E.6.3.2.6	p 41
Response	The calculation of DRB is included in the baseline $f_{NRB,y}$ study, presented in Annex 3. The DRB parameter is also included in section E.6.3. $f_{NRB,y}$ is also included as an annually moni-		

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	tored parameter.		
Assessment	Please submit the reference documents used for DRB calculation. The same needs to be explained in the spreadsheet. Also see the response to CAR 27		
Response	Documents are clearly referenced in the DRB calculation section of the PoA-DD and these references have been included as comments in the calculation spreadsheet.		
Assessment	In the calculation of DRB, the complete reference documents also need to be submitted. Some of them have web links but others (Garzulia and Saket 2003, Forest resource assessment 2010, Chidumbayo 1990) are documents which present data for different years. Please submit the exact documentary evidences/link to check the input values used in calculation of DRB.		
Response	See attached 2 extracts from C4 Ecosolutions (Chidumayo.90.FEM.biomass.. & Williams.ea.08) and also NRB report which has been revised to maintain reference completeness and now replaces the version that you were using previously.		
Assessment	<ol style="list-style-type: none"> 1. In the PoA-DD, for DRB calculation, it is not clear on which of the two conditions selected as per methodology. Please elaborate further. 2. Whether the calculation approach shown in DRB calculation to determine DRB is in line with the methodology? Please include a line of justification on the methodology compatibility. 3. The source documents referred throughout the NRB calculation are from 1989 to 2010. Please check the relevance of particular period of data to the PoA, while providing the source documents. <p><u>Issues from the revised NRB report</u></p> <ol style="list-style-type: none"> 1. The references 6 and 7 still could not be accessed. Please submit us the reference documents which can be accessible to audit team. 2. The data as per GFRA 2010 Country report Zambia shows the Growing stock as 2755.38 million cubic metres (2010) and 2801.78 million cubic metres (2005). Why this data has not been considered in the DRB calculation sheet? Zambia Forestry dept 2009, ILUA data is available as per the GFRA report. This could be referred for calculation of DRB. 3. For the density value, the source document does not refer to the range of values taken 		

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	<p>for density. The values given in GFRA 2010 report are not considered here. Please provide the exact source document that is referred here in calculation of density.</p> <p>4. In the calculation of annual growth rate, the source document does not mention 2.1% anywhere. Please provide the exact source. This value of 3.68% higher growth rate taken from the source document is for Mozambique and not Zambia. How this value is justified in the calculation of DRB for Zambian project?</p>		
Response	<p>Please see the updated fNRB report in Annex 3 of the PoA-DD.</p> <ol style="list-style-type: none"> 1. The DRB condition 1 is selected. 2. DRB is calculated as the annual growth of DRB stocks in Zambia. Initially, total DRB stocks must be estimated (from government data) and then the annual DRB growth stocks derived from this data. This will determine the share of DRB in By, as per the methodology. 3. There is no source data from 1989. There was a 1990 source, but this has now been replaced by one from 2009 (footnote 15) <p><u>Issues from the revised NRB report</u></p> <ol style="list-style-type: none"> 1. The 2003 FAO reference (number 6) has now been replaced by the GFRA 2010 data and the data annex of the 2007 State of the World's Forests is submitted 2. GFRA 2010 Zambia growing stock data has now been included in the calculation of DRB 3. Zambia has several woodland types, with miombo the most prominent. Wood densities of a wide range of Zambian species were used to determine a range from light to heavy densities. A typical Zambian species with light wood is <i>Sterculia acuminata</i> (bitter cola; density 0.25 to 0.6 t/m³)^[13]. A typical Zambian species with hard wood is <i>Diospyros mespiliformis</i> (a variety of ebony found in Zambia; density 0.77 to 0.85 t/m³)^[13]. The extremities of this range consequently cover most Zambian woodland species. The appropriateness of the range is further confirmed by observing the wood density of a wide range of <i>Brachystegia</i> spp. which are characteristic species found in miombo woodlands i.e. the pre-dominate woodland type in Zambia. An intermediate value in the range (0.55 t/m³) was deemed as an appropriate average in terms of a best estimate. This is confirmed by the FAO value of 0.56 t/m³^[15]. See table below: <p>Wood density (FAO, 2003)</p> 		

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	Tropical Region	Mean	Common-range		
	Africa	0.56	0.50-0.79		
	America	0.6	0.50-0.69		
	Asia	0.57	0.40-0.69		
	Woody density for a wide range of species therefore has been documented as ranging from 0.25-0.85 t m ⁻³ . We chose an intermediate value of 0.55 t m ⁻³ to use as an average wood density in Zambia. 4. The Mozambique growth rate has been removed as it was not applicable. New references have been included to support the growth rate and a sheet included in the NRB calculation sheet.				
Assessment	The DRB calculation method has been clarified as per the methodology and the same is updated in the revised PoA-DD. The data source has now been taken from 2009. From the NRB report, the GFRA 2010 is now taken in place of 2003 FAO. The 2007 Annex is also submitted. The values for the density also has been revised and the 2003 FAO reference has been clarified for the density value considered, which is an intermediate value of 0.55 t m ⁻³ in Zambia. The growth rate with respect to Mozambique has been removed as its not relevant to the PoA and the actual values have been stated in the report. Hence the issue is closed.				
Issue 20	The parameter ‘Number of appliances’ N _y should be included under the monitoring parameters.			E.7.1.2	p 6
Response	This has been included as a monitored parameter (<i>NS</i>) in section E.7.1.				
Assessment	Hence the issue remains closed.				
Issue 21	Please elaborate the QA/QC procedures for the annual check of efficiency of the stoves being deployed. Please justify the monitoring of 3 stoves per each monitoring period. How			E.7.1.3	p

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	does this ensure a representative sample?		6
Response	A representative sample (90/10 precision) of stoves shall be checked for their efficiency annually. This parameter is presented in section E.7.1.		
Assessment	The parameter 'efficiency of stove by vintage' has been included and the sampling procedure has been explained. However, the revised meth version also needs to be taken into account for further assessment.		
Response	The new version of the methodology is not being applied		
Assessment	Hence the issue is closed		
Issue 22	Please explain the Random sampling method clearly and provide detailed spreadsheet for the same.	E.7.1.3	6
Response	The sampling method chosen is a geographical, multi-stage cluster sampling approach, as outlined in section E.7.2. The sample size has been calculated at 90/10 accuracy for the SG & SESG and 90/30 for the LESG and provided in a spreadsheet. The full description of how the sample is calculated is presented in Annex 3.		
Assessment	The sampling procedure has been explained in Annex 3 which is in line with EB 50 guidelines. However, the revised meth version also needs to be taken into account for further assessment.		
Response	The new version of the methodology is not being applied		
Assessment	Hence the issue is closed		
Issue 23	Monitoring should include the data on the amount of biomass saved under the project activity that is used by non-project households/users (who previously used renewable energy sources). Please include the parameter accordingly.	E.7.1.4	6
Response	This parameter has been included in monitoring as a potential source of leakage (L_y).		
Assessment	The parameter L_y has been included. Hence the issue remains closed.		

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Issue 24	Please include information as to how it is ensured that the replaced low efficiency appliances are disposed off and not used within the boundary (or within the region); or if the baseline stoves usage continues then the wood fuel consumption of those stoves need to be monitored.	E.7.1.5	6
Response	Baseline usage of 3 rock fires will be monitored ($B_{y,i}$) and any residual usage of wood will be deducted from B_y		
Assessment	The parameter $B_{y,i}$ has been included and the usage of wood would be deducted from B_y . The information is presented as an ex post monitoring parameter. Hence the issue remains closed.		
Issue 25	The sample size of 68 needs to be justified with respect to the sampling procedures.	E.7.2.1	71
Response	This sample size has been justified in accordance with the sampling procedures in section E.7.2. and details on its calculation outlined in Annex 4.		
Assessment	The data on population needs to be clarified. The total population as per fNRB cal sheet is 13046058 where as in the sample size calculation, it is 1884741. Please clarify this inconsistency in the data. The revised meth version also needs to be taken into account for further assessment.		
Response	The total population as per fNRB calculation sheet is 13,046,058, which is the total population of Zambia, originating from 2010 census data and therefore the most current. The population in the sample size calculation is 1,884,741, which is the total household heads in Zambia, originating from the 2000 census data. As 2010 census data is only preliminary, it does not contain household heads data. Therefore 2000 data remains the most current in this respect. All data is clearly referenced in the PoA-DD and the calculation spreadsheets. It is worth noting that, in calculating at 90/10 precision and where numbers are larger than c.10,000, the total population does not have an impact on the sample size. The new version of the methodology is not being applied.		
Assessment	Hence the issue is closed		

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Issue 26	How the sample size of 68 is in line with EB 50 annex 30? The DEFF sampling size of 120 is not clear in the excel sheets as they show a sample of 108 in the excel spreadsheet "DEFF"	E.7.2.1	78, 80 p
Response	<p>1. The calculated sample size of 68 (in the 'sample size calculation sheet') simply demonstrates the sample size required for a simple random sample, with 90/10 precision/accuracy, using the same population. It therefore shows the extent to which we have oversampled to deliver the increased accuracy required in the geographical cluster sampling approach.</p> <p>2. The DEFF spreadsheets clearly show that the outliers are removed from the original sample of 120. Removing the top and bottom 5% in the data gives a revised sample of 108 against which we make our calculations. We are being more conservative in this approach.</p>		
Assessment	The minimum sample size of the stoves to be taken is 68 is found to be accurate for a simple random sampling as per methodology requirements with the precision and accuracy. In order to get a higher degree of accuracy, the geographical cluster sampling was selected by the PP and accordingly the sample size was enhanced to 120, which delivers greater precision and demonstrates a significant degree of oversampling, as recommended by the guidance provided in p.28 of EB50 Annex 30. The calculation sheets of wet and dry season fuel data with Design Effect calculations were checked by the audit team. The letter provided by the independent third party consultants C4 Eco solutions also confirms the accuracy of the sampling. Hence the issue is closed.		
Issue 27	Please use the dd/mm/yyyy format in the PoA DD.	E.8.1.2	p 6
Response	This has been altered to the correct format.		
Assessment	The PoA-DD has been revised as per the requested format thus this issue is closed.		

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Issue 28	Calculation of By with reference to foot note 16 and 19 in the PoA-DD needs to be clarified and spreadsheets need to be submitted.	F.3.1	41 p
Response	A spreadsheet has been provided detailing the calculation of By, with respect to the $f_{NRB,y}$ calculation.		
Assessment	<ol style="list-style-type: none"> 1. The total population as per fNRB cal sheet is 13046058 where as in the sample size calculation, it is 1884741. Please clarify this inconsistency in the data. 2. Please submit the Zambia forestry data of 1999 for firewood consumption per capita per year in the calculation sheet 3. The value of By shown in the calculation sheet is different to that used in the PoA-DD. 4. In the determination of By, it is mentioned in PoA-DD that option b of methodology has been used where as in actual, option a is used. Clarify the inconsistency. 		
Response	<ol style="list-style-type: none"> 1. The total population as per fNRB calculation sheet is 13,046,058, which is the total population of Zambia, originating from 2010 census data and therefore the most current. The population in the sample size calculation is 1,884,741, which is the total household heads in Zambia, originating from the 2000 census data. As 2010 census data is only preliminary, it does not contain household heads data. Therefore 2000 data remains the most current in this respect. All data is clearly referenced in the PoA-DD and the calculation spreadsheets. It is worth noting that, in calculating at 90/10 precision and where numbers are larger than c.10,000, the total population does not have an impact on the sample size. 2. Zambia forestry data of 1999 for firewood consumption per capita per year is included in the fNRB calculation sheet and reference included 3. The value of By shown in the fNRB calculation sheet is calculated according to "nationally approved methods" using "government data, if available". This is in accordance with the methodology and delivers an accurate fNRB figure for the country of Zambia. By is determined for ex-ante emissions reductions calculations by a "survey of local usage". This is also in accordance with the methodology, as it delivers a more conservative figure in the calculation of emissions reductions. According to the 		

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	<p>submitted Woodfuel Survey Plan, we demonstrate the conservativeness of this approach by calculating a By for emissions reductions purposes at 5.38 tonnes from published data. The subsequent survey, however, calculated a By of 4.1 tonnes.</p> <p>4. This has been corrected to Option A</p>		
Assessment	<p>2. As per p.7 of meth- <i>Project participants shall determine the share of renewable and non-renewable woody biomass in By (the quantity of woody biomass used in the absence of the project activity) using nationally approved methods (e.g., surveys or government data if available) and determine fNRB,y . where as in the PoA DD - By is determined based on both Survey data (exante) and National data (calculation of fNRB). Please justify this criteria which is slightly different from the methodology.</i></p> <p>3. For firewood and charcoal consumption data, the FAO data of 1999 has been given as reference. How can we ensure that this would be the latest data available for forestry. Please demonstrate or submit the latest data if available.</p>		
Response	<p>According to the methodology, we are calculating By separately for the Ex-ante emissions calculations and the fNRB,y calculation. For baseline emissions reductions calculations, the methodology states:</p> <p><i>Calculated as the product of the number of appliances multiplied by the estimate of average annual consumption of woody biomass per appliance (tonnes/year). This can be derived from historical data or a survey of local usage</i></p> <p>As the PoA intends to replace traditional biomass 3-rock fires only, we have therefore conducted surveys to measure the amount of woody biomass used per traditional 3 stone fire (i.e. per appliance) that will be replaced, giving a figure of 4.1 tonnes. This does not include charcoal appliances, or any other form of biomass consumption in Zambia. This is entirely in accordance with the methodology and is a very conservative approach. The figure you highlight in the fNRB spreadsheet represents the alternative By for ex-ante emissions calculations, when derived from historical data: 7.1 tonnes.</p> <p>For the fNRB calculation the methodology states:</p> <p>Project participants shall determine the share of renewable and non-renewable woody biomass in By (the quantity of woody biomass used in the absence of the project activity) using nationally approved methods (e.g., surveys or government data if available) and determine fNRB,y</p>		

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	As the project boundary is Zambia, we have taken nationally approved government data to calculate <i>By</i> for the entire country. Sources of biomass are not partitioned in Zambia according to their usage and it is therefore appropriate to assess how biomass is utilized holistically within the project boundary to determine the fraction of biomass that is non-renewable. FAO data from 1999 is the latest data we have been able to access. We have not found a source of data more recent for firewood and charcoal consumption that is reliable.		
Assessment	Zambia Forestry Department 2009 data exists as per "Global FRA 2010- Country Report Zambia". The reference year taken is 2007. Hence this could be the latest data, which can be used for calculations. Please consider the same accordingly for revision. If not, please explain the reason of non consideration.		
Response	Data from the report "Global FRA 2010- Country Report Zambia" has been utilized where possible (see fNRB study and PDD section E.2). This issue was initially raised in reference to data for "firewood and charcoal consumption" and 1999 data remains the most recent, as the GFRA 2010 Zambia report contains no data related to this.		
Assessment	The reason for not considering the 2010 data is the lack of data on firewood and charcoal consumption. Hence the latest available data is used. Hence the issue is closed.		
Issue 29	How it the prior consideration of CDM clearly demonstrated. Please mention the relevant EB guidance clearly.		p
Response	It may be demonstrated that the CDM was considered prior to the PoA's start date as, in accordance with EB 44, Annex 3, paragraph 99, the Global Stakeholder Consultation was undertaken prior to the starting date of the PoA. The starting date of the proposed PoA is 22/12/2010, which is the starting date of the first CDM programme activity. The initial PDDs were submitted to the UNFCCC's Global Stakeholder Process on 24/11/2010. In this way, the starting date of the programme activity is after the starting date of validation, giving clear evidence proving that incentive from the CDM was seriously considered in the decision to proceed with the programme activity.		
Assessment	The starting date of the PoA is 22 nd December 2010 based on the date of commitment of expenditures related to PoA. This has been checked based on the Purchase Order for the		

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	supply of Stoves [10]. The Start Date is in line with the Glossary of CDM Terms. The start date of the PoA is after the start of the Global Stakeholder Process (24th November 2010) which clearly shows that the PP has considered CDM in the decision to proceed with the programme of activity [IRL # 2, 10, 11]. This is in line with paragraphs 97(a) and 98 of VVM.		
Issue 30	The sub-step 4b of the additionality tool has not been addressed. Please include this and provide supporting evidences.		p
Response	<p>Sub-step 4a: Discuss any similar Options that are occurring:</p> <p>Taking each project individually:</p> <ol style="list-style-type: none"> 1. Probec: This initiative focussed on disseminating charcoal burning stoves to households¹, not wood burning stoves, which is a key distinction from the proposed PoA. It also incorporates institutional stoves and tobacco barns. GTZ funding for Probec ended in December 2010², demonstrating that it has been incapable of delivering sustainability in its funding and activities. It is understood that the initiative has been passed over to the private sector for carbon market development³, but to date there is no physical evidence that a CDM project is being developed in Zambia. 2. LSEP: This is a fuel-switching project using a separate methodology from the proposed PoA⁴. This project, although involving the dissemination of fuel efficient cooking stoves, operates on a smaller scale than the proposed PoA, focusing on the urban charcoal market and has a clear economic incentive for participants (i.e. sale of stoves to customers who purchase fuel). <p>The proposed PoA is larger in scale than both these initiatives, focuses solely on replacing wood-fired appliances for a more efficient version and has only one revenue stream; the sale of CERs.</p>		

¹ <http://www.probec.org/displaysection.php?czacc=&zSelectedSectionID=sec1194685541>

² <http://www.probec.org/displaysection.php?czacc=&zSelectedSectionID=sec1192753796&zSelectedAssetID=ast1291890483>

³ <http://www.islan.ch/srcf.aspx>

⁴ http://cdm.unfccc.int/filestorage/B/M/N/BMNTH5J4Y6XW1U3ORADFK7EC8Z02PS/PDD.pdf?t=TWb8MTMxMDM5MDMzNy40Nw==|z7ZeQrgRfyr_t2Krc4d5TNVLR4=

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Assessment	The sub step 4b has been described in the PoA-DD. Hence the issue is closed.		
Issue 31	Please include the extent of GPS coordinates of the country Zambia		p
Response	The Republic of Zambia, lies within the latitude and longitude of 15 00 S and 30 00 E		
Assessment	Hence the issue is closed.		
Issue 32	Please provide justification that there is no public funding involved in the PoA and the kind of evidences submitted		p
Response	Justification has been provided in the 3RL board minute dated 12 th July 2011 confirming that no public funding is involved in the PoA.		
Assessment	Hence the issue is closed.		
Issue 33	How the sampling size is estimated considering the total number of Zambian households instead of the number of stoves installed.		p
Response	In order to simplify the monitoring plan in the PoA-DD, and for the avoidance of any doubt, the population of each monitoring survey will be drawn from the monitoring database and consist of the total number of installed stoves which are in operation during the relevant monitoring period.		
Assessment	A simple random sample will be employed where appropriate to monitor each parameter ex-post, as required by the methodology. This simple random sample will be calculated during every monitoring period and the total number of stoves installed and operating during the monitoring period would be taken for sampling. The sample will be estimated from the PoA stove population and not derived from each CPA. Hence the issue is closed.		

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Clarification Requests

CR	Comments and Results	Ref	Conclusion and IRL
Issue 1	<p>Please clarify on the following points:</p> <ul style="list-style-type: none"> a) Whether the CPAs would be defined based on geographical areas or the number of stoves? b) Is the design developed by 3RL? c) Is the word Company used in context of 3RL? d) Whether it is relative thermal efficiency testing of the stove? e) Definition of rural in context of the PoA. 	A.2.1	p 6,28
Response	<ul style="list-style-type: none"> a) CPAs will be defined by the total number of stoves to a maximum combined output of 180GWh b) The stove design has been commissioned by 3RL, but developed by an independent designer and manufacturer c) The word Company has been removed d) The testing of the stove is for the absolute thermal efficiency of the appliance, not relative to another appliance. The <i>Stove Manufacturers Emissions & Performance Test Protocol (EPTP)</i> is utilized. e) The descriptor "rural" is no longer utilized in the context of the PoA 		
Assessment	<ul style="list-style-type: none"> a) The response should also refer to the SSC-WG clarification on the threshold limit and the same needs to be included in PoA-DD as well. b) The project description is still not clear on the designer and manufacturer of the stoves. It needs to be clearly mentioned in the PoA-DD section A.2. 		
Response	<ul style="list-style-type: none"> a) The PoA-DD has been amended to refer clearly to the SSC WG clarification on the threshold limit, which is also now referred to here, and referenced as follows: http://cdm.unfccc.int/UserManagement/FileStorage/AM_CLAR_VIIC5MTUUWR9PR_PJL0EXOT3G2CKSFQ b) The designer and manufacturer is clearly identified in supporting documents as Envi-rofit Ltd (Envirofit MoA and Envirofit PO). There is no requirement to provide these 		

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	details in the PDD.		
Assessment	Hence the issue is closed		
Issue 2	Please submit documents for the following: a) clarifying the distribution methodology of cooking stoves; b) Financial model to demonstrate that the PoA is not part of any government funded supportive programme In Zambia; and c) Data management system.	A.2.1	p 21
Response	a) Annex 4 contains the installation process for the stoves and an initial operational plan is submitted b) The financial model of the PoA is submitted c) The data management system will be available for review at the verification stage		
Assessment	a) Please submit documentary evidences for the information presented in Annex 4 re- garding distribution. b) Hence the issue is open.		
Response	The Operational Plan and Dunavant MoU were submitted previously as documentary evidence of the distribution process.		
Assessment	Hence the issue is closed		
Issue 3	Please provide the Host Country Approval letter for the PoA.	A.3.2	p 20
Response	Submitted.		
Assessment	Hence the issue is closed		
Issue 4	Please clarify whether the PoA is to be implemented over entire Zambia or just rural? Please maintain this consistent throughout the PoA-DD.	A.4.1.1	p

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Response	The PoA is to be implemented over entire Zambia. This is consistent throughout the PoA-DD		
Assessment	The PoA is to be implemented over entire Zambia and it is consistent in there revised PoA-DD.		
Issue 5	Please clarify on the following: a) Significance of the stated number 14799; and b) How individual household are receiving stoves.	A.4.2.1	p
Response	a) The number of stoves has now been clarified and changed to 180GWh total maximum stove output per CPA, which is the methodological limit. b) This is clarified in 'Installation Process' diagram; Annex 4, and the Initial Operational Plan		
Assessment	The number of stoves has been taken as per the clarification provided by the SSC-WG on threshold limit. The maximum thermal energy output of 180 GWh is taken as the limit. The installation process has been described in the revised PoA-DD.		
Issue 6	Please clarify which stove model is being implemented. The PoA-DD and the Memorandum of Agreement (between 3RL and Envirofit) refers to G3300 whereas the purchase order indicates Z3000.	A.4.2.5	p 22
Response	The stove model is Z-3000, which is consistent through the PoA-DD.		
Assessment	The Memorandum of Agreement (between 3RL and Envirofit) refers to G3300 model of stove. Please clarify.		
Response	The Envirofit MoA clearly states: "3 Rocks wishes to purchase a modified version of the Envirofit model G-3300". The MoA was signed prior to the development of the Z-3000 and is therefore consistent.		
Assessment	Hence the issue is closed		

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Issue 7	Please clarify the possibility of replacement of the cooking stoves under the PoA by other or more efficient technologies within the project period.	A.4.2.7	p 6
Response	The replacement of the fuel efficient stoves for a more efficient version will only be possible if the crediting period of the PoA is renewed at the end of the existing crediting period. See section A.4.2.1.		
Assessment	The PP needs to clarify whether the crediting period would be renewed at the end of existing period.		
Response	The renewal of the crediting period of the PoA will depend on a commercial decision by 3RL, based on the conditions prevalent at that time. It is not a requirement to state in the PoA-DD that this will or will not take place.		
Assessment	Hence the issue is closed		
Issue 8	Whether any initial training for stove implementation and maintenance has been provided by 3RL? Please submit the training manual, if available.	A.4.2.8	p 6
Response	Training will take place for stove installers and stoves will be built according to the manufacturer's installation design (submitted).		
Assessment	Needs to be checked.		
Response	Training events will be documented and this may be checked during the verification stage, as stove builder training will take place subsequent to validation		
Assessment	Hence the issue is closed		
Issue 9	Please submit the organizational chart of 3RL.	A.4.4.1	p 46
Response	An organizational chart has been included in Annex 4.		
Assessment	Hence the issue remains closed.		

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Issue 10	Please clarify how it is ensured that stove manufacturer (e.g. Envirofit) would not claim for any carbon credits for the stoves implemented under the CPAs.	A.4.4.5	p
Response	The stove manufacturer does not have rights to any CERs, unless contractually provided. Under the contract (Envirofit MoA – submitted), there are no rights to the CERs given to the manufacturer.		
Assessment	The same is not explicitly mentioned in the Envirofit MoA.		
Response	A legal opinion has been sought by 3RL and this is submitted. The manufacturer has no rights to ownership of the CERs.		
Assessment	Hence the issue is closed		
Issue 11	Please clarify the basis of the indicated start date of the PoA. The MoA with Envirofit is dated 2 nd December 2010 and subsequently the purchase order for stoves from Envirofit is signed on 23 rd December 2010.	B.1.1	p 10
Response	The starting date of the proposed PoA is 22/12/2010, which is the date of commencement of ‘real action’ in the PoA. This date has been selected as it is the date when the first stoves were ordered under the PoA. It is not earlier than the commencement of validation of the programme of activities, i.e. the date on which the PoA-DD is first published for global stakeholder consultation, which was 24/11/2010. Clarified in section B.1.		
Assessment	The date of the purchase order for stoves is 22 nd December 2010 where as the PO is signed on 23 rd December 2010. The PO date has been considered as the start date of the PoA which is acceptable. Hence the issue remains closed.		
Issue 12	Please clarify the basis of the indicated length of the PoA as 28 years.	B.2.1	p 6
Response	The length of the PoA is initially limited to a 7 year crediting period. This may be renewed up to 3 times. This length has been selected for the PoA as it is consistent with the minimum projected		

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	operating lifetime of the stove, as indicated by the stove designer and manufacturer (see <i>Manufacturer stove life letter - submitted</i>). The actual lifetime may be considerably longer, allowing for the PoA to be potentially extended beyond 7 years. Clarified in section B.2.		
Assessment	The length of the PoA is now indicated as 7 years which is the length of the initial crediting period. The manufacturer also confirms the lifetime of the stoves could be beyond 7 years. Hence the operational lifetime of the stoves is consistent with the length of PoA. Hence the issue remains closed.		
Issue 13	The letter from Environmental Council of Zambia is dated 28 Oct 2009 where as in the PoA-DD it mentions as a different date. Please clarify and revise accordingly.	C.2.4	p 73
Response	The date has been clarified on the letter (16/03/2011) and altered in the PoA-DD, section C.		
Assessment	Is this a new letter issued by the Environmental Council of Zambia? The earlier letter is dated 28 October 2009.		
Response	The substance of the letter is the same. The date has been corrected, now giving the date the letter was re-issued (16/03/2011), instead of the original date of issue (28/10/2010).		
Assessment	Hence the issue is closed		
Issue 14	Another registered stove project (Lusaka Project) has been discussed. Although the Lusaka project applies AMS.I.E and is related to charcoal based stoves, nevertheless, as it is understood that a part of the charcoal is being produced from non-renewable biomass, therefore further justification needs to be provided	E.2.3	p 51
Response	A specific study of the maximum impact of the Lusaka project has been included in the baseline <i>fNRB,y</i> study; see Annex 3. This parameter will be monitored annually and the on-going impact of the Lusaka project assessed.		
Assessment	Hence the issue is closed		
	.		

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Issue 15	Please provide valid references/evidences with source to support the annual deforestation rate, rate of forest change and forest cover in Zambia since 1989.	E.2.4	p 39
Response	The reference is from the Food and Agriculture Organization of the United Nations' Global Forest Resources Assessment (FRA) Country Report of Zambia and the mongabay.com resource site. See section E.2.		
Assessment	The references have been provided for the annual deforestation rate and forest cover. Hence the issue remains closed.		
Issue 16	Please clarify which steps and options of the additionality tool would be followed for CPA additionality assessment.	E.5.2	p 6
Response	The steps and options taken for demonstrating additionality have been clarified in section A.4.3.; including the CPA demonstration of additionality that will include an investment analysis and not a barrier analysis.		
Assessment	The steps and options taken for demonstrating additionality have been clarified in section A.4.3. Hence the issue remains closed.		
Issue 17	Please submit the detailed spreadsheet of the emission reduction calculations.	E.6.2.1	p 6
Response	Submitted		
Assessment	The emission reduction calculation spreadsheet has been submitted.		
Issue 18	Please submit the baseline survey report. Also clarify whether the baseline survey accounts for the seasonal variations in biomass consumption.	E.6.3.2.1	p 16
Response	Submitted. The baseline survey accounts for seasonal variations in wood fuel usage by including survey data taken in both the rainy and dry seasons in Zambia. The survey is conservative, as it shows a clear discount from the published data available.		

Validation Protocol CDM-PoA-DD

PoA Title: Fuel Efficient Stoves in Zambia

Date of Completion: 26-12-2011



Industrie Service

Assessment	1. Please submit the structured checklists (guided questionnaires) that were used for the baseline surveys 2. Please submit the wood fuel consumption charts in survey areas.		
Response	1. The document "Woodfuel Survey Plan v2" of June 2010 is submitted, which includes the structured questionnaires used in the surveys 2. The data is submitted in 2 spreadsheets: "Wet Season Woodfuel Data" and "Dry Season Woodfuel Data"		
Assessment	Hence the issue is closed		
Issue 19	Please submit the monitoring chart of 3RL in the PoA..	E.7.2.2	p 46
Response	A Monitoring Process and Monitoring Structure have been included; see Annex 4		
Assessment	Hence the issue remains closed.		
Issue 20	Provide all the documents that are used to calculate the baseline. The relevant information needs to be added in section A.4.3 and E.5 of PoA-DD as well.	F.3.1	p 41
Response	The following documents are submitted: 1. fNRB report and spreadsheet calculations 2. Consolidated baseline wood survey report 3. Z-3000 thermal efficiency certificate and calculation 4. Emissions factor of the projected fossil fuel assessment (in Annex 3)		
Assessment	Please see response to Issue 21.		
Response	Please see response to Issue 21.		
Assessment	Hence the issue is closed		
Issue 21	Please submit the calculation sheets of NRB, DRB	F.3.1	p

Validation Protocol CDM-PoA-DD

PoA Title: Fuel Efficient Stoves in Zambia

Date of Completion: 26-12-2011



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Response	Submitted – fNRB calculation sheet		41
Assessment	<ol style="list-style-type: none"> 1. The total population as per fNRB cal sheet is 13046058 where as in the sample size calculation, it is 1884741. Please clarify this inconsistency in the data. 2. Please submit the Zambia forestry data of 1999 for firewood consumption/percapita/year in the calculation sheet 3. The value of By shown in the calculation sheet is different to that used in the PoA-DD. 4. In the determination of By, it is mentioned in PoA-DD that option b of methodology has been used where as in actual, option a is used. Clarify the inconsistency. 5. Please submit the reference documents used for DRB calculation. The same needs to be explained in the spreadsheet. 		
Response	This CR is a duplication of CARs 19 & 27. Please see responses to CARs 19 & 27		
Assessment	Hence the issue is closed.		
Issue 22	<p>Please clarify why these were not considered as start date for PoA.</p> <ol style="list-style-type: none"> 1. MoA between 3RL and Dunavant, Zambia (24th Nov 2010) 2. MoA between 3RL and African Carbon Credit Exchange Ltd (19th October 2010) 	F.3.1	p 21, 22
Response	The start date is defined as the “earliest date at which either the implementation or construction or real action of a project activity begins”. As the two documents mentioned are Memorandums of Agreement, they do not represent implementation, construction or real action in the PoA. The 1 st order of stoves signifies the first ‘real action’ in the PoA.		
Assessment	The start date of the PoA was taken as per CDM Glossary of terms and is in line with VVM. Hence the issue is closed.		

Validation Protocol CDM-PoA-DD

PoA Title: Fuel Efficient Stoves in Zambia

Date of Completion: 26-12-2011




Industrie Service

Table 3 Unresolved Corrective Action and Clarification Requests (in case of denials)

Clarifications and / or corrective action requests by validation team	Id. of CAR/CR	Explanation of Conclusion for Denial
-	-	-




Annex 2: Information Reference List


Final Report 26-12-2011	Information Reference List PoA Title: Fuel Efficient Stoves in Zambia	Page 1 of 7	 Industrie Service
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Reference No.	Document or Type of Information	Date of document
1	<p>On-site interviews and inspections of the project site of the "Fuel Efficient Stoves in Zambia" by TUV SÜD validation team, Conducted on February 7-11, 2011.</p> <p><u>Validation team on site :</u></p> <p>Sandeep Kanda¹ TUV SUD Industrie Service GmBH Eswar Murty TUV SUD South Asia</p> <p><u>Interviewed persons :</u></p> <p>Nick Marshall 3 Rocks Ltd Karin Sosis 3 Rocks Ltd Steve Scott 3 Rocks Ltd Prof. Chingambo 3 Rocks Ltd Prof. Yamba CEEEZ Alex Hanyuma CEEEZ Lulian zulu CEEEZ</p>	
2	PoA-DD for GSP http://cdm.unfccc.int/filestorage/M/C/U/MCUG56RLBVY20THX3DKF8S1QOA9NPZ/PoA%20DD.pdf?t=STJ8MTMwODU0NzU5OC45Ng== Ya4Eu0kz5nM2vMbEz-3bMcEE-8k=	
3	UNFCCC homepage for the PoA http://cdm.unfccc.int/ProgrammeOfActivities/Validation/DB/KJVJROEXMWH1PNCXAFMAE2EJNCJQVC/view.html	-----
4	Approved small scale baseline and monitoring methodology AMS II G, Version.02	
5	SSC WG clarification on AMS II.G http://cdm.unfccc.int/UserManagement/FileStorage/AM_CLAR_VIIC5MTUUWR9PRPJL0EXOT3G2CKSFQ	04.11.2008


¹ Left the Organization

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Reference No.	Document or Type of Information	Date of document
6	Final PoA-DD version 6	08.12.2011
7	Zambia National Policy on Environment	2007
8	Zambia National Policy on Energy	May 2008
9	Memorandum of Agreement between 3RL and Envirofit for fuel efficient stoves	02.12.2010
10	Purchase order for supply of stoves	23.12.2010
11	Minutes of Board meeting of 3RL	22.12.2010
12	3RL Jersey Articles of Association	18.10.2010
13	3RL incorporation certificates	10.01.2011
14	3RL Articles of Amendment	24.11.2010
15	3RL Business Model	Feb 2011
16	Emission Reductions Acknowledgement with stove receipts-legal document format	Feb 2011
17	3RL legal title to CERs document	Feb 2011
18	NOC from Ministry of Environment and natural resources management	23.08.2010
19	Modalities of Communication form	Feb 2011
20	Letter of Approval (LoA) from Zambia DNA	15.04.2011
21	Memorandum of Understanding between 3RL and Dunavant, Zambia	24.11.2010
22	Memorandum of Agreement between 3RL and African Carbon credit exchange	19.10.2010
23	Stove Manufacturers Emissions & Performance Test Protocol (EPTP)	2009
24	Colorado University- Method of determining stove thermal efficiency	--

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Reference No.	Document or Type of Information	Date of document
25	Central Statistics office Zambia- Census data http://www.zamstats.gov.zm/census.php	2000
26	Zambia Central Statics office-Living conditions Monitoring Survey report	2004
27	Envirofit letter on Stove lifetime	03.03.2011
28	Stove efficiency certificate	11.11.2010
29	Spreadsheet for sample size calculation	May 2011
30	Spreadsheet for f_{NRB} calculation	May 2011
31	Spreadsheet for emission reduction calculation	May 2011
32	Spreadsheet for wet season and dry season wood fuel data calculation	June 2010
33	Woodfuel Survey plan	June 2010
34	Investment analysis calculation spreadsheet	June 2010
35	Stakeholder meeting Agenda	16.10.2010
36	Stakeholder meeting invitation letters	05.10.2010
37	Stakeholder meeting feedback forms	16.10.2010
38	Stakeholder meeting minutes and report	16.10.2010
39	Global FRA Zambia report	2010
40	Consolidated Baseline Wood Survey Report by CEE	March 2011
41	NRB calculation report by C4 Eco Solutions	June 2010
42	State of World forest Annex	2007

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Reference No.	Document or Type of Information	Date of document
43	FAO Wood volume and Woody Biomass report	2003
44	3RL transport contract	01.04.2011
45	3RL Stove installation contract	01.04.2011
46	3RL Organization chart	February 2011
47	World Health Organization: Indoor air pollution http://www.who.int/indoorair/en/	Last accessed on 20 th June 2011
48	Flash floods report: http://www.meted.ucar.edu/hazwarnsys/ffewsrq/FF_EWS.Chap.2.pdf	Last accessed on 20 th June 2011
49	Ministry of Finance and National Planning: http://www.afrepren.org/adb_finesse/Task%203/Background%20Material/Background%20Material%20-%20Background%20to%20Africa%20Energy%20Sector.pdf	2002
50	Energy, Environment and Development Network for Africa http://www.afrepren.org/adb_finesse/Presentations/Module%204%20-%20Traditional%20and%20Improved%20Biomass%20Part%201.ppt	2006
51	CIA World Factbook https://www.cia.gov/library/publications/the-world-factbook/geos/za.html	Last accessed on 20 th June 2011
52	IFAD http://www.ruralpovertyportal.org/web/guest/country/home/tags/zambia	Last accessed on 20 th June 2011
53	CDM Lusaka Sustainable Energy Project (LSEP) http://cdm.unfccc.int/Projects/DB/TUEV-SUED1252930846.25/view	Last accessed on 20 th June 2011

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Reference No.	Document or Type of Information	Date of document
54	Biodiversity, Deforestation And Habitats http://www.illegal-logging.info/approach.php?a_id=54	Last accessed on 20 th June 2011
55	Zambia Forest information http://rainforests.mongabay.com/deforestation/2000/Zambia.htm	Last accessed on 20 th June 2011
56	FAO: Woodfuel review and assessment in Zambia http://www.fao.org/docrep/004/X6802E/X6802E00.htm#TOC	1988
57	E.Chidumayo: Above-ground woody biomass structure and productivity in a Zambezan woodland report	
58	FAO- State of the World's Forests 2007. Food and Agriculture Organisation of the United Nations. Rome, Italy. http://www.fao.org/docrep/009/a0773e/a0773e00.HTM	2007
59	Gondo, P.C. (2010) <i>Financing of Sustainable Forest Management in Africa: An overview of the current situation and experiences</i> . United Nations Forestry Forum Discussion Paper. Southern Alliance for Indigenous Resources (SAFIRE). Harare, Zimbabwe. http://www.un.org/esa/forests/pdf/aheg/aheg1/Africa_case_study.pdf	Last accessed on 20 th June 2011
60	World Agroforestry Centre. (2008) Wood Density Database. Available from: http://www.worldagroforestry.org/sea/Products/AFDbases/WD/Index.htm Links to species: Sterculia sp: http://www.worldagroforestrycentre.org/sea/Products/AFDbases/WD/asps/DisplayDetail.asp?SpecID=3272 Diospyros: http://www.worldagroforestrycentre.org/sea/Products/AFDbases/WD/asps/DisplayDetail.asp?SpecID=1134	Last accessed on 20 th June 2011
61	Mulombwa J. 1998. Woodfuel review and assessment in Zambia. Data Collection and Analysis for Sustainable Forest Management in ACP Countries - Linking National and International Efforts. EC-FAO Partnership Programme (1998-2002). http://www.fao.org/docrep/004/X6802E/X6802E04.htm#835	Last accessed on 20 th June 2011

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Reference No.	Document or Type of Information	Date of document
62	Chileshe, A. (2001) Forestry Outlook Studies in Africa: Zambia. Series: Forestry Resources Outlook for Africa (FOSA). FAO; Forestry Department, Ministry of Environment and Natural Resources. Rome, Italy. 29 pp. Available from: ftp://ftp.fao.org/docrep/fao/004/AC428E/AC428E00.pdf	Last accessed on 20 th June 2011
63	CEP factsheet no. 12: energy sources and uses http://www.sardc.net/imercsa/Programs/Cep/Pubs/Cepfs/CEPFS12.htm	Last accessed on 20 th June 2011
64	Zambia country overview: Household energy demand and use, Sparknet, May 2004 (http://www.hedon.info/ZambiaCountrySynthesis)	Last accessed on 20 th June 2011
65	Energy and environmental concerns for Zambia, 2010 (www.hedon.info)	Last accessed on 20 th June 2011
66	An econometric analysis of factors determining charcoal consumption by urban households: The case of Zambia (http://stud.epsilon.slu.se/2274/1/nyembe_m_110214.pdf)	Last accessed on 20 th June 2011
67	Coal Briquettes (http://www.e-parl.net/eparliament/aids/ideas.do?action=summary&interest=28&lan=en&subid=301)	Last accessed on 20 th June 2011
68	http://siteresources.worldbank.org/INTOGMC/Resources/10-govt_response-hyperlinked.pdf)	Last accessed on 20 th June 2011
69	Zambia: Fuel prices (http://allafrica.com/stories/201001130066.html)	Last accessed on 20 th June 2011
70	2006 IPCC Guidelines for National Greenhouse Gas Inventories	2006
71	Sampling: http://www.raosoft.com/samplesize.html	Last accessed on 20 th June 2011

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Reference No.	Document or Type of Information	Date of document
72	Zambia Statistics: http://www.zamstats.gov.zm/media/chapter_3_population_comp_size_and_growth-final.pdf	Last accessed on 20 th June 2011
73	ProBec programme: http://www.probec.org/displaysection.php?czacc=&zSelectedSectionID=sec1192750452 http://www.probec.org/displaysection.php?czacc=&zSelectedSectionID=sec1192753796&zSelectedAssetID=ast1291890483	Last accessed on 20 th June 2011
74	Government funded projects: http://www.afrepren.org/adb_finesse/Task%203/Background%20Material/Background%20Material%20-%20Background%20to%20Africa%20Energy%20Sector.pdf	Last accessed on 20 th June 2011
75	Letter from Environmental Council of Zambia	16.03.2011
76	Sample questionnaires for Sample Group Surveys	----
77	Letter from C4 Eco Solutions stating the inclusion of charcoal in fNRB calculation	29.11.2011
78	Letter from C4 Eco Solutions stating the use of Design factor in sample surveys	08.12.2011
79	Letter from CEEZ regarding the procedure for baseline surveys	07.12.2011
80	Design Effect (DEFF) calculation sheets for Woodfuel survey data	
81	General Guidelines For Sampling And Surveys For Small-Scale CDM Project Activities (Version 01); CDM EB50 Annex 30	
82	IPCC Biomass Classification: http://www.ipcc-nggip.iges.or.jp/public/2006gl/pdf/2_Volume/V2-1_Ch1_Introduction.pdf	
83	http://www.nationsencyclopedia.com/Worldstats/EIA-coal-production-lignite-briquettes.html	
84	Sample size and Design effect: http://faculty.smu.edu/slstokes/stat6380/deff%20doc.pdf	



Annex 3: Appointment Certificates



Industrie Service

CERTIFICATE OF APPOINTMENT

Mr Agarwal, Nikunj, fulfills the requirements of the Certification Body "climate and energy" of TÜV SÜD Industrie Service GmbH to participate in audits.

Qualification applicable to						
Standard	CDM	JI	GS	VCS	VER	Other
Date	22.03.11					

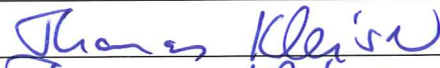

Qualification as						
Status	Trainee	Validator	Verifier	Team Leader	Technical Reviewer	Technical Expert
Date		22.03.11	22.03.11	22.03.11	22.03.11	

Other qualification					
Country Expertise					
Region	1	2	3	4	5
Date	22.03.11				
Financial Expertise					
Date	29.03.11				

Qualification in technical areas	
Technical Area	Date
1.2_Energy generation from renewable energy source	22.03.11
13.1_Waste handling and disposal	12.04.11
3.1_Energy demand	27.04.11
13.2_15.2_Animal waste management	21.07.11

This appointment is valid for 1 year from its date of signature below and is bound by internal requirements of the Management System of the Certification Body "climate and energy" of TÜV SÜD Industrie Service GmbH. In case of loss of validity of this certificate as per result of an assessment according internal procedures or due to any other reason, it will be properly communicated to you.

Your Certificate has the internal reference No. CMS-Z-0001/05.

Date	Signature
27.04.11	
21.07.11	



Industrie Service

CERTIFICATE OF APPOINTMENT

Mr Kleiser, Thomas, fulfills the requirements of the Certification Body "climate and energy" of TÜV SÜD Industrie Service GmbH to participate in audits.

Qualification applicable to						
Standard	CDM	JI	GS	VCS	VER	Other
Date	25.03.11					

Qualification as						
Status	Trainee	Validator	Verifier	Team Leader	Technical Reviewer	Technical Expert
Date		25.03.11	25.03.11	25.03.11	25.03.11	

Other qualification					
Country Expertise					
Region	1	2	3	4	5
Date	25.03.11				
Financial Expertise					
Date	25.03.11				

Qualification in technical areas	
Technical Area	Date
1.1_4.10_Thermal energy generation...	25.03.11
1.2_Energy generation from renewable energy source	25.03.11
4.1_Cement sector	25.03.11

This appointment is valid for 1 year from its date of signature below and is bound by internal requirements of the Management System of the Certification Body "climate and energy" of TÜV SÜD Industrie Service GmbH.

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

Your Certificate has the internal reference No. CMS-Z-0027/00.

Date	Signature
25.03.11	



Industrie Service

CERTIFICATE OF APPOINTMENT

Ms Zhang, Cuiyun (Rachel), fulfills the requirements of the Certification Body "climate and energy" of TÜV SÜD Industrie Service GmbH to participate in audits.

Qualification applicable to						
Standard	CDM	JI	GS	VCS	VER	Other
Date	30.03.11					

Qualification as						
Status	Trainee	Validator	Verifier	Team Leader	Technical Reviewer	Technical Expert
Date		30.03.11	30.03.11	30.03.11	30.03.11	

Other qualification					
Country Expertise					
Region	1	2	3	4	5
Date	30.03.11				30.03.11
Financial Expertise					
Date					

Qualification in technical areas	
Technical Area	Date
1.2_Energy generation from renewable energy source	30.03.11
13.1_Waste handling and disposal	30.03.11

This appointment is valid for 1 year from its date of signature below and is bound by internal requirements of the Management System of the Certification Body "climate and energy" of TÜV SÜD Industrie Service GmbH.

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

Your Certificate has the internal reference No. CMS-Z-0033/02.

Date	Signature
30.03.11	
14.09.11	

CERTIFICATE OF APPOINTMENT



Industrie Service

Mr Roy, Bratin, fulfills the requirements of the Certification Body "climate and energy" of TÜV SÜD Industrie Service GmbH to participate in audits.

Qualification applicable to						
Standard	CDM	JI	GS	VCS	VER	Other
Date	29.03.11					

Qualification as						
Status	Trainee	Validator	Verifier	Team Leader	Technical Reviewer	Technical Expert
Date		29.03.11	29.03.11			

Other qualification					
Country Expertise					
Region	1	2	3	4	5
Date	29.03.11				
Financial Expertise					
Date	29.03.11				

Qualification in technical areas	
Technical Area	Date
13.1_Waste handling and disposal	29.03.11
1.2_Energy generation from renewable energy source	29.03.11
3.1_Energy demand	29.03.11

This appointment is valid for 1 year from its date of signature below and is bound by internal requirements of the Management System of the Certification Body "climate and energy" of TÜV SÜD Industrie Service GmbH.

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

Your Certificate has the internal reference No. CMS-Z-0028/00.

Date	Signature
29.03.11	



Industrie Service

CERTIFICATE OF APPOINTMENT

Mr. Murty, Eswar, fulfills the requirements of the Certification Body "climate and energy" of TÜV SÜD Industrie Service GmbH to participate in audits.

Qualification applicable to						
Standard	CDM	JI	GS	VCS	VER	Other
Date	06.05.11					

Qualification as						
Status	Trainee	Validator	Verifier	Team Leader	Technical Reviewer	Technical Expert
Date		06.05.11	10.05.11			

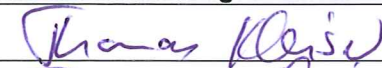
Other qualification					
Country Expertise					
Region	1	2	3	4	5
Date	06.05.11				
Financial Expertise					
Date					

Qualification in technical areas	
Technical Area	Date
1.2_Energy generation from renewable energy source	06.05.11
6.1_Construction	06.05.11
13.1_Waste handling and disposal	06.05.11

This appointment is valid for 1 year from its date of signature below and is bound by internal requirements of the Management System of the Certification Body "climate and energy" of TÜV SÜD Industrie Service GmbH.

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

Your Certificate has the internal reference No. CMS-Z-0055/00.

Date	Signature
06.05.11	
10.05.11	