



ASSESSMENT REPORT

DEUTSCHE GESELLSCHAFT FÜR
INTERNATIONALE ZUSAMMENARBEIT (GIZ)
GMBH

FUEL SWITCH, TECHNOLOGY SWITCH AND/OR
METHANE DESTRUCTION IN THE CHARCOAL
SECTOR OF UGANDA

Report No: 8000463452 – 16/118

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	Avoidance of methane release from charcoal production		AMS III.K, ver 05.0	
Assessment team / Technical Review and Final Approval:	Assessment Team:		Technical review:	Final approval:
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Summary of Assessment opinion	<p>Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH has commissioned the TÜV NORD JI/CDM Certification Program to carry out the assessment of the standardized Baseline: "Fuel switch, technology switch and/or methane destruction in the charcoal sector of Uganda", with regard to the relevant requirements for CDM standardized baselines.</p> <p>As a result of this of the assessment, the DOE confirms that:</p> <ul style="list-style-type: none"> <input checked="" type="checkbox"/> all data acquired for the purpose of SB development is relevant, current and consistent <input checked="" type="checkbox"/> data gaps identified have been filled through conservative means such as extrapolation <input checked="" type="checkbox"/> the data delivery protocol is complete and consistent with the data template, <input checked="" type="checkbox"/> the QA/QC protocol is in place and functional <input checked="" type="checkbox"/> the SB is calculated without material misstatements in a conservative and appropriate manner. 			
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Abbreviations:

CA	Corrective Action / Clarification Action
CAR	Corrective Action Request
CDM	Clean Development Mechanism
CER	Certified Emission Reduction
CO₂	Carbon dioxide
CO_{2eq}	Carbon dioxide equivalent
CL	Clarification Request
DValR	Draft Validation Report
ASR	Assessment Report
ER	Emission Reduction
FAR	Forward Action Request
GHG	Greenhouse gas(es)
MP	Monitoring Plan
MR	Monitoring Report
SBP	Standardized Baseline Proposal
PA	Project Activity
PDD	Project Design Document
PP	Project Participant
PS	Project Standard
QA/QC	Quality Assurance / Quality Control
SB	Standardized Baseline
UNFCCC	United Nations Framework Convention on Climate Change
VVS	Validation and Verification Standard
XLS	Emission Reduction Calculation Spread Sheet

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1. INTRODUCTION

The Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH has commissioned the TÜV NORD JI/CDM Certification Program (CP) to carry out the assessment of the proposed update of the standardized baseline ASB002

“Fuel switch, technology switch and/or methane destruction in the charcoal sector of Uganda”

with regard to the relevant UNFCCC requirements. The assessment team has reviewed the corresponding data collection procedures, processes and compilation used in the establishment of the proposed standardized baselines.

Related data and vintages for the proposed standardized baseline was validated in a detailed manner applying the set of requirements, audit practices and principles as required under the Validation and Verification Standard ^{/VVS/} as well as related Guidelines ^{/GUIDE/} and Procedures ^{/PROC/} of the UNFCCC.

This report summarizes the findings and conclusions of this assessment of the above mentioned standardized baselines.

1.1. Objective

The objective of the assessment is the review and determination by an independent entity of the data acquisition procedures and the development of the standardized baselines. It includes the assessment and validation of the:

- Completeness, consistency, accuracy, and relevance of all data vintages
- Data acquisition processes applied & steps taken to fill identified data gaps
- All reference sources & quality of evidence,
- QA/QC system
- Roles and responsibilities
- Management System

1.2. Scope

The assessment of standardized baselines is based on the SB reports ^{/SB1//SB2/}, SB calculation spread sheet ^{/XLS/}, supporting documents made available to the DOE, and information collected through performing interviews. Furthermore publicly available information was considered as far as available and required.

The assessments were carried out on the basis of the following requirements, applicable for this project activity:

- Article 12 of the Kyoto Protocol ^{/KP/},
- guidelines for the implementation of Article 12 of the Kyoto Protocol as presented in the Marrakech Accords under decision 3/CMP.1 ^{/MA/}, and subsequent decisions made by the Executive Board and COP/MOP,
- other relevant rules, including the host country legislation,
- CDM Validation and Verification Standard ^{/VVS/},
- Approved CDM Methodologies ^{/AMS/}.
- Relevant SB Procedures ^{/PROC/}.

2. GHG PROJECT DESCRIPTION

2.1. Description of the Standardized Baseline & its update

ASB0002 version 1.0 was developed by Perspectives GmbH on behalf of Designated National Authority (DNA) of Uganda. It is being updated after the expiry on 31/05/2016.

The sector to which this updated SB applies is the production of charcoal supplied to households, communities, small and medium enterprises (SMEs). In line with the applied methodologies, the SB applies to the following three measures:

1. Fuel and feedstock switch;
2. Switch of technology with or without change of energy sources (including energy efficiency improvement)
3. Methane destruction.

The key data parameters related to this standardized baseline is:

1. Technology and feedstock used for charcoal production;
2. Fuel use for Charcoal production;
3. Methane emissions from charcoal production technologies.

The data for the baseline parameters were collected from secondary data sources i.e. international peer reviewed publications, reports of multilateral agencies etc ^{/ASR//SBP//NCS//ADP/}.

For this revised SB, the DNA has added more technologies into the positive list of technologies considered additional: The Sam 1 retort kiln, the Namibian metallic retort kiln, and the Collapsible casamance kiln. The data applied is sourced from the third party document '*Addressing Barriers to Adoption of Improved Charcoal Production Technologies and Sustainable Land Management Practices through an Integrated Approach*' published in 2015 by the Green Charcoal project (UNDP/Global Environment Facility) and is deemed to be reliable ^{/ADP/}. The assessment team has cross-checked the document for correct application in this SB.

The 'Consolidated GHG database for the charcoal sector' ^{/XLS/} has been prepared and submitted with this SB. Calculation of SMG_b as per the new added methodology AMS-III.K version 05.0 applies the GHG database data, as originally applied for the proposed SB PSB0001. No new data updates have occurred since the last version. Therefore, this only secondary dataset has been applied as originally in version 1.0 of the SB.

2.2. Standardized Baseline Location

The details of the project location are given in Table 2-1:

Table 2-1: Project Location

No.	SB Boundary
Host Country	Republic of Uganda
Region:	All regions
Project location address:	Uganda
Latitude:	0°18'58" N
Longitude:	32°34'55" E

3. METHODOLOGY AND ASSESSMENT SEQUENCE

3.1. Assessment Steps

The assessment consisted of the following steps:

- Contract review
- Appointment of team members and technical reviewers
- A desk review of the draft SB Reports^{/SB//SBP/} submitted by the client and additional supporting documents with the use of customised checklist protocol consistent with appropriate guidelines and procedures
- Assessment planning,
- Background investigation and follow-up interviews with personnel of the project developer and its contractors,
- Draft reporting
- Resolution of corrective actions (if any)
- Final reporting
- Technical review
- Final approval of the assessment.

3.2. Contract review

To assure that

- the assignment falls within the scopes for which accreditation is held,
 - the necessary competences to carry out the assessment can be provided,
 - Impartiality issues are clear and in line with the CDM accreditation requirements
- a contract review was carried out before the contract was signed.

3.3. Appointment of team members and technical reviewers

On the basis of a competence analysis and individual availabilities an assessment team, consisting of one team leader and 1 additional team member, was appointed.

The list of involved personnel, the tasks assigned and the qualification status are summarized in the Table 3-1 below.

Table 3-1: Involved Personnel

	Name	Company	Function ¹⁾	Qualification Status ²⁾	Scheme competence ³⁾	Technical competence ⁴⁾	Validation competence ⁵⁾	Host country Competence	On-site visit
<input checked="" type="checkbox"/> Mr. <input type="checkbox"/> Ms.	David Lubanga	-	TL ^{A)}	LA	<input checked="" type="checkbox"/>	-	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
<input checked="" type="checkbox"/> Mr. <input type="checkbox"/> Ms.	Stefan Winter	TN CERT GmbH	TM	SA	<input checked="" type="checkbox"/>	-	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input checked="" type="checkbox"/> Mr. <input type="checkbox"/> Ms.	Tahsin Choudhury	-	ETE	-	<input type="checkbox"/>	5.1	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input checked="" type="checkbox"/> Mr. <input type="checkbox"/> Ms.	Rainer Winter	TN CERT GmbH	TR/FA ^{B)}	SA	<input checked="" type="checkbox"/>	5.1	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

¹⁾ TL: Team Leader; TM: Team Member, TR: Technical review; OT: Observer-Team, OR: Observer-TR; FA: Final approval

²⁾ GHG Auditor Status: A: Assessor; LA: Lead Assessor; SA: Senior Assessor; T: Trainee; TE: Technical Expert

³⁾ GHG auditor status (at least Assessor)

⁴⁾ As per S01-MU03 or S01-VA070-A2 (such as 1.1, 1.2, ...)

⁵⁾ In case of verification projects

^{A)} Team Member: GHG auditor (at least Assessor status), Technical Expert (incl. Host Country Expert or Verification Expert), not ETE

^{B)} No team member

All team members contributed to the review of documents, the assessment of the project and to the preparation of this report under the leadership of the team leader.

Statements of competence for the above mentioned team members are enclosed in annex 2 of this report.

3.4. SB Assessment Protocol

In order to ensure consideration of all relevant assessment criteria, a validation assessment protocol is used. The protocol shows, in a transparent manner, criteria and requirements, means of assessment/validation and the results from pre-validating the identified criteria. The validation protocol reflects the generic requirements each standardized baseline has to meet as well as project specific issues as applicable. The protocol serves the following purposes:

- It organises, details and clarifies the requirements that a SB is expected to meet;
- It ensures a transparent assessment process where the DOE will document how a particular requirement has been validated and the result of the determination.

The basic structure of this project specific validation protocol is described in Table 3-2.

Table 3-2: Table A-2; Structure of the SB checklist

Validation Protocol Table A-1: Requirement checklist				
Checklist Item	Validation Team Comment	Reference	Draft Conclusion	Final Conclusion
<i>The checklist items in Table A-1 are linked to the various requirements the SB should meet. The checklist is organised in various sections. Each section is then further sub-divided as per the requirements of the topic.</i>	<i>The section is used to elaborate and discuss the checklist item in detail. It includes the assessment of the validation team and how the assessment was carried out. The reporting requirements of the VVS if applicable shall be covered in this section.</i>	<i>Gives reference to the information source on which the assessment is based on</i>	<i>Assessment based on evidence provided if the criterion is fulfilled (OK), or a CAR, CL or FAR (see below) is raised. The assessment refers to the draft validation stage.</i>	<i>In case a corrective action or a clarification the final assessment at the final validation stage is given.</i>

The completed assessment protocol is enclosed in Annex 1 to this report.

3.5. Desk review

The completed draft reports and supporting background documents related to the proposed SB were reviewed.

Furthermore, the assessment team used additional documentation by third parties like host party legislation, technical reports referring to the SB or to the basic conditions and technical data.

3.6. On-site assessment

The assessment team has not carried out a site visit for updating this SB. However, the DOE has applied the guidelines, procedures and standards prescribed by the EB to make a desktop assessment of the updated SB.

Representatives of the GIZ and the SB consultant were interviewed. The main topics of the interviews are summarised in Table 3-2.

Table 3-2: Interviewed persons and interview topics

Interviewed Persons / Entities	Interview topics
1. Representatives of GIZ 2. SB consultant	<ul style="list-style-type: none"> - General aspects of the SB - Management system - Involved personnel and responsibilities - data currency - QC Procedures

Interviewed Persons / Entities	Interview topics
	<ul style="list-style-type: none">- SB calculation- Procedural aspects of the assessment- SBs additionality positive list- Data management

The list of interviewees is included in Table 7-4.

3.7. Draft Assessment reporting

On the basis of the desk review, follow-up interviews and further background investigation the SB assessment protocol is completed. This protocol together with a general procedural description of the assessment and a detailed list of the assessment findings form the draft assessment report. This report is sent to the client for resolution of raised CARs, CLs and FARs.

3.8. Resolution of CARs, CLs and FARs

Non-conformities raised during the assessments can either be seen as a non-fulfilment of criteria ensuring the proper establishment of a reliable SB.

Corrective Action Requests (CARs) are issued, if:

- Non-conformities with the guidelines and procedures are found in data acquisition and reporting, or if the evidence provided to prove conformity is insufficient;
- Mistakes have been made in applying assumptions, data or calculations which will impair the final result of the SB;

The assessment team uses the term Clarification Request (CL), which is issued if:

- information is insufficient or not clear enough to determine whether the applicable requirements have been met.

Forward Action Requests (FAR) indicate essential risks for further assessments. Forward Action Requests are issued, if:

- the reporting require attention and / or adjustment for the next SB update.

For a detailed list of all CARs, CLs and FARs raised in the course of the assessment pl. refer to chapter 4.

3.9. Final reporting

Upon successful closure of all raised CARs and CLs the final assessment report including a positive assessment opinion can be issued. In case not all essential issues could finally be resolved, a final report including a negative assessment opinion is issued.

The final report summarizes the final assessments w.r.t. all applicable criteria.

3.10. Technical review

Before submission of the final assessment report an independent technical review of the entire assessment procedure is carried out. The technical reviewer is a competent GHG auditor being appointed for the relevant sectoral scope (s). The technical reviewer is not considered to be part of the validation or assessment team and thus not involved in the decision making process up to the technical review.

As a result of the technical review process the assessment opinion and the topic specific assessments as prepared by the assessment team leader may be confirmed or revised. Furthermore reporting improvements might be achieved.

3.11. Final approval

After successful technical review of the final report an overall (esp. procedural) assessment of the complete assessment will be carried out by a senior assessor located in the accredited premises of TÜV NORD.

Only after this step the request for approval can be started (in case of a positive assessment opinion).

4. ASSESSMENT FINDINGS

In the following paragraphs the findings from the desk review of the draft standardized Baseline update reports^{/SB/}, the calculation spreadsheet^{/XLS/}, The SB update proposal^{/ASR/} and other supporting documents, as well as from the on-site assessment and the interviews are summarised.

The summary of CAR, CL and FAR issued are shown in Table 4-1:

Table 4-1: Summary of CAR, CL and FAR

Assessment topic	No. of CAR	No. of CL	No. of FAR
A – Description of Standardized Baseline	0	3	0
B – Data Acquisition Procedures	0	0	0
C – Management System (QA/QC)	0	0	0
D – Data and parameters	0	1	0
E – Roles and Responsibilities	0	0	0
SUM	0	4	0

The following tables include all raised CARs, CLs and FARs and the assessments of the same by the assessment team. For an in depth evaluation of all assessment items it should be referred to the assessment protocols (see Annex).

Finding	01		
Classification	<input type="checkbox"/> CAR	<input checked="" type="checkbox"/> CL	<input type="checkbox"/> FAR
Description of finding <i>Describe the finding in unambiguous style; address the context (e.g. section)</i>	SB Proposal - Approaches 1. New methodology AMS-III.K has been added into the proposed SB update. However, §4 of AMS-III.K does not allow feedstock switch or change of feedstock source for all project activities using the methodology. This appears to be in contradiction with measure 1 of the proposal, where it is stated that feed-stock switch is mandatory according to AMS-III.BG 2. Furthermore, it is unclear whether §2 of AMS-III.BG concerns non-renewable fuel or feed-stock. Therefore, the 'mandatory feedstock' switch is to be clarified		
Corrective Action #1 <i>This section shall be filled by the PP. It shall address the corrective action taken in details.</i>	1. Measure 1 was revised pointing out that if III.BG is used, fuel switch is mandatory, and in case of III.K, fuel switch is prohibited.		

Finding	01
DOE Assessment #2 <i>The assessment shall encompass all open issues in a section/chapter. In case of non-closure, additional corrective action and DOE assessments (#2, #3, etc.) shall be added.</i>	<ol style="list-style-type: none"> As per the revised document 'Proposed Updated Charcoal SB v03_DOEseen_reply 02', it is observed that Measure 1 is still not revised Not clarified
Corrective Action #2 <i>This section shall be filled by the PP. It shall address the corrective action taken in details.</i>	<ol style="list-style-type: none"> §4 of AMS III K has been added in chapter Applicability. 'feed stock' has been replaced by 'fuel' to be consistent with the title of the ASB unless 'feed stock' is copied from guidelines etc.
DOE Assessment #2 <i>The assessment shall encompass all open issues in a section/chapter. In case of non-closure, additional corrective action and DOE assessments (#2, #3, etc.) shall be added.</i>	<ol style="list-style-type: none"> It has been clarified that as per §4 of the new methodology, feedstock switch will not be allowed. Fuel switch under measure 1 is clarified as mandatory under this SB update, in line with AMS-III.BG.
Conclusion <i>Tick the appropriate checkbox</i>	<input type="checkbox"/> Additional action should be taken (finding remains open) <input checked="" type="checkbox"/> The finding is closed

Finding	02
Classification	<input type="checkbox"/> CAR <input checked="" type="checkbox"/> CL <input type="checkbox"/> FAR
Description of finding <i>Describe the finding in unambiguous style; address the context (e.g. section)</i>	New kiln technologies to be added to the positive list <ol style="list-style-type: none"> The description of the 'Namibian metallic retort kiln' is omitted The source of the efficiency of the 'Namibian metallic retort kiln' shall be clearly specified
Corrective Action #1 <i>This section shall be filled by the PP. It shall address the corrective action taken in details.</i>	Description has been added and reference provided.
DOE Assessment #1 <i>The assessment shall encompass all open issues in a section/chapter. In case of non-closure, additional corrective action and DOE assessments (#2, #3, etc.) shall be added.</i>	<ol style="list-style-type: none"> The description of the 'Namibian metallic retort kiln' has been included in the table The efficiency of the Namibian metallic retort kiln is revised and referenced; the 'Kiln Technology Report' by third party Eco-Consult, dated 12/10/2016. The mass yield is indicated as 26% (page 49 & 52)
Conclusion <i>Tick the appropriate checkbox</i>	<input type="checkbox"/> Additional action should be taken (finding remains open) <input checked="" type="checkbox"/> The finding is closed

Finding	03
Classification	<input type="checkbox"/> CAR <input checked="" type="checkbox"/> CL <input type="checkbox"/> FAR
Description of finding	Table 4: Update of the standardized values for methane

Finding	03
<i>Describe the finding in unambiguous style; address the context (e.g. section)</i>	Clarify if SMG_b in AMS-III.K is the same as $SMG_{y,b}$ as the parameters have the same definition but not the actual units. If not, further explain why the parameter SMG_b is not to be determined as a separate baseline parameter
Corrective Action #1 <i>This section shall be filled by the PP. It shall address the corrective action taken in details.</i>	This is absolutely correct. The reference is either raw material or product. Thus, $SMG_{y,b}$ is the standard value for III.BG only. SMG_b has been added as 0.011.
DOE Assessment #1 <i>The assessment shall encompass all open issues in a section/chapter. In case of non-closure, additional corrective action and DOE assessments (#2, #3, etc.) shall be added.</i>	Table 4: Update of the standardized values for methane The table in the provided revised proposal is not updated for consistency with the revised updated SB document
Corrective Action #2 <i>This section shall be filled by the PP. It shall address the corrective action taken in details.</i>	Table 4 has been updated as well as the table in the proposal version 03.
DOE Assessment #2 <i>The assessment shall encompass all open issues in a section/chapter. In case of non-closure, additional corrective action and DOE assessments (#2, #3, etc.) shall be added.</i>	Table 4 has now been updated with details of the Namibian metallic retort kiln and efficiency is referenced
Conclusion <i>Tick the appropriate checkbox</i>	<input type="checkbox"/> Additional action should be taken (finding remains open) <input checked="" type="checkbox"/> The finding is closed

Finding	04
Classification	<input type="checkbox"/> CAR <input checked="" type="checkbox"/> CL <input type="checkbox"/> FAR
Description of finding <i>Describe the finding in unambiguous style; address the context (e.g. section)</i>	Update Procedure 1. It is noted that §146/147 of the 'Procedure - Development, revision, clarification and update of standardized baselines', version 04.0 (EB84, Annex 10), and § 10 of the ASB0002 are not adhered to 2. A letter of approval from the DNA of Uganda is required for validation, as per §146e)
Corrective Action #1 <i>This section shall be filled by the PP. It shall address the corrective action taken in details.</i>	1. Please elaborate 2. LoA is required only if more than one party is involved.
DOE Assessment #1 <i>The assessment shall encompass all open issues in a section/chapter. In case of non-</i>	1. It is noted that the submission of the updated ASB0002 standardized baseline is not between 270-180 days prior to end of SB validity as prescribed in §146 of the procedure

Finding	04
<i>closure, additional corrective action and DOE assessments (#2, #3, etc.) shall be added.</i>	2. In accordance with §146 e) of the procedure, letters of approval are only required in the case of a group of parties. In this case only one party is involved in the ASB0002.
Corrective Action #2 <i>This section shall be filled by the PP. It shall address the corrective action taken in details.</i>	The DNA sent a notification about updating the charcoal SBL to UNFCCC according to an email from the DNA dated 24. May 2016.
DOE Assessment #2 <i>The assessment shall encompass all open issues in a section/chapter. In case of non-closure, additional corrective action and DOE assessments (#2, #3, etc.) shall be added.</i>	An email notification from the Uganda DNA dated 30/05/2016 indicating intention to review/update ASB0002 has been provided. Finding is closed
Conclusion <i>Tick the appropriate checkbox</i>	<input type="checkbox"/> Additional action should be taken (finding remains open) <input checked="" type="checkbox"/> The finding is closed

5. SUMMARY OF SB ASSESSMENTS

The following paragraphs include the summary of the final validation assessments after all CARs and CLs are closed out. For details of the assessments pl. refer to the discussion of the assessment findings in chapter 04 and the assessment protocol (Annex 1).

5.1. Involved Parties

The proposed update to the ASB0002 is submitted for a single host country, Uganda, and for the purpose of baseline emission estimation for CDM projects in the charcoal production sector in Uganda. The ASB0002 has been updated with support from the Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH on behalf of Designated National Authority (DNA) of The Republic of Uganda.

5.2. Related Methodology(ies)

- Emission reduction through sustainable charcoal production and consumption (AMS-III.BG ver.03.0)
- Avoidance of methane release from charcoal production (AMS-III.K ver. 05.0)

For this SB update, the AMS-III.K methodology has been added as it is deemed to be also applicable for the SB.

The proposed updated voluntary SB does in any way not supersede any sections including applicability criteria set by the eligible methodologies above. The results of these SB (proposed and updated parameters and positive list) can only be applied as the baseline of the prospective CDM projects only if they comply with the methodology in all relevant aspects.

5.3. Data Management and acquisition

The data for the baseline parameters ($SMG_{y,b}$ and SMG_b) were originally collected from secondary data sources i.e. international peer reviewed publications, reports of multilateral agencies etc^{/ASR/SBP/NCS/}, and used for the proposed PSB0001. The data that forms the basis for version 1.0 of ASB0002 is the same as used for the update since no new data has been developed. Therefore, it is assumed that the data management system in place is the same as originally validated, and observed by the DNA of Uganda.

5.4. Assessment of Sampling (if applicable)

The threshold of the additionality and baseline was established using the published document **National Charcoal Survey for Uganda 2015**, published by the Ministry of Energy and Mineral Development which is a Government entity. The procedure for conducting the survey is well-documented in chapter 4 of the report and follows

survey best-practices. The same is elaborated in the QC report presented with this update^{/QC/}.

5.5. QA/QC Management System

As per the requirements of the Guideline: *Quality assurance and quality control of data used in the establishment of standardized baselines* (EB79 Annex 07) §25-30, the validating team has assessed the following elements of the QC protocol against the data quality objectives outlined in the guideline. The QC protocol is included being presented alongside this SB update. Please refer to Annex 1 for further details.

5.6. Overall Aspects of the Assessment

The DOE conducted desktop reviews of the submitted documents as well as email correspondence with the SB consultant and the DNA. The data used for the estimation of $SMG_{y,b}$ and SMG_b was adopted from the secondary source applied in version 1.0 of the SB (PSB0001: proposal for a new Standardized Baseline for charcoal projects in the clean development mechanism) submitted by the Uganda DNA.

All information requested was availed to the assessment team to enable sufficient validation of the presented data.

5.7. DOE Recommendations

There are no DOE recommendations during this ASB0002 update.

6. VALIDATION AND ASSESSMENT STATEMENT

The Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH has commissioned the TÜV NORD JI/CDM Certification Program to carry out the assessment of the intended update of the Standardized Baseline ASB0002: "Fuel switch, technology switch and/or methane destruction in the charcoal sector of Uganda", with regard to the relevant requirements for CDM standardized baselines.

In the course of the assessments **0** Corrective Action Requests (CAR) and **4** Clarification Requests (CL) were raised and successfully closed. The assessment is based on the draft SB report, revised SB report, the provided dataset, the PSB0001 GHG spreadsheet and supporting documents made available to the TÜV NORD JI/CDM CP by the client.

As a result of this assessment, the DOE confirms that:

- all data acquired for the purpose of SB development is relevant, current and consistent
- the SB have been developed and updated in accordance with the approved SSC CDM methodologies; AMS-III.BG ver.03.0 and AMS III.K ver 05.0
- the charcoal QC report has been updated with most recent published data on additionality threshold and the baseline.

As the result of the assessment, the assessment team confirms that the proposed standardized baselines are calculated without material misstatements in a conservative and appropriate manner. TÜV NORD JI/CDM CP herewith confirms that the updated SBs and positive list can be applied for CDM GHG abatement projects utilizing the applied methodology(ies) for the charcoal sector in Uganda as follows: -

- I. Fraction of biomass of type *i* used in the absence of the project activity that can be established as non-renewable biomass ($f_{NRB,BL,wood}$) = **0.82**
- II. Factor to account for any legal requirement for capture and destruction of methane in the charcoal production facility (M_d) = **0 tonne of CH₄/tonne of raw material**
- III. Specific methane generation for the baseline charcoal generation process in the year *y* ($SMG_{y,b}$) = **0.030 tonnes CH₄/t charcoal product**
- IV. Specific methane generation for the baseline charcoal generation process in the year *y* (SMG_b) = **0.011 tonnes CH₄/t Raw Material**

Kigali, 2017-02-01



Lubanga, David

TÜV NORD JI/CDM Certification Program

Assessment Team Leader

Essen, 2017-02-01



Winter, Rainer

TÜV NORD JI/CDM Certification Program

Final Approval

7. REFERENCES

Table 7-1: Documents provided by the project participant(s)

Reference	Document
/ADP/	Addressing Barriers to Adoption of Improved Charcoal Production Technologies and Sustainable Land Management Practices through an Integrated Approach (UNDP 2014) (Global Environment Facility proposal)
/SB/	<ul style="list-style-type: none"> Draft Fuel switch, technology switch and methane destruction in the charcoal sector of Uganda (GIZ) Fuel switch, technology switch and/or methane destruction in the charcoal sector of Uganda (GIZ)
/KT/	Kiln Technology Report(12 10 2016), (Eco-Consult)
/NCS/	NATIONAL CHARCOAL SURVEY FOR UGANDA 2015 (FINAL REPORT) – Ministry of Energy and Mineral Development
/QC/	Draft Charcoal QC report v01
/SBP/	<ul style="list-style-type: none"> Proposed Updated Charcoal SB v03 (draft) Proposed Updated Charcoal SB v03_DOEseen_reply 02 Proposed Updated Charcoal SB v03_DOEseen_reply 03
/XLS/	GHG database_update

Table 7-2: Background investigation and assessment documents

Reference	Document
/AMS/	<ul style="list-style-type: none"> Emission reduction through sustainable charcoal production and consumption (AMS-III.BG ver.03.0) “Avoidance of methane release from charcoal production” (AMS-III.K ver. 05.0)
/ASR/	<ul style="list-style-type: none"> Assessment Report for PSB0001 CDM recommendation form (CDM Secretariat)
/CPM/	TÜV NORD JI / CDM CP Manual (incl. CP procedures and forms)
/GUIDE/	<ul style="list-style-type: none"> Guidelines for the Establishment of Sector Specific Standardized Baselines, version 02.0, (EB65 Annex 23) Quality assurance and quality control of data used in the establishment of standardized baselines, version 02.0, (EB79 Annex 7)
/IPCC/	<ul style="list-style-type: none"> 1996 IPCC Guidelines for National Greenhouse Gas Inventories: work book

Reference	Document
	<ul style="list-style-type: none"> 2006 IPCC Guidelines for National Greenhouse Gas Inventories: work book
/KP/	Kyoto Protocol (1997)
/MA/	Decision 3/CMP. 1 (Marrakesh – Accords)
/PCP/	CDM Project Cycle Procedure version 09.0
/PROC/	<ul style="list-style-type: none"> Procedure for the submission and consideration of Standardized Baselines (EB68 Annex 32) Development, revision, clarification and update of standardized baselines, version 04.0 (EB84 Annex 10)
/PS/	CDM Project Standard (Version 9.0)
/STD/	Standard: Determining coverage of data and validity of standardized baselines, version 01.0 (EB77, Annex 05)
/VVS/	CDM Validation and Verification Standard (Version 09.0)

Table 7-3: Websites used

Reference	Link	Organisation
/dna-HP/	http://www.mwe.go.ug/	Ministry of Water and Environment /DNA of Uganda
/cd4cdm/	www.cd4cdm.org	UNEP Riso Centre
/unfccc/	http://cdm.unfccc.int	UNFCCC
/ipcc/	www.ipcc-nggip.iges.or.jp	IPCC publications

Table 7-4: List of interviewed persons

Reference	Mol ¹		Name	Organisation / Function
/IM01/	E	<input checked="" type="checkbox"/> Mr. <input type="checkbox"/> Ms.	Georg Zenk	CDM Consultant
/IM01/	E	<input type="checkbox"/> Mr. <input checked="" type="checkbox"/> Ms.	Gloria Namazzi	GIZ

¹⁾ Means of Interview: (Telephone, E-Mail, Visit)

ANNEX

- A1:** Assessment Protocol
- A2:** Statements of Competence of
involved Personnel

ANNEX 1: ASSESSMENT PROTOCOL

Table A-1: Assessment Checklist

Checklist Item (incl. guidance for the assessment team)	Reference	Assessment Team Comments (Means and results of assessment)	Draft Concl.	Final Concl.
A. Description of the Standardized baseline				
<p><i>Assess if the description of the standardized baseline is correct and accurate</i></p> <ul style="list-style-type: none"> a) <i>host country,</i> b) <i>level of aggregation,</i> c) <i>measure (s),</i> d) <i>output and sector (s)</i> <p><i>(EB65, Annex 23) §§8, 15</i></p>	<p>/SBP/ /SB/</p>	<p>Description:</p> <p>The updated standardized baseline has been correctly and accurately described. Host country is The Republic of Uganda, level of aggregation, measures applicable and sector and output all defined in the SB report.</p> <p>Assessor's action:</p> <p>The draft SB report has been reviewed</p> <p>Conclusion:</p> <p>The SB has been correctly and accurately described.</p>	OK	OK
B. QA/QC System				
B.1. Description of the QA/QC System				
<p>(GUIDE, §27)</p> <p><i>As part of the QA system, the DOE should check whether the QA/QC system is in place and assess the QA/QC system against the data quality objectives established in this document. It also includes assessing whether the QA/QC system has been implemented as designed.</i></p>	<p>/SBP/ /SB/ /QC/ /IM01/</p>	<p>Description:</p> <p>The overall responsibility for the ASB0002 is with the host country DNA. The QC procedures established for ASB0002 version 1.0 will be followed and any updates to the Ministry of Energy and Mineral Development (MEMD) database will directly be effected in the SB.</p> <p>Assessor's action:</p> <p>DOE has assessed the same by check of draft QC report.</p>	OK	OK

Checklist Item (incl. guidance for the assessment team)	Reference	Assessment Team Comments (Means and results of assessment)	Draft Concl.	Final Concl.
B.2. Elements of the QA/QC System				
(a) System availability – identify whether a “standardized” data system (collection, consolidation and maintenance) is currently in place and a procedure for reporting activities conducted as part of the QC system has been developed and implemented;	/ADP/ /ASR/ /NCS/ /SBP/ /QC/ /IM01/	Description: There is no standardized data collection system. The SB relies entirely on secondary data source which is part of the Green Charcoal Project. Any changes to the data database maintained by MEMD will inform the next SB update accordingly. Therefore, the proposed QC system relies only on official publication (secondary database)	OK	OK
(b) Conformity - assess whether the QA/QC system, the procedures and all the approaches to develop the datasets met the data quality objectives. In particular, DOEs should assess whether a conservative approach has been applied in a consistent manner; whether the data delivery protocol was consistent with the data template if applicable; and whether the transparency was ensured, based on the public consultation report and the QC report. DOEs should check whether the QA/QC procedures were: (i) developed in accordance with the QA/QC Guidelines; and (ii) effectively implemented (e.g. met the data quality objectives);	/ADP/ /ASR/ /NCS/ /SBP/ /QC/ /IM01/	Description: The SB is developed using secondary sources of data and information as available, such as, official publications/reports, international peer reviewed publications, reports of multilateral agencies etc ^{/ASR//SBP//NCS//ADP/} . Data gaps are conservatively estimated to ensure data quality objectives are met. Therefore, the data applied is deemed to be reliable.	OK	OK


Checklist Item (incl. guidance for the assessment team)	Reference	Assessment Team Comments (Means and results of assessment)	Draft Concl.	Final Concl.
(c) Traceability – check whether all data and information relating to the source of datasets and procedures for standardized baselines were clearly documented;	/QC/ /IM01/	<i>Description:</i> QC report states related documents to be used as crosscheck of datasets. The SB is developed using secondary sources of data and information as available, such as, official publications/reports, international peer reviewed publications, reports of multilateral agencies etc ^{/ASR//SBP//NCS//ADP/} . Therefore, this data is deemed to be reliable.	OK	OK
(d) Responsiveness – does the data delivery protocol meet the provisions of the QA/QC guidelines? Was the communication of the DNA with data providers timely and more efficient?	/QC/ /IM01/	<i>Description:</i> Not applicable as data applied by the DNA is from reliable secondary sources.	OK	OK
(e) Adaptability – was the system modified in order to address the major issues identified. Does the modified system meet the data quality objectives and the provisions of the QA/QC guidelines?	/SB/ /QC/ ASR/ /ADP/ /IM01/	<i>Description:</i> Not applicable as data applied by the DNA is from reliable secondary sources.	OK	OK
(f) Security – check whether a security system for data management is in place and has operated effectively. Identify whether any issues related to security occurred;	/QC/ /IM01/	<i>Description:</i> As the data management system is established by the host country DNA. Security of data is guaranteed by systems established at the MEMD, in which the DNA relies on for the establishment and update of this SB. Therefore, the security of data is deemed sufficient based on the above.	OK	OK
(g) Error tolerance – check whether DNAs planned to minimize errors and established and implemented	/SB/	Description	OK	OK

Checklist Item (incl. guidance for the assessment team)	Reference	Assessment Team Comments (Means and results of assessment)	Draft Concl.	Final Concl.
<i>procedures to identify and correct errors proactively.</i>	/QC/ /IM01/	Reliability of the data is guaranteed from comprehensive third party surveys/databases. The DNA has no particular control		
C. Algorithms and/or formulae used to determine the SB <i>It is assessed whether the steps taken and the equations and parameters applied in the SB to calculate the standardized baseline comply with the requirements of the selected methodology including applicable tool(s).</i>				
a) Are the equations applied correctly according to the applied/or proposed new CDM methodology?	/ADP/ /NCS/ /XLS/	Description: The client approaches in calculation of the SBs, based on data acquired is deemed correct and traceable. <i>Assessor's action:</i> The calculations have been checked <i>Conclusion:</i> Calculations correct and based on reliable secondary data source.	OK	OK
b) <i>Have conservative assumptions been used when calculating the standardized baselines?</i>	/SB/ /QC/ /XLS/	Description: Please see above <i>Assessor's action:</i> <i>Conclusion:</i>	OK	OK

Checklist Item (incl. guidance for the assessment team)	Reference	Assessment Team Comments (Means and results of assessment)	Draft Concl.	Final Concl.
<p>c) <i>Are all data sources and assumptions appropriate and conservative estimation of the standardized baseline (s)?</i></p> <p><i>How have data gaps been addressed?</i></p> <p><i>Check if the correct data vintage has been selected for the sector</i></p> <p><i>EB65 Annex 23, Appendix 1</i></p>	<p>/SBP/ /SB/ /QC/ /IM01/</p>	<p>Description:</p> <p>Please refer above</p> <p>Assessor's action:</p> <p>Conclusion:</p>	OK	OK
<p>d) <i>Are all data sources appropriately referenced?</i></p>	<p>/SBP/ /SB/ /QC/ /IM01/</p>	<p>Description:</p> <p>All data sources (public) as referred to in the SB has been correctly referenced or provided</p> <p>Assessor's action:</p> <p>The SBs have been assessed</p> <p>Conclusion:</p> <p>All data sources appropriately referenced</p>	OK	OK
C.1. Additionality				
<p>a) <i>Is the additionally criteria correctly demonstrated?</i></p> <p><i>(EB65, Annex 23) §§§13, 14, 15, Section IV.</i></p>	<p>/SB/ /SBP/</p>	<p>Description:</p> <p>Additionality criteria for projects seeking to utilize the standardized baseline (positive list) have been updated and deemed sufficient</p> <p>Assessor's action:</p> <p>The draft SB reports and methodology have been checked</p>	OK	OK

Checklist Item (incl. guidance for the assessment team)	Reference	Assessment Team Comments (Means and results of assessment)	Draft Concl.	Final Concl.
		<i>Conclusion:</i> Additionality criteria is sufficient as per guidelines		
C.2. Sampling				
<p><i>Check whether the client has applied a sampling approach to determine the calculated values (as per section D.2 above).</i></p> <p><i>If this is the case, please provide an assessment whether the PPs have correctly and sufficiently described the implemented sampling plan including</i></p> <p><i>a) Description of the implemented sampling design</i></p> <p><i>b) Collected data</i></p> <p><i>c) Analysis of collected data</i></p> <p><i>Demonstration on whether the required confidence/precision has been met.</i></p>	/SBP/ /SB/ /QC/ /NCS/ /IM01/	<input checked="" type="checkbox"/> No sampling approach has been used by the PP to determine the baseline parameters OR. <input type="checkbox"/> A sampling approach has been taken for the following monitored parameter: Parameter: <i>Description:</i> <i>Assessor's action:</i> <i>Conclusion:</i>	N/A	OK
<p>b) Sampling during Assessment</p> <p><i>In case the assessment team has applied a sampling approach in the course of the validation assessment the approach shall be described for each parameter.</i></p>	/SBP/ /SB/ /QC/ /IM01/	<input checked="" type="checkbox"/> No sampling approach has been used by the VT to verify the baseline parameters OR. <input type="checkbox"/> A sampling approach has been applied by the VT for the following monitored parameter: Parameter: <i>Description:</i> <i>Conclusion:</i>	N/A	OK

ANNEX 3: STATEMENTS OF COMPETENCE OF INVOLVED PERSONNEL



Statement of Competence
Appointment and authorization according to the procedures of the TÜV NORD JI/CDM Certification Program

Mr. David Lubanga


SCHEME	STATUS	VALID UNTIL
CDM	Lead Assessor (Validation, Verification)	2019-10-20
VCS / ISO 14064-2	Lead Assessor	2019-10-20

Authorization status for technical areas within sectoral scopes:

CODE	TECHNICAL AREA
1.2	Renewables
3.1	Energy demand

251 - Rev. 4, Date: 2015-10-21

251_251-VABSP-F22_2015-10-21_well.docx 001-VABSP-F22-wd1/2015-10-20



Statement of Competence
Appointment and authorization according to the procedures of the TÜV NORD JI/CDM Certification Program

Mr. Stefan Winter


SCHEME	STATUS	VALID UNTIL
CDM	Senior Assessor (Validation, Verification) Technical Reviewer	2017-07-27
VCS	Senior Assessor (Validation, Verification) Technical Reviewer	2017-07-27

Authorization status for technical areas within sectoral scopes:

CODE	TECHNICAL AREA
1.1	Thermal energy generation
1.2	Renewables
2.1	Energy distribution
3.1	Energy demand
4.1	Cement and lime production
4.2	Paper
5.2	Caprolactam, nitric acid and adipic acid
9.1	Aluminum and magnesium production
9.2	Iron, steel and Ferro-alloy production
13.1	Solid waste and wastewater
13.2	Manure

163 - Rev. 4, Date: 2015-01-05

163_163-VABSP-F22_2015-01-05_well.docx 001-VABSP-F22-wd1/2015-01-05



Statement of Competence
Appointment and authorization according to the procedures of the TÜV NORD JI/CDM Certification Program

Mr. Rainer Winter


SCHEME	STATUS	VALID UNTIL
CDM	Senior Assessor (Validation, Verification) Technical Reviewer	2019-07-01
JR	Senior Assessor Technical Reviewer	2019-07-01
VCS / ISO 14064-2	Senior Assessor Technical Reviewer	2019-07-01

Authorization status for technical areas within sectoral scopes:

CODE	TECHNICAL AREA
1.1	Thermal Energy Generation
1.2	Renewables
4.1	Cement and lime production
4.2	Paper
5.1	Chemical Industry
5.2	Caprolactam, nitric and adipic acid
8.1	Mineral/chemical production
9.1	Aluminum and magnesium production
9.2	Iron, steel and Ferro-alloy production
11.1	Emissions of fluorinated gases
11.2	Refrigerant gas production
12.1	Chemical industry
13.1	Solid waste and wastewater

003 - Rev. 10, Date: 2016-07-01

003_251-VABSP-F22_2016-07-01_well.docx 001-VABSP-F22-wd1/2015-10-20



Statement of Competence
Appointment and authorization according to the procedures of the TÜV NORD JI/CDM Certification Program

Mr. Dr. Tahsin Choudhury

Authorization status for technical areas within sectoral scopes:

CODE	TECHNICAL AREA
5.1	Chemical industry
10.1	Fugitive emissions from oil and gas
12.1	Chemical industry

281 - Rev. 1, Date: 2016-06-11

281_281-VABSP-F22_2016-06-11_well.docx 001-VABSP-F22-wd1/2015-10-20