


**Verification and certification report form for  
GS Project Activity**

**VERIFICATION AND CERTIFICATION REPORT**

<b>Title of the project activity</b>	Improved Jikos – Better Living For Rural Population	
<b>Reference number of the project activity</b>	GS2457	
<b>Version number of the verification and certification report</b>	1.0	
<b>Completion date of the verification and certification report</b>	07/12/2021	
<b>Monitoring period number and duration of this monitoring period</b>	3rd monitoring Period Duration: 3 years, from 01/01/2018-31/12/2020, both days included	
<b>Version number of monitoring report to which this report applies</b>	4.0	
<b>Crediting period of the project activity corresponding to this monitoring period</b>	First crediting period	
<b>Project participant(s)</b>	Fastenopfer	
<b>Host Party</b>	Kenya	
<b>Sectoral scope(s), selected methodology(ies), and where applicable, selected standardized baseline(s)</b>	Scope: 3 / Technical Area: 3.1 Technologies and Practices to Displace Decentralized Thermal Energy Consumption version 1.0 (TPDDTEC) Standardized baseline: Not applicable	
<b>Estimated GHG emission reductions or net anthropogenic GHG removals for this monitoring period in the registered PDD<sup>1</sup></b>	210,022 tCO <sub>2</sub> e	
<b>Certified GHG emission reductions or net anthropogenic GHG removals for this monitoring period</b>	01/01/2018 – 31/12/2018	12,409 tCO <sub>2</sub> e
	01/01/2019- 31/12/2019	17,748 tCO <sub>2</sub> e
	01/01/2020 – 31/12/2020	24,368 tCO <sub>2</sub> e
	<b>Total</b>	<b>54,524 tCO<sub>2</sub>e</b>
<b>Name of DOE</b>	TÜV NORD CERT GmbH (TÜV NORD) Ref No.: E-0022	
<b>Name, position and signature of the approver of the verification and certification report</b>	 Christina Stehr Final Approver	

<sup>1</sup> PDD v3.3 of 26/01/2016

**SECTION A. Executive summary**

TÜV NORD CERT has conducted the 3<sup>rd</sup> periodic verification of the project titled “Improved Jikos – Better Living for Rural Population”; with Gold Standard registration reference number GS2457. The project is developed by Fastenopfer, is located in Kenya (the host country), and applies the methodology “Technologies and Practices to Displace Decentralized Thermal Energy Consumption (11/04/2011)”.

The verification was based on:

- a) Requirements for Voluntary Offset Projects under the Gold Standard, including the applied Gold Standard methodology, and
- b) UNFCCC criteria for the CDM, as well as criteria given to provide for consistent project operations, monitoring and reporting.

The Gold Standard requirements are stipulated in the GS Requirements–version 2.2 and The Gold Standard Toolkit version 2.2; UNFCCC criteria refer to Article 12 of the Kyoto Protocol, the CDM rules and modalities and the subsequent decisions by the CDM Executive Board, as well as the host country criteria.

The verification scope is defined as an independent and objective review and ex-post determination of the monitored GHG emission reductions, and consisted of the following three phases:

- Desk review of the project design, the baseline and monitoring plan
- Follow-up interviews with project stakeholders;
- Resolution of outstanding issues and the issuance of the final verification report and opinion. The overall verification, from Contract Review to Verification Report & Opinion, was conducted using TÜV NORD CERT internal procedures.

In summary, TÜV NORD CERT confirms that the project is implemented as planned and described in the validated and registered project design documents. Installed equipment (efficient cook stoves) being essential for generating emission reduction run reliably. The monitoring system is in place and the project is generating GHG emission reductions. The GHG emission reductions are calculated without material misstatements, and the emission reductions verified totalize 54,524 tCO<sub>2</sub>e for the monitoring period.

Our opinion relates to the project's GHG emissions and resulting GHG emission reductions reported; and related to the valid and registered project baseline, approved monitoring plan and its associated documents.

Reporting period: 01/01/2018-31/12/2020(both dates included)  
 Baseline emissions: Integrated in ER calculation formula  
 Project emissions: Integrated in ER calculation formula  
 Leakage emissions: 0 t CO<sub>2</sub>e  
 Emission Reductions: 54,524 t CO<sub>2</sub>e.

**SECTION B. Verification team, technical reviewer and approver****B.1. Verification team member**

No.	Role	Type of resource	Last name	First name	Affiliation (e.g. name of central or other office of DOE or outsourced entity)	Involvement in			
						Desk review	On-site inspection	Interview(s)	Verification findings
1.	Team Leader	IR	Rami	Kunal	TÜV NORD CERT	x	-	x	x
2.	Local Expert	EI	Waiu Ndeti	Caroline	-		x	x	

**B.2. Technical reviewer and approver of the verification and certification report**

No.	Role	Type of resource	Last name	First name	Affiliation (e.g. name of central or other office of DOE or outsourced entity)
1.	Technical reviewer	IR	Winter	Stefan	TÜV NORD CERT
2.	Technical reviewer / Approver	IR	Stöhr	Christina	TÜV NORD CERT

**SECTION C. Application of materiality****C.1. Consideration of materiality in planning the verification**

No.	Risk that could lead to material errors, omissions or misstatements	Assessment of the risk		Response to the risk in the verification plan and/or sampling plan
		Risk level	Justification	
1.	<i>Incorrect capture of the date of construction of each stove</i>	<i>High</i>	<i>Likelihood – more likely to occur due to manual data capture and transfer to excel based database. Impact - may lead to over estimation of the number of days the stove has been in use. Hence over estimation of ERs claimed</i>	<i>Carry out a site visit and randomly cross check a sample of receipts/Stove Purchase Agreement with the information in the database</i>
2.	<i>Inadequate transfer of survey information (Usage survey)</i>	<i>High</i>	<i>Likelihood – more likely to occur due to manual transfer of survey information from handwritten questionnaires to excel sheets Impact – may lead to a higher performance and hence over estimation of ERs claimed.</i>	<i>Carry out a site visit and randomly cross check a sample of hand-written survey records to determine whether the transfer of information was performed adequately</i>
3.	<i>Unreported project and leakage emissions</i>	<i>medium</i>	<i>Likelihood – less likely to occur since the methodology includes accounting for project and leakage emissions. A Forward Action Request had been raised related to leakage emissions. Impact – Over estimation of ERs claimed</i>	<i>Carry out a site visit and assess possible sources of leakages</i>
4.	<i>Incorrect calculations</i>	<i>High</i>	<i>Likelihood – more likely to occur due to reliance on excel spread sheets with less controls Impact – Over estimation of ERs claimed.</i>	<i>Recalculate ERs using parameters reported by PP to determine if the reported ERs can be reproduced</i>

**C.2. Consideration of materiality in conducting the verification**

Consideration of materiality began by determining the materiality threshold to be applied. A threshold of 5% has been considered. TÜV NORD assessed the risks indicated in section C.1 above, based on acceptance sampling (refer to section D.4 below) and applying the materiality threshold of 5% as follows:

- Risk No.1, dates from a random sample of 15 samples of receipts/ Stove Purchase Agreement for each year 2018, 2019 and 2020 was compared with the dates in the stove database. No discrepancies were observed. The data was accepted and no more samples were taken.
- Risk No.2, a random sample of 8 for PFT and 15 hand-written survey records for each year 2018, 2019 and 2020 were compared with information in the survey database. Discrepancies were noted in 3 out of all samples. The discrepancies were assessed on their effect in the value of the usage rate, and consequently the ERs calculations. It was noted that the

discrepancies were not material i.e. they did not affect the usage rate and ERs calculations. The PP was however requested to make corrections on the discrepancies (refer to CL 1 in appendix 4).

- Risk No.3 was assessed together with CL 2 . The PP has assessed emissions associated leakages. From the assessment (as detailed in appendix 4 below), there no leakages. TÜV NORD considers that the emissions associated with leakages is not material.
- Risk No.4, using the data and parameters reported by the PP, TÜV NORD has been able to reproduce the same amount of ERs being claimed by the PP, by following the formulae provided in the methodology. The ER calculations by the PP are accepted.

## SECTION D. Means of verification

### D.1. Desk review

The assessment of the project documentation provided by the project participant is based upon both quantitative and qualitative information on emission reductions. Quantitative information comprises the reported numbers in the monitoring report (MR) version 1.0 dated 07/04/2021 (refer to doc 1 in Appendix 3) and emission reduction calculation spreadsheet dated 27/02/2018 (refer to doc 2 in Appendix 3). Qualitative information comprises information on internal management controls, calculation procedures, and data transfer procedures, frequency of emissions reports, and review and internal audit of calculations.

The monitoring report version 1 submitted by the project participant has been made available to Gold Standard. Additional monitoring documentation were provided by the project participants and reviewed by TÜV NORD including:

- Monitoring and Usage survey report /DB2//DB3/ ;
- KPT report and datasheets /DB7//DB8/ ;

Verification Team (VT) also reviewed other sources of information for comparison of the reported values including:

- The registered PDD and the monitoring plan ;
- Previous verification reports
- The applied monitoring methodology;

### D.2. Remote/On-site inspection

As most essential part of the verification exercise, it is indispensable to carry out an inspection on site in order to verify that the project is implemented in accordance with the applicable criteria and applied methodology and registered PDD. Furthermore, the on-site assessment is necessary to check the monitoring data with respect to accuracy of the calculation of emission reductions. Changes to the key SDG Impact indicators and the achievement and implementation of mitigation / compensation measures are other integral parts of the on-site assessment. For applied Verification, "Other Means of Verification were availed" main tasks covered during the remote site visit include, but are not limited to:

- an investigation of whether all relevant equipment is installed and works as anticipated.
- The operating staff was interviewed and observed in order to check the risks of inappropriate operation and data collection procedures.
- Information processes for generating, aggregating and reporting the selected monitored parameters were reviewed.
- The monitoring processes, routines and documentations were audited to check their proper application.
- The monitoring data and monitoring/usage survey data were checked.
- The data aggregation trails were checked via spot sample down to the level of the data generation.
- Competency check of the ground personnel who conducts the Usage / Kitchen survey.

- Appropriateness of the data collection, sampling and reliability test for the monitored sampling parameter.
- Possibility of leakage emissions were also checked.

During the Hybrid Audit (remote + on site audit) the verification team performed interviews with the project participants(PP) to confirm selected information and to resolve issues identified in the document review.

Representatives of project participants including the operational staff were interviewed. The main topics of the interviews are summarized in Table 0-1.

**Table 0-1:** Interviewed persons and interview topics

Interviewed Persons / Entities	Interview topics
<p>1. Projects &amp; Operations Personnel</p>	<ul style="list-style-type: none"> <li>- General aspects of the project</li> <li>- Technical equipment and operation</li> <li>- Changes since validation / previous verification</li> <li>- Monitoring and measurement equipment</li> <li>- Remaining issues from validation / previous verification</li> <li>- Calibrations</li> <li>- Quality management system</li> <li>- Involved personnel and responsibilities</li> <li>- Training and practice of the operational personnel</li> <li>- Implementation of the monitoring plan</li> <li>- Monitoring data management</li> <li>- Data uncertainty and residual risks</li> <li>- GHG emission reduction calculation</li> <li>- Implementation of SD indicators</li> <li>- Contribution to Sustainable Development</li> <li>- Procedural aspects of the verification</li> <li>- Maintenance</li> <li>- Environmental aspects</li> <li>- SD Indicators monitoring</li> <li>- Sampling approach</li> <li>- KPT survey</li> <li>- Usage survey</li> <li>- Monitoring survey/</li> <li>- ER calculations</li> <li>- GS MP 1 Issuance Review Report</li> <li>- GS MP 2 Issuance Review Report</li> <li>- Implementation of the monitoring plan</li> <li>- Monitoring data management</li> <li>- Data uncertainty and residual risks</li> <li>- GS monitoring parameters</li> <li>- GS Usage rate Guidelines</li> <li>- Monitoring team competency and skills</li> <li>- Training records of monitoring team</li> <li>- Transfer of ownership of credits VERs to PP</li> </ul>

The list of interviewees is included in chapter D.3

**Remote audit assessment:**

Due to COVID-19 pandemic, there was a complete lockdown in the Host Country of Kenya where movement in the field was not permitted. The Verification Team is following the recommendations and COVID 19: INTERIM MEASURES of the GS Board published on 06/04/2020, which allows

GS-VVB's to exempt on-site audit due to COVID-19 Pandemic and related worldwide travel restrictions. As per interim measures vide RULE UPDATE: COVID 19: INTERIM MEASURES published on 06/04/2020 which sets provision to exempt mandatory on-site audit by VVB for the period up to 31 December 2020. This version 03 of the COVID 19: INTERIM MEASURES, dated 18/12/2020 extended the validity till 30/06/2021.

Sr. No	Requirement (RULE UPDATE: COVID 19: INTERIM MEASURES)	Assessment
§ 4	<p><b>MANDATORY SITE VISITS BY VVBs:</b> The Validation and Verification bodies &amp; SustainCERT may apply following interim measures in cases where on-site inspections cannot reasonably be performed due to COVID-19 and travel restrictions.</p>	Assessment is presented below:
4.1.1 a.	<p>Alternative Measures relating to mandatory on-site visits for VVBs audits include: A VVB may postpone site visits for on-site inspections, taking into account the rules of relevant national and local authorities (local to the VVB offices as well as to locality of the site visits), World Health Organization (WHO) recommendations, policies of the VVB (if any) and other relevant travel restrictions and guidance (for example, a requirement to self-isolation upon return from specific countries).</p>	VVB has applied the remote audit techniques, as the site visit could not be postponed due to the GS VER delivery commitments by PP. Moreover. Thus, VVB has conducted remote assessment using other means of verification such as Telephonic Calls and Skype Calls.
4.1.1 b.	<p>If site visit cannot be postponed due to significant impact of delaying the site visit on VVB and/or project developer due to timeline/commitment as per validation/verification or GS-VERs delivery agreement, VVB may replace mandatory on-site visits with remote audits. The audit may include but not limited to validation, verification, the inclusion of VPAs, design change review etc.</p>	
4.2.1	<p>In case of 4.1.1 a, the VVB shall complete the on-site inspection as normal when the COVID-19 situation eases.</p>	Not applicable.
4.2.2 i.	<p>In case of 4.1.1 b, the VVB shall: Use validation/verification techniques and advanced communication technology solutions to validate/verify information and compliance with applicable requirements to the extent possible, to ensure the completeness and credibility of the audit;</p>	Please refer the above explanation on the techniques and mode of communication used to appropriately assess the on-site implementation of the project together with credibility of the monitoring result.
4.2.2 ii.	<p>Use means such as, but not limited to, tele/video meetings; interviews with relevant stakeholders, local authorities, project participants, persons responsible for data collections, end user and/or beneficiaries of the project; photographic evidence, video recordings; data collection. For microscale project/PoAs/VPAs using drones, satellite image (where possible); relevant documents; and other publicly available information.</p>	
4.2.2 iii.	<p>Transparently disclose in the audit report that</p> <ul style="list-style-type: none"> <li>- The audit is undertaken remotely and</li> <li>- Describe the alternative means used and justification that they are sufficient for the audit</li> </ul>	This Verification Report has been provided with a transparent disclosure on remote site assessment including explanation on other means utilized/ applied to verify the on-site information.
4.2.2 iv.	<p>Must submit the audit report requesting design certification and/or performance certification within Six (6) months of the declared end date of the Interim Measures.</p>	Refer above explanation

Sr. No	Requirement (RULE UPDATE: COVID 19: INTERIM MEASURES)	Assessment
4.3.1	The maximum monitoring period that VVB can verify based on remote audit (paragraph 4.1.1 b) is two years.	The monitoring period under this issuance request is from 01/01/2018-31/12/2020 The PP already obtained an approval for remote audit due COVID 19 travel restrictions. A local Expert also visited few HHs of KPT survey and visited local office along with local operational team in Kitui

#### Applied Other Credible means of verification:

The credible other means of verification is applied to cross check on-ground information as described below

**Calls:** During the telephonic assessment, the selected end users were interviewed and records for individual end user records, submitted by PP, were verified. Survey forms are filled-in during the calls and information were recorded in survey forms, stored and maintained so that the assessments of the Verification Team are traceable and reproducible if required.

Hybrid Audit (remote + on site audit) supported by conference call and on-site visit was supported by Caroline Ndeti a local Kenyan expert in Kitui during the whole Hybrid Audit (remote + on site audit) Audit. With the help of conference call audit initially on first day Team Leader Kunal Rami from Germany joined with Caroline who was in Kitui with PD's local team and via Cisco system stove users were called up to bring stove users, Caroline+PD's local team and Kunal in one conference for interviews. Caroline also visited 5 out of randomly selected 8 households on 4<sup>th</sup> June 2021 to confirm the PFT/KPT and usage monitoring survey results.

Furthermore, the data collected during the above steps are further utilized for assessments which is described in relevant parts of the Verification Report

**Skype Calls:** This tool has allowed connecting multiple stakeholders such as PP, project developer/ consultant, relevant personnel from Usage survey team and all other relevant persons as per the organogram of the PDD including QA/ QC key personnel. The VT virtually verified the implementation of the project against the requirements in the most recent version of PDD and interviews with all the above-mentioned parties using this tool.

The sampling approach conducted is in accordance with "Guidelines for Sampling and Surveys for CDM Project Activities and Programme Activities" version 04.0 and the "Standard for Sampling and Surveys for CDM Project Activities and Programme Activities version 09.0". As the population is relatively homogeneous (for a given stove type) with respect to the object of the sampling effort, simple random sampling method is adopted for verification of the parameters.

#### Hybrid Audit (remote + on site audit)

Duration of Remote and On-site Audit : 10/05/2021, 2- 07/06/2021 and 29/06/2021 (on the 04/06/2021 Caroline Waiu Ndeti conducted on-site visit for 5 Households)				
No.	Activity performed on-site	Site location	Date	Team member
1.	<ul style="list-style-type: none"> <li>Opening meeting &amp; Introduction (Project representative)</li> <li>Audit Team introduction &amp; discussion on scope of audit during Remote Assessments and verification process)</li> <li>Status on the employment condition due to implementation of the GS project activity</li> <li>Any change in personnel involved in GHG monitoring, recoding data and reporting including the sales and marketing team.</li> <li>Training procedures established with evidence for the current monitoring period.</li> </ul>	Remote Zoom meeting Participants from Kitui team, Fastenopfer team in switzerland and Audit TL Germany	10/05/2021	Kunal rami

	<ul style="list-style-type: none"> <li>Sales receipts, generation, recording and maintenance and verification process.</li> <li>Interview with monitoring survey team involved in data collection and survey procedures including field test (if applicable)</li> <li>Verification of Total sales record with objective evidence and interview with sales key personnel.</li> <li>Verification of other relevant evidences and supporting documents.</li> <li>Discussion on MR and ER calculation spreadsheet including sampling and survey procedure adopted for the sampling parameters</li> </ul>			
2.	<p>Conference call with cook stove users and site visit by Caroline Waiu:</p> <ul style="list-style-type: none"> <li>Technology users</li> <li>Interview artisans and Enumerators</li> <li>Review of records (including sales records)</li> </ul>	Kitui	02- 07/06/2021	Kunal Rami Caroline Waiu Ndeti
3.	Closing meeting	Remote Zoom meeting Participants from local Kitui team, Fastenopfer team in switzerland and Audit TL Germany and Local Expert Caroline Waiu Ndeti	29/06/2021	Kunal Rami Caroline Waiu Ndeti

### D.3. Interviews

No.	Interviewee			Date	Subject	Team member
	Last name	First name	Affiliation			
1.	Leon	Jander	Project Officer -Fastnopfer	10/05/2021	<ul style="list-style-type: none"> <li>- Project implementation</li> <li>- Monitoring Plan</li> <li>- Monitoring data</li> <li>- QA/QC</li> <li>- Incentive mechanism</li> <li>- PFT/Survey records</li> <li>- SDIs</li> <li>- ER calculations</li> </ul>	Kunal Rami
2.	Knecht	David				
3.	Peninah	Mwende	Project Coordinator - Caritas Kitui	10/05/2021 02-07/06/2021 29/06/2021	<ul style="list-style-type: none"> <li>- Monitoring records control (e.g. Survey records, calibration records)</li> <li>- sales records</li> <li>- SDIs (Employment, Training)</li> <li>- Data QC/QA</li> <li>- Awareness creation</li> </ul>	Kunal Rami Caroline Waiu Ndeti
	Gachunku	Diana	Data Officer	10/05/2021 02-07/06/2021	<ul style="list-style-type: none"> <li>- Project Surveys</li> <li>- SDIs (Employment, Training)</li> <li>- Data entry</li> </ul>	

					- Stove monitoring	
5.	James	Emmanuel	Data officer,	10/05/2021	Project Surveys - SDIs (Employment, Training) - Data entry - Stove monitoring	
7.	Muomo	John	Project officer, Caritas Kitui	10/05/2021	Project Surveys - SDIs Stove sales - Data entry - Stove monitoring	
8.	Kivusyu	Ambrose	Project officer, Caritas Kitui	10/05/2021	Project Surveys - SDIs Stove sales - Data entry - Stove monitoring	
Sample monitoring Survey Interview 2018						
1	Benard	Zipporah	User (Kitui)	02/06/2021	Selected sampled end users interview And verification of on-site information (Remote / Other means of verification)  - Sustainable development indicators(air quality, time/money savings; access to clean energy services) - Stove usage - Baseline stove - Participation in surveys	Kunal Rami Caroline Waiu Ndeti
2	Musya	Nthambi	User (Kitui)	02/06/2021		
3	Nzila	Penina	User (Kitui)	02/06/2021		
4	Kitundu	Mary	User (Kitui)	02/06/2021		
5	Daniel	Tabitha	User (Kitui)	02/06/2021		
6	Mwatha	Rose	User (Kitui)	02/06/2021		
7	Mwendwa	Mwende	User (Kitui)	02/06/2021		
8	Kang'ee	Ngina	User (Kitui)	02/06/2021		
9	Charles	Ann	User (Kitui)	02/06/2021		
10	Muli	Sophia	User (Kitui)	02/06/2021		
11	Ngundi	Josphine	User (Kitui)	02/06/2021		
12	Nganda	Kambua	User (Kitui)	02/06/2021		
13	Mutinda	Mwende	User (Kitui)	02/06/2021		
14	Peter	Agnes	User (Kitui)	02/06/2021		
15	Baraka	Lillian	User (Kitui)	02/06/2021		
Sample monitoring Survey Interview 2019						
1	Mueni	Lucy	User (Kitui)	03/06/2021		
2	Patrick	Rose	User (Kitui)	03/06/2021		
3	Musyoka	Dorcas	User (Kitui)	03/06/2021		
4	Kitheka	Kavinya	User (Kitui)	03/06/2021		
5	Kinyamasyo	Jane	User (Kitui)	03/06/2021		
6	Ndume	Malia	User (Kitui)	03/06/2021		
7	Mbungo	Kathoka	User (Kitui)	03/06/2021		
8	Mbungo	Josphine LG	User (Kitui)	03/06/2021		
9	Mbungo	Josphine	User (Kitui)	03/06/2021		
10	Kiema	Margaret	User (Kitui)	03/06/2021		
11	Makanga	Mwende	User (Kitui)	03/06/2021		
12	Kilonzo	Ndama	User (Kitui)	03/06/2021		
13	Mina	Stella	User (Kitui)	03/06/2021		
14	Mbuvi	Beth	User (Kitui)	03/06/2021		
15	Kimanzi	Mukai	User (Kitui)	03/06/2021		
Sample monitoring Survey Interview 2020						
1	Jones	Timina	User (Kitui)	05/06/2021		
2	David	Coleta	User (Kitui)	05/06/2021		
3	Mutinda	Esther	User (Kitui)	05/06/2021		
4	Mutua	Mukembi	User (Kitui)	05/06/2021		
5	Kilonzi	Annah	User (Kitui)	05/06/2021		
6	Makau	Dorcas	User (Kitui)	05/06/2021		
7	Kisanga	Josphine	User (Kitui)	05/06/2021		
8	Kiliko	Tabitha	User (Kitui)	05/06/2021		
9	Meendwa	Kavinya	User (Kitui)	05/06/2021		

10	Mbatha	Jackline	User (Kitui)	05/06/2021		
11	Malombe	Dominic	User (Kitui)	05/06/2021		
12	Kavili	Lydia	User (Kitui)	05/06/2021		
13	Mumo	Beatress	User (Kitui)	05/06/2021		
14	Masai	Nduku	User (Kitui)	05/06/2021		
15	Mwikya	Kavindu	User (Kitui)	05/06/2021		
	Sample KPT/PFT Survey Interview, on-site visits and call					
1	Kilonzi	Mary	User (Kitui)	04/06/2021	On-site audit, visit of Households	Caroline Waiu Ndeti
2	Mengi	Angela	User (Kitui)	04/06/2021		
3	Makau	Maurice	User (Kitui)	04/06/2021		
4	Thomas	Mary	User (Kitui)	04/06/2021		
5	Mutua	Jane	User (Kitui)	04/06/2021		
6	Mutua	Patricia	User (Kitui)	07/06/2021		
7	Kamuvya	Jane	User (Kitui)	07/06/2021		
8	Kivalu	Lawrence	User (Kitui)	07/06/2021		

#### D.4. Sampling approach

The assessment of records was based on random sampling. TÜV NORD employed acceptance sampling as described in CDM Standard for Sampling and surveys for CDM project activities and programme of activities version 09.0. The following conditions were applied to determine the sample size taken by TÜV NORD:

- Acceptable quality level or the Level of Assurance, i.e. the proportion of discrepancies between the PP sample records and TÜV NORD sample records (i.e. DOE field/on-site inspection results) that are acceptable (AQL). AQL = 0.5%
- The proportion of discrepancies between the PP sample record and DOE sample records that are unacceptable, (UQL). UQL = 20%
- A 10% Producer's risk: That is a 10% chance that TÜV NORD will wrongly reject the PPs records (i.e. reject a set of records of acceptable quality)
- A 20% Consumer's risk: That is 10% chance that TÜV NORD will wrongly accept the PPs records (i.e. accept a set of records which is unacceptable)

The verification team followed the "Standard for Sampling and Surveys for CDM Project Activities and Programme Activities" version 09, para 29 to 32, esp. for taking sample out of the PP's sample. Verification team has adopted the acceptance sampling approach in accordance with § 29, 30, 31 and 32 of the Sampling Standard by considering AQL 0.5% and UQL 20% (in line § 30 of Standard). Producer risk of 10% and consumer risk of 10% (as per § 31 a) and § 39 have been adopted. Considering the above § under applied sampling standard, DOE should have verified 11 samples under the acceptance sampling approach with acceptance (c) number 0. However, verification team has verified total of 45 (covering 15 each from HHs for the year 2018, 2019 and 2020). Thus, verification team has verified 4 additional from each year and, thus, covered optimum number as per the requirements under SSS ver 09 from PP samples during Hybrid (remote and on-site. 45 Monitoring survey interview and 3 PFT survey interview via call and 5 HHs visited for PFT survey questionnaire) visit. As the local language is Kumba and Swahili Ms Waiu Ndeti a local expert was hired for hybrid site visit. Ms Waiu Ndeti and TL together (conference call) performed the sample survey. These samples were randomly selected (from PP samples) by verification team using random excel function from the PP's samples. The list of on ground verified/interviewed end users i.e. HHs are presented under section D3 above.

The table below shows the minimum sample size for based on the above conditions and the actual sample size taken during site visit:

Activity to be verified	Minimum Sample size	Actual sample size taken
Monitoring and usage surveys	33(11 for each 2018, 2019, 2020)	45 questionnaires sampled and all respondents were interviewed via call
Sales records	33	53 receipts/stove purchase agreement

Kitchen Performance Test	8	8 Questionnaires reviewed and 5 respondents were visited other 3 were interviewed via call
--------------------------	---	--

#### D.5. Clarification requests, corrective action requests and forward action requests raised

Areas of verification findings	No. of CL	No. of CAR	No. of FAR
Compliance of the monitoring report with the monitoring report form	1	1	-
Compliance of the project implementation with the registered PDD	-	-	-
Post-registration changes	-	-	-
Compliance of the monitoring plan with the monitoring methodology including applicable tool and standardized baseline	-	-	-
Compliance of monitoring activities with the registered monitoring plan	3	3	-
Compliance with the calibration frequency requirements for measuring instruments	-	-	-
Assessment of data and calculation of emission reductions or net removals	1	-	-
Others (please specify)	-	-	-
<b>Total</b>	5	4	0

### SECTION E. Verification findings

#### E.1. Compliance of the monitoring report with the monitoring report form

<b>Means of verification</b>	A draft monitoring report was submitted to the verification team by the project participants. By means of checking the GS website it has been checked whether the latest applicable MR template has been used. Further, it has been checked whether the latest instructions for filling out the MR template have been followed. Every section has been checked against the respective guidance.
<b>Findings</b>	The respective requirements have been complied with.
<b>Conclusion</b>	TÜV NORD confirms that the revised monitoring report complies with the relevant form and instructions therein and GS requirements with respect to monitoring report.

#### E.2. Remaining forward action requests from validation and/or previous verification

TÜV NORD has reviewed the responses to the forward action requests (FARs) raised at second verification and provided its opinion with respect to how the PP has addressed each of the FARs.

Please refer Appendix 4, one FAR is still open.

#### E.3. Compliance of the project implementation with the registered project design document

<b>Means of verification</b>	An in-depth review of the MR section A was carried out during desk review to confirm whether the project purpose, description, location, applied methodology and crediting period are consistent with the approved GS4GG Transition Annex, registered PDD and registration details provided by PP. <b>Purpose and general description of project</b> Section A.1 describe the project purpose and description is crosschecked against the PDD for consistency. <b>Location of Project:</b> The location of the project is Republic of Kenya. The GPS coordinates have been crosschecked with Google Earth for accuracy & correctness. <b>Reference of applied methodology</b>
------------------------------	--

	<p>The applied methodology is according to GS methodology “<i>Technologies and Practices to Displace Decentralized Thermal Energy Consumption</i>” (Version 1.0) since registration.</p> <p><b>Crediting period of project:</b></p> <p>The 1<sup>st</sup> crediting period is a 7 years renewable from 01/01/2014 as defined in GS PDD</p> <p>The following sources of information have been used in this context:</p> <p><b>Document review:</b> Monitoring report version 1.0,2.0 and version 4.0, registered PDD , Monitoring manual</p> <p><b>Remote Audit and on site visit:</b> Interviews with PP’s representative, monitoring team and stove users, and Observation of stove technology implemented</p>
<b>Findings</b>	CL 03
<b>Conclusion</b>	<p>TÜV NORD has performed a Remote Audit and on site visit and found that the Project has been implemented as documented in the registered PDD. The PP has continued to install the brick-type rocket stove in Kitui. As detailed in the monitoring report, the PP, due to management reasons, temporarily suspended cooperation with the regional implementing organization in Nyeri, Caritas Nyeri in early 2017. Hence, the claims for emission reductions is limited to Kitui. During the interview with PP it has been clear that regular discussions are held internally by PP to observe, analyse and understand whether the conditions are right to implement the project in these regions. During the Monitoring Period under review, the project was only implemented in Kitui County. Please refer closure of CL 03 in this reference.</p> <p>Therefore, only information from Kitui is mentioned.</p> <p>No changes to the project design have been identified during this verification. The implementation and operation of the project activity has been conducted in accordance with the description contained in the registered PDD.</p> <p>Except for the number of stoves installed and usage rate, information (data and variables) provided in the monitoring report is the same as stated in the registered PDD. Fewer stoves were installed than projected in the registered PDD resulting to lower emission reductions as compared to the estimates in the PDD. Verification Team can confirm that the implementation and operation of the Project is consistent with the registered PDD.</p>

#### **E.4. Post-registration changes**

##### **E.4.1. Temporary deviations from the registered monitoring plan, monitoring methodology or standardized baseline**

Not applicable

##### **E.4.2. Corrections**

Not applicable

##### **E.4.3. Changes to the start date of the crediting period**

Not applicable

##### **E.4.4. Inclusion of a monitoring plan to a registered project activity**

Not applicable

##### **E.4.5. Permanent changes from registered monitoring plan, monitoring methodology or standardized baseline**

Not applicable

##### **E.4.6. Changes to the project design of a registered project activity**

Not applicable

##### **E.4.7. Types of changes specific to afforestation and reforestation project activities**

Not applicable

**E.5. Compliance of monitoring plan with the monitoring methodology including applicable tool and standardized baseline**

<b>Means of verification</b>	<p><b>Document review</b></p> <p>TÜV NORD reviewed the following documents: Monitoring report<sup>MR/</sup>, registered PDD, Monitoring manual, Applied methodology, to establish whether the monitoring plan was in line with the monitoring methodology.</p> <p>Section C of the MR present the organizational structure, manpower, task and responsibilities, competency assessment and describe the flow for collecting, recoroding, quality check, calculations and reporting.</p> <p>The verification team has checked the monitoring system as described it is in compliance with the related requirements by means of comparison of the MR with applied methodology, Transition Annex and VPA-DD applied GS methodology</p> <p>(ii) GS4GG Transition Annex (iii) PDD</p> <p>The following sources of information have been used in this context:</p> <ul style="list-style-type: none"> <li>• /MR/</li> <li>• /TA/</li> <li>• /PDD/</li> <li>• /GSM/</li> </ul>
<b>Findings</b>	Two clarification requested were raised and closed out : CL 1-2 &, CAR 1-2
<b>Conclusion</b>	<p>The verification team has verified the monitoring plan, including the data and parameters required to be monitored, measurement procedures, monitoring frequency and QC/QA procedures as described in the registered PDD and applied methodology.</p> <p>The Verification Team confirms that the monitoring plan is in accordance with the approved methodology (Technologies and Practices to Displace Decentralized Thermal Energy Consumption (11/04/2011) applied by the Project.</p>

**E.6. Compliance of monitoring activities with the registered monitoring plan****E.6.1. Data and parameters fixed ex ante or at renewal of crediting period**

<b>Means of verification</b>	<p><b>Document review</b></p> <p>For the parameters determined and fixed ex ante, Verification team has cross checked the values as reported in the monitoring report with values provided in the registered PDD and IPCC default values. VT also assessed the application of the values in calculation of emission reductions.</p> <p>The following sources of information have been used in this context:</p> <ul style="list-style-type: none"> <li>• /MR/</li> <li>• /TA/</li> <li>• /PDD/</li> <li>• /IPCC/</li> </ul>
<b>Findings</b>	Compliant

<b>Conclusion</b>	<p>The verification team has checked the ex-ante parameters and data stated in Section D.1 of MR and compared with section A.3 of the Transition Annex and Section D.6.2 of registered PDD whether all parameters fixed ex-ante for the crediting period have been applied correctly.</p> <p>The following parameters were determined and fixed ex ante:</p> <ul style="list-style-type: none"> <li>- <math>EF_{b,co2}</math> - CO<sub>2</sub> emission factor arising from use of wood-fuel in baseline scenario (1.7472 tCO<sub>2</sub>/t wood)</li> <li>- <math>EF_{b,non-co2}</math> - Non-CO<sub>2</sub> emission factor arising from use of wood-fuel in baseline scenario (0.1356 tCO<sub>2</sub>eq/t wood)</li> <li>- <math>EF_{p,co2}</math> - CO<sub>2</sub> emission factor arising from use of wood-fuel in project scenario (1.7472 tCO<sub>2</sub>/t wood (=112.0 tCO<sub>2</sub>/TJ * 0.0156 TJ/ t)).</li> <li>- <math>EF_{p,non-co2}</math> - Non-CO<sub>2</sub> emission factor arising from use of wood-fuel in project scenario (0.1356 tCO<sub>2</sub>eq/t wood).</li> <li>- <math>P_{b,y}</math> - Quantity of woody biomass consumed in the baseline scenario in year y and per day in year y (2.81 t wood/year and 0.0077 t wood/day)</li> </ul> <p>The verification team confirms that the parameters have been correctly reported and applied in emission reductions calculation</p>
-------------------	---

## E.6.2. Data and parameters monitored

### E.6.2.1. Data and parameters monitored for GHG emission reductions calculation

<b>Means of verification</b>	<p><b>Parameter 1 SDG 13– fNRB,i,y</b> (Non-renewability status of woody biomass fuel in scenario i during year y)  VT has reviewed the registered PDD and monitoring methodology to determine the monitoring and reporting requirement of the parameter. The PP has applied a default official value (92%) approved by the DNA of Kenya. VT assessed the application of the parameter in emission reductions calculation and confirms that it has been applied correctly. The value already expired but approved by GS for applicability till end of crediting period. The email communication between PP and GS has been cross checked to confirm the value. Please refer the closure of CAR 01 under Appendix 4.</p> <p><b>Parameter 2 SDG 13– Pp,y</b> (Quantity of woody biomass consumed in the project scenario in year y and per day in year y)  VT has reviewed the registered PDD and monitoring methodology to determine the monitoring and reporting requirement of the parameter. The parameter is required to be updated every two years through Performance Field Tests (PFT). Previous PFT was done in 2017. VT verified new PFT, new Kitchen Performance Test 2019 report and Data analysis is done in 2019. VT sampled 8 raw data questionnaires to check the transfer of data in to the database for analysis. No inconsistencies were observed. In addition, VT visited 5 out of the 8 household who participated in the PFT to crosscheck the data provided. The information collected from the interview was deemed consistent to the provided data. VT has assessed the application of the value reported (i.e. 1.163 t wood/year or 0.0032t wood/day) in emission reductions calculation and confirms that it has been applied correctly.</p> <p><b>Parameter 3 SDG 13.2.1– Upy</b> (Usage rate in project scenario during year y)  According to the registered PDD and the methodology the parameter is monitored annually through usage survey. The PP has carried out a usage survey as required. For emission reduction calculations for this monitoring period, the results from the 2018, 2019 and 2020 usage survey has been used by the PP. TÜV NORD confirms that the PP has implemented the sampling plan described in the monitoring manual. The transfer of survey information and data analysis has been reviewed. From the review TÜV NORD considers that the result of the usage survey, weighted Usage Rate 86.68% is acceptable and conservative since the actual Usage Rate = 91.18% for sum of age group 7-8, actual Usage Rate = 96.67% for sum of Age group 5-6. Usage rate capped at 90%, see as per the requirements and Guidelines: Usage Rate Monitoring” (vers. 2.0 from 27/10/2020)</p>
------------------------------	--

**Parameter 4 SDG 13.2.1–Project technologies credited (units)**

The parameter was verified by randomly selecting 8 samples from the sales database and comparing the information with the corresponding receipts/Stove Purchase Agreements, during site visit. The sampling approach is described in section D.4. above. TÜV NORD considers that the PP has monitored and reported the parameter as required. The following values are reported:

Year	Number of stoves for Kitui
2013	167
2014	580
2015	172
2016	2962
2017	1942
2018	3635
2019	2344
2020	4926
<b>Total</b>	<b>16728</b>

**Parameter 5 SDG 13.2.1–  $N_{p,y}$  (Project technologies days)**

The parameter was verified by randomly selecting 8 samples (ref sampled stoves listed in Appendix 5) from the sales database and comparing the information with the corresponding receipts/Stove Purchase Agreements, during site visit (refer to Risk No. in section C.2 above). The sampling approach is described in section D.4. above. VT considers that the PP has monitored and reported the parameter as required. The following value is reported and applied correctly in emission reductions calculation.

year	stove days
2018	2577501
2019	3686538
2020	5061650
<b>TOTAL</b>	<b>11325689</b>

**Parameter 6 SDG 13.2.1–  $LE_{p,y}$  (Leakage in project scenario p during year y)**

TÜV NORD confirms that the PP has monitored the parameter as required through a monitoring survey. The monitoring survey was carried out together with the usage survey as detailed in parameter 3 above. TÜV NORD has also assessed the monitoring survey together with the usage survey. TÜV NORD considers that the PP has monitored and reported the parameter as required. A value of zero (0) leakage has been applied in emission reduction. Please refer CL02

**Parameter 7 – Similar cook stove project activities in the project area**

VT has reviewed project listing in the registries provided i.e. Gold Standard registry, UNEP Risoec CDM Pipeline. TÜV NORD has also looked at the CDM registry and confirm no project covering the same geographical area and implementing the same technology has been registered.

**Parameter 8 SDG 13– Incentive scheme to abandon baseline technology (3-stone fires)**

VT confirms that the PP has monitored the parameter as required through a monitoring survey. A rate of 3.2% has been reported.

**Parameter 9 SDG 13 –  $P_{p,b,y}$  Quantity of woody biomass saved due to project activity in year y and per day in year y.**

VT has reviewed submitted PFT report as well as calculation in Excel file. During the on-site visit 5 households were visited out of those sample in which PP performed PFT survey which is base of PFT survey value. VT confirms the appropriateness and compliance of the parameter.

**Findings**

Three corrective action request (refer to CAR 1 & CAR 2 ), FAR 01 and two clarification requests (refer to CL 1 & CL 2) were raised and closed out.

<b>Conclusion</b>	After appropriate corrections were made by the project participant, it can be confirmed that all monitoring parameters have been measured / determined without material misstatements and in line with all applicable standards and relevant requirements.
-------------------	--

### E.6.2.2. Compliance with the SDG Impact monitoring plan (SDGs)

<b>Means of verification</b>	<p><b><u>SDG 7: Affordable and clean energy</u></b>  Parameter monitored: Number of households using efficient cook stoves at end of project  Target: <b>41,100</b> cook stoves are constructed at end of project</p> <p>Review of sales records. The results indicate that 10,905 energy efficient cook stoves have been implemented in this monitoring period against a projection of 23,000 (refer to the registered PDD, currently stove distribution is only in Kitui) for the same period. This has resulted in around 56,749 members (On average, a rural household has 5.4 members → 5.4 for monitoring survey 2019/20 and 5.6 for 2018). Thus, as of now around 56,749 people have benefitted from the project activities and accessing affordable and clean energy services. This is considered a positive score.</p> <p><b><u>SDG 5: Gender Equality</u></b>  Chosen parameter: Number of women trained as artisans  Future target for parameter: At least 30% of trained artisans are women and a total of 100 artisans are trained resulting in 33 trained female artisans.  Parameter monitored: Number of women trained as artisans and active over time  Target: 25% of trained artisans are women and 60% of trained women artisans are present during the quarterly artisan meeting one year after completing the training</p> <p>VT carried out a hybrid site visit and reviewed records from training (including attendance lists) and records from quarterly artisan meetings. The results show that 79 women trained as stove artisans through implementing partners in project area TÜV NORD considers that this SDG has a positive score in this monitoring period.</p> <p><b><u>SDG 13: Verified emission reductions</u></b>  Chosen parameter: Reduce greenhouse gas emissions  The emission reduction ER for the project year 2018 is found to be 12 409t CO<sub>2</sub>e, in 2019 17 748t CO<sub>2</sub>e and in 2020 24 368t CO<sub>2</sub>e summing up to a total of 54 524t CO<sub>2</sub>e in this monitoring period. VT verified submitted MR, ER calculation, Database and survey data. Based on hybrid audit those data and registered PDD VT confirms that achieved amount of reduced greenhouse gas emissions are plausible and correct.</p>				
<b>Findings</b>	Compliant				
<b>Conclusion</b>	<p>The monitoring has been carried out in accordance with the monitoring plan contained in the registered PDD and transition Annex, never the less verification team during the hybrid(on-site and remote audit) confirmed that all the other parameters related to Sustainable development indicators are also resulted in satisfactory outcome complying the requirements of GS passport.</p> <p>All parameters required by the monitoring plan have been sufficiently monitored and correctly listed. The monitored data for required parameters have been verified by checking the whole information flow.</p>				
	<b>SDG</b>	<b>SDG Impact</b>	<b>Baseline estimate</b>	<b>Project estimate</b>	<b>Net benefit</b>
	13	VER	131,557t CO <sub>2</sub> e	77,032t CO <sub>2</sub> e	54,524t CO <sub>2</sub> e
	7	Access to affordable and	0	10,905 stoves	10 905 stoves

		clean energy services			
	5	Gender equality and women's empowerment	0	79 (= 45% of artisans)	79 trained women
<p>The following sources of information have been used in this context:</p> <ul style="list-style-type: none"> <li>- /MR/</li> <li>- /ER1/</li> <li>- /PDD/</li> <li>- /DB1/-/DB3/</li> <li>- /DB6/-/DB8/</li> <li>- /SD1/</li> <li>- /T1/</li> </ul>					

### E.6.3. Implementation of sampling plan

<b>Means of verification</b>	<p><b>Document review</b></p> <p>The following documents were reviewed: monitoring and usage survey reports and monitoring and usage survey data of 2018-19-20. TÜV NORD further assessed the survey procedures, sampling method, data entry and analysis. TÜV NORD applied acceptance sampling as described in section D.4 above to determine that the PP has implemented the sampling plan in the registered PDD and monitoring manual.</p> <p>Interviews with PP's representative, monitoring team (including enumerators) and stove users were held during hybrid audit.</p>
<b>Findings</b>	Compliant
<b>Conclusion</b>	TÜV NORD confirms that, for the parameter monitored and determined through sampling, the sampling efforts and surveys comply with the validated sampling plan in the registered PDD and also in the monitoring manual.

### E.7. Compliance with the calibration frequency requirements for measuring instruments

<b>Means of verification</b>	The project activity does not involve direct measurement of parameters using measuring equipment. Measuring equipment is only used when carrying out Kitchen Performance Tests (KPTs). In 2018, 2019 and 2020, a KPT was carried out and the results (including calibration of the electronic scale) were assessed at verification hybrid audit.
<b>Findings</b>	Compliant
<b>Conclusion</b>	No calibration applicable.

### E.8. Assessment of data and calculation of emission reductions or net removals

#### E.8.1. Calculation of baseline GHG emissions or baseline net GHG removals by sinks

<b>Means of verification</b>	<p>During the verification, the determination of the baseline situation has been checked according to the PDD, GS4GG, SDG requirements.</p> $BE_y = \sum_{b,y} (N_{p,y} * U_{p,y} * \text{Fuel Wood combusted} (f_{NRB,b,y} * EF_{fuel,CO_2} + EF_{fuel, nonCO_2}))$ <p>= 29 940t CO2e (2018)  = 42 822t CO2e (2019)  = 34,427t CO2e (2020)</p> <p>BE<sub>y</sub> = 131 557t CO2e (for the monitoring period, SDG13)</p> <p><b>2018:</b></p>
------------------------------	--

Parameter	Value	Source of value
N <sub>Y</sub>	Project Technology Days = 2577501	Stove Database 2018
Baseline fuel Wood combusted	0.0077 t/day/stove	calculated
U <sub>Y</sub>	Cumulative Usage Rate = 0.8668	Usage Survey 2018
Parameter	Value	Source of value
N <sub>Y</sub>	Project Technology Days = 3686538	Stove Database 2019
Baseline fuel Wood combusted	0.0077 t/day/stove	calculated
U <sub>Y</sub>	Cumulative Usage Rate = 0.8668	Usage Survey 2019
<b>2019:</b>		
<b>2020:</b>		
Parameter	Value	Source of value
N <sub>Y</sub>	Project Technology Days = 5061650	Stove Database 2019
Baseline fuel Wood combusted	0.0077 t/day/stove	calculated
U <sub>Y</sub>	Cumulative Usage Rate = 0.8668	Usage Survey 2019
<b>2018/2019/2020</b>		
Parameter	Value	Source
f <sub>NRB,b,y</sub>	Non-renewable biomass fraction = 92.00%	CDM default value for Kenya
EF <sub>wood, CO2</sub>	Emission Factor = 1.7472 tCO <sub>2</sub> e/t wood	IPCC 2006 default
EF <sub>wood, nonCO2</sub>	Emission Factor = 0.1356 tCO <sub>2</sub> e/t wood	IPCC 2006 default (CH <sub>4</sub> + N <sub>2</sub> O)
The following sources of information have been used in this context:		
<ul style="list-style-type: none"> <li>- /MR/</li> <li>- /ER1/</li> <li>- /PDD/</li> <li>- /DB1-/DB3/</li> <li>- /DB6-/DB8/</li> <li>- /SD1/</li> <li>- /T1/</li> <li>- /GSM/</li> </ul>		
<b>Findings</b>	Compliant	
<b>Conclusion</b>	With appropriate corrections, it could conclude the Baseline emissions have been estimated in accordance to SDG requirements as correct and the emissions are conservatively determined.	

**E.8.2. Calculation of project GHG emissions or actual net GHG removals by sinks**

<b>Means of verification</b>	<p>During the verification, the determination of the project emission has been checked according to the PDD, GS4GG, SDG requirements.</p> $PE_y = \sum_{b,y} (N_{p,y} * U_{p,y} * \text{Fuel Wood combusted} * (f_{NRB,b,y} * EF_{fuel,CO2} + EF_{fuel,nonCO2}))$ <p>= 17,531t CO<sub>2</sub>e (2018) = 25,074t CO<sub>2</sub>e (2019)</p>
------------------------------	--

= 58 795t CO<sub>2</sub>e (2020)

PE<sub>y</sub> = 77,032 t CO<sub>2</sub>e (for the monitoring period, SDG13)

Parameter	Value	Source of value
N <sub>y</sub>	2577501	Stove Database 2018
Project fuel Wood combusted	0.0045 t/day/stove	calculated
U <sub>y</sub>	0.8668	Usage Survey 2018

**2018:**

**2019:**

Parameter	Value	Source of value
N <sub>y</sub>	Project Technology Days = 3686538	Stove Database 2019
Project fuel Wood combusted	0.0045 t/day/stove	calculated
U <sub>y</sub>	Cumulative Usage Rate = 0.8668	Usage Survey 2019

**2020:**

Parameter	Value	Source of value
N <sub>y</sub>	Project Technology Days = 5061650	Stove Database 2019
Project fuel Wood combusted	0.0045 t/day/stove	calculated
U <sub>y</sub>	Cumulative Usage Rate = 0.8668	Usage Survey 2019

**2018/2019/2020**

Parameter	Value	Source
f <sub>NRB,b,y</sub>	Non-renewable biomass fraction = 92.00%	CDM default value for Kenya
EF <sub>wood, CO<sub>2</sub></sub>	Emission Factor = 1.7472 tCO <sub>2</sub> e/t wood	IPCC 2006 default
EF <sub>wood, nonCO<sub>2</sub></sub>	Emission Factor = 0.1356 tCO <sub>2</sub> e/t wood	IPCC 2006 default (CH <sub>4</sub> + N <sub>2</sub> O)

The following sources of information have been used in this context:

- /MR/
- /ER1/
- /PDD/
- /DB1-/DB3/
- /DB6-/DB8/
- /SD1/
- /T1/
- /GSM/

**Findings**

Compliant

**Conclusion**

VT can conclude the project emissions have been estimated in accordance to SDG requirements as correct and the emissions are conservatively determined.

**E.8.3. Calculation of leakage GHG emissions**

<b>Means of verification</b>	<b>Document review</b> The following document were reviewed: applied methodology, registered PDD, monitoring report and ER calculation spreadsheet and monitoring and usage survey report
<b>Findings</b>	CL02
<b>Conclusion</b>	Considering the appropriate possible reasons under MR section E3 and as per the closure of CL02 VT confirms that there are no leakage. The same was also verified during Hybrid Audit.

**E.8.4. Summary of calculation of GHG emission reductions or net anthropogenic GHG removals by sinks**

<b>Means of verification</b>	<b>Document review</b> The review involved crosschecking the values of the parameters used in ER calculations with the referenced sources. The following document were reviewed: applied methodology, registered PDD , monitoring report , ER calculation spreadsheet , Kitchen Performance Test 2018-19-20																																
<b>Findings</b>	Refer to FAR, CL 01, CL 02, CAR1 & CAR2 were raised.																																
<b>Conclusion</b>	<p>The details for emission reductions calculation during the monitoring period from 01/01/2018-31/12/2020 are provided in the ER calculation. Below is a summary of the calculations:</p> $ER_y = \sum_{b,y} (N_{p,y} * U_{p,y} * P_{p,b,y} * NCV_{b,fuel} * (f_{NRB,b,y} * EF_{fuel,CO2} + EF_{fuel, nonCO2})) - LE_{p,y}$ <p style="margin-left: 40px;">= 12,409t CO2e (2018) = 17,7482t CO2e (2019) = 24,368t CO2e (2020)</p> <p>ERy = 54,524 t CO2e (for the monitoring period, SDG13)</p> <p><b>2018:</b></p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th>Parameter</th> <th>Value</th> <th>Source of value</th> </tr> </thead> <tbody> <tr> <td>N<sub>y</sub></td> <td>Project Technology Days = 2577501</td> <td>Stove Database 2018</td> </tr> <tr> <td>U<sub>y</sub></td> <td>Cumulative Usage Rate = 0.8668</td> <td>Usage Survey 2018</td> </tr> <tr> <td>P<sub>y</sub></td> <td>Fuel Savings = 0,0032 t wood/day-stove</td> <td>calculated from PFT 2019</td> </tr> <tr> <td>Σ LE<sub>y</sub></td> <td>Leakage LE = 0 tCO<sub>2</sub>e/t year</td> <td>Monitoring survey 2018</td> </tr> </tbody> </table> <p><b>2019:</b></p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th>Parameter</th> <th>Value</th> <th>Source of value</th> </tr> </thead> <tbody> <tr> <td>N<sub>y</sub></td> <td>Project Technology Days = 3686538</td> <td>Stove Database 2019</td> </tr> <tr> <td>U<sub>y</sub></td> <td>Cumulative Usage Rate = 0.8668</td> <td>Usage Survey 2019</td> </tr> <tr> <td>P<sub>y</sub></td> <td>Fuel Savings = 0,0032 t wood/day-stove</td> <td>calculated from PFT 2019</td> </tr> <tr> <td>Σ LE<sub>y</sub></td> <td>Leakage LE = 0 tCO<sub>2</sub>e/t year</td> <td>Monitoring survey 2019</td> </tr> </tbody> </table> <p><b>2020:</b></p>			Parameter	Value	Source of value	N <sub>y</sub>	Project Technology Days = 2577501	Stove Database 2018	U <sub>y</sub>	Cumulative Usage Rate = 0.8668	Usage Survey 2018	P <sub>y</sub>	Fuel Savings = 0,0032 t wood/day-stove	calculated from PFT 2019	Σ LE <sub>y</sub>	Leakage LE = 0 tCO <sub>2</sub> e/t year	Monitoring survey 2018	Parameter	Value	Source of value	N <sub>y</sub>	Project Technology Days = 3686538	Stove Database 2019	U <sub>y</sub>	Cumulative Usage Rate = 0.8668	Usage Survey 2019	P <sub>y</sub>	Fuel Savings = 0,0032 t wood/day-stove	calculated from PFT 2019	Σ LE <sub>y</sub>	Leakage LE = 0 tCO <sub>2</sub> e/t year	Monitoring survey 2019
Parameter	Value	Source of value																															
N <sub>y</sub>	Project Technology Days = 2577501	Stove Database 2018																															
U <sub>y</sub>	Cumulative Usage Rate = 0.8668	Usage Survey 2018																															
P <sub>y</sub>	Fuel Savings = 0,0032 t wood/day-stove	calculated from PFT 2019																															
Σ LE <sub>y</sub>	Leakage LE = 0 tCO <sub>2</sub> e/t year	Monitoring survey 2018																															
Parameter	Value	Source of value																															
N <sub>y</sub>	Project Technology Days = 3686538	Stove Database 2019																															
U <sub>y</sub>	Cumulative Usage Rate = 0.8668	Usage Survey 2019																															
P <sub>y</sub>	Fuel Savings = 0,0032 t wood/day-stove	calculated from PFT 2019																															
Σ LE <sub>y</sub>	Leakage LE = 0 tCO <sub>2</sub> e/t year	Monitoring survey 2019																															

Parameter	Value	Source of value
$N_Y$	Project Technology Days = 5061650	Stove Database 2019
$U_Y$	Cumulative Usage Rate = 0.8668	Usage Survey 2019
$P_Y$	Fuel Savings = 0,0032 t wood/day-stove	calculated from PFT 2019
$\Sigma LE_Y$	Leakage LE = 0 tCO <sub>2</sub> e/t year	Monitoring survey 2020
<b>2018/2019/2020</b>		
Parameter	Value	Source
$f_{NRB,b,y}$	Non-renewable biomass fraction = 92.00%	CDM default value for Kenya
$EF_{wood, CO_2}$	Emission Factor = 1.7472 tCO <sub>2</sub> e/t wood	IPCC 2006 default
$EF_{wood, nonCO_2}$	Emission Factor = 0.1356 tCO <sub>2</sub> e/t wood	IPCC 2006 default (CH <sub>4</sub> + N <sub>2</sub> O)
<p>The following sources of information have been used in this context:</p> <ul style="list-style-type: none"> <li>- /MR/</li> <li>- /ER1/</li> <li>- /PDD/</li> <li>- /DB1-/DB3/</li> <li>- /DB6-/DB8/</li> <li>- /SD1/</li> <li>- /T1/</li> <li>- /GSM/</li> </ul> <p>TÜV NORD confirms:</p> <p>(a) All data was available for this monitoring period</p> <p>(b) Crosschecks have been done on the values used in ER calculation with their respective sources of data (refer to section E.6.2 above).</p> <p>(c) Appropriate methods and formulae for calculating GHG emission reductions have been followed;</p> <p>(d) Assumptions, emission factors and default values that have been applied in the calculations have been justified;</p> <p>(e) A pro-rata approach was correctly applied to the calculations of GHG emission reductions;</p> <p>(f) The first day in which CERs are being claimed has been correctly specified.</p>		

#### E.8.5. Comparison of actual GHG emission reductions or net anthropogenic GHG removals by sinks with estimates in registered PDD

<b>Means of verification</b>	<b>Document review</b> The following document were reviewed: registered PDD and monitoring report.
<b>Findings</b>	Compliant
<b>Conclusion</b>	The total estimated ex ante emission reductions for this monitoring period according to the PDD is 210,022 tCO <sub>2</sub> e. The corresponding actual emission reduction in the monitoring period as reported in the monitoring report and verified by TÜV NORD is 54,524 tCO <sub>2</sub> e, over the 3 year monitoring period. The emission reductions constitutes 12,409 tCO <sub>2</sub> e for the period 01/01/2018 - 31/12/2018, 17,748 tCO <sub>2</sub> e for the period 01/01/2019- 31/12/2019 and 24,368 tCO <sub>2</sub> e for the period 01/01/2020- 31/12/2020.

**E.8.6. Remarks on difference from estimated value in registered PDD**

<b>Means of verification</b>	<b>Document review</b> The following document were reviewed: registered PDD and monitoring report
<b>Findings</b>	Compliant
<b>Conclusion</b>	TÜV NORD considers the reason provided for the difference in the actual ERs achieved and the estimates in the PDD to be justifiable. The variation is due to fewer stoves installed (16,728 stoves) than projected in the PDD (41,100 stoves).

**E.8.7. Actual GHG emission reductions or net anthropogenic GHG removals by sinks during the first commitment period and the period from 1 January 2013 onwards**

<b>Means of verification</b>	Document review The following document were reviewed: registered PDD and monitoring report
<b>Findings</b>	Compliant
<b>Conclusion</b>	The data provided in the MR is correct as well as the related breakdown. The pro rata approach was correctly applied to the calculations of GHG emission reductions or net anthropogenic GHG removals in accordance with the project rules, as the monitoring period starts after 01 January 2013 and ends anytime thereafter.

**SECTION F. Internal quality control**

Before the submission of the final verification report a technical review of the whole verification procedure was carried out. The technical reviewers are competent GHG auditors where at least one is being appointed for the scope this project falls under. The technical reviewers are not considered to be part of the verification team and thus not involved in the decision-making process up to the technical review.

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

After the successful technical review an overall (esp. procedural) assessment of the complete verification has been carried out by a senior assessor located in the accredited premises of TÜV NORD.

After this step the submission for requesting for issuance is conducted

**SECTION G. Verification opinion**

TÜV NORD CERT has performed the 3<sup>rd</sup> periodic verification of the project titled “Improved Jikos – Better Living for Rural Population”, Gold Standard Reference Number GS2457, which is located in Kenya, and applying the methodology “Technologies and Practices to Displace Decentralized Thermal Energy Consumption (11/04/2011)”. The verification was performed based on the requirements for Voluntary Offset Projects under the Gold Standard (GS4GG) and the requirements set by CDM and relevant guidance provided by CMP and the CDM Executive Board.

The verification consisted of the following steps:

- Contract review
- Appointment of team members and technical reviewers
- A desk review of the carbon and SD Monitoring Reports<sup>/MR/</sup> submitted by the client and additional supporting documents with the use of customized verification protocol<sup>/CPM/</sup> according to the Validation and Verification Standards<sup>/VVS/GS-VVM/</sup>,
- Verification planning,
- On-Site assessment,
- Background investigation and follow-up interviews with personnel of the project developer and its contractors,
- Draft verification reporting
- Resolution of corrective actions (if any)
- Final verification reporting
- Technical review
- Final approval of the verification.

The management of Fastenopfer (the project participant) is responsible for the preparation of the GHG emissions data and the reported GHG emission reductions of the project on the basis set out within the monitoring plan contained in the registered PDD. The development and maintenance of records and reporting procedures, in accordance with the plan including the calculation and determination of GHG emission reductions from the project, is the responsibility of the management of the project.

TÜV NORD CERT has checked the project Monitoring Report<sup>/MR/</sup> for the reporting period 01/01/2018-31/12/2020. TÜV NORD CERT confirms that the project is implemented as described in the validated and registered project design documents. Installed equipment (efficient cook stoves) being essential for generating emission reductions run reliably. The monitoring system is in place and the Project is generating GHG emission reductions as a Gold Standard(GS4GG) VER project.

TÜV NORD CERT confirms that the GHG emission reductions are calculated without material misstatements. Our opinion relates to the project’s GHG emissions, resulting GHG emission reductions, the validated and registered project baseline, approved monitoring plan and its associated documents.

**SECTION H. Certification statement**

Fastenopfer (the project participant) has commissioned the TÜV NORD JI/CDM Certification Program to carry out the 3<sup>rd</sup> periodic verification of the Project Activity(PA) titled “**Improved Jikos – Better Living for Rural Population**”, **Gold Standard Reference Number GS2457**, with regard to the relevant requirements for GS project activities. The PA reduces GHG emissions by reducing the use of non-renewable biomass or fossil fuel for stoves. Technologies disseminated under the PA are more efficient than baseline cook stoves technology(ies). This verification covers the emission reductions achieved by single PA in its corresponding monitoring periods:

<b>Monitoring period (MP):</b>	
<b>From:</b>	<b>To:</b>
01/01/2018-31/12/2020	31/12/2020

In the course of the verification 02 Corrective Action Requests (CAR), 02 Clarification Requests (CL) were raised and successfully closed. Besides, 01 Forward Action Request (FAR) from validation has been raised and closed. The verification is based on the draft monitoring report(s), revised monitoring report(s), the monitoring plan as set out in the registered PA-DD(s), the validation report, emission reduction calculation spreadsheet and supporting documents made available to the TÜV NORD JI/CDM CP by the project participant.

As a result of this verification, the verifier confirms that:

- all operations of the project are implemented and installed as planned and described in the validated project design document.
- the monitoring plan is in accordance with the applied approved GS methodology.
- the monitoring system is in place and functional. The project has generated GHG emission reductions.
- the project contributes to sustainability development

As the result of the 3<sup>rd</sup> periodic verification, the verifier confirms that the GHG emission reductions are calculated without material misstatements in a conservative and appropriate manner. TÜV NORD JI/CDM CP herewith confirms that the PA has achieved emission reductions in the above-mentioned reporting period as follows:

Emission reductions:                    **54,524 tCO<sub>2e</sub>**

Essen, 07/12/2021


*K. Rami*

Kunal Rami  
TÜV NORD JI/CDM Certification Program  
Verification Team Leader

## Appendix 1. Abbreviations

Abbreviations	Full texts
CAR	Corrective Action Request
CDM	Clean Development Mechanism
CER	Certified Emission Reductions
CL	Clarification Request
CO <sub>2</sub>	Carbon Dioxide
CO <sub>2</sub> e	Carbon Dioxide Equivalent
DOE	Designated Operational Entity
EB	CDM Executive Board
ERs	Emission Reductions
FAR	Forward Action Request
GHG	Green House Gas(es)
GS	Gold Standard
GWP	Global Warming Potential
KPT	Kitchen Performance Test
MP	Monitoring Plan
MR	Monitoring Report
PDD	Project Design Document
PP	Project Participant
PD	Project Developer
SDI	Sustainable Development Indicator
UNFCCC	United Nations Framework Convention on Climate Change
VER	Verified Emission Reductions
VVS	Validation and Verification Standard
PA	Project Activity

# Appendix 2. Competence of team members and technical reviewers



**Statement of Competence**  
Appointment and authorization according to the procedures of the TÜV NORD JRCOM Certification Program

**Mr. Kunal Rami**


SCHEME	STATUS	VALID UNTIL
CDM	Senior Assessor (Validation, Verification) Technical Reviewer	2023-03-26
VCS / ISO 14064-2	Senior Assessor Technical Reviewer	2023-03-26

Authorization status for technical areas within sectoral scopes:

CODE	TECHNICAL AREA
1.2	Renewables
2.1	Energy distribution
3.1	Energy demand
6.1	Construction
7.1	Transport
13.1	Solid waste and wastewater

224 - Rev. 9, Date: 2020-12-03

24\_V005-F20\_2020-12-03\_w6 30\_V005-F20\_w6 | 2019-10-25



**Statement of Competence**  
Appointment and authorization according to the procedures of the TÜV NORD JRCOM Certification Program

**Ms. Christina Stöhr**


SCHEME	STATUS	VALID UNTIL
CDM	Senior Assessor (Validation, Verification) Technical Reviewer	2023-05-26
VCS / ISO 14064-2	Senior Assessor/ Technical Reviewer	2023-05-26

Authorization status for technical areas within sectoral scopes:

CODE	TECHNICAL AREA
6.1	Thermal energy generation
1.2	Renewables
13.1	Solid waste and wastewater

200 - Rev. 8 Date: 2021-03-29

26\_V005-F20\_2021-03-29\_w6 30\_V005-F20\_w6 | 2019-10-25



**Statement of Competence**  
Appointment and authorization according to the procedures of the TÜV NORD JRCOM Certification Program

**Mr. Stefan Winter**

SCHEME	STATUS	VALID UNTIL
CDM	Senior Assessor (Validation, Verification) Technical Reviewer	2023-07-27
VCS / ISO 14064-2	Senior Assessor (Validation, Verification) Technical Reviewer	2023-07-27

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
8.2	Capacitors, film and electrolytic
8.1	Aluminium and magnesium production
8.2	Iron, steel and Ferro alloy production
10.1	Fugitive emissions from oil and gas
13.1	Solid waste and wastewater
13.2	Mercury

163 - Rev. 7, Date: 2020-07-22

163\_V005-F20\_2020-07-22\_w6 30\_V005-F20\_w6 | 2019-10-25

## Appendix 3. Documents reviewed or referenced

**Table 0-1:** Documents provided by the project participant(s)

Reference	Document
<b>Monitoring Report</b>	
<b>/MR/</b>	Monitoring Report dated 2021-04-07 v 1.0 Monitoring Report dated 2021-11-02 v 2.0 Monitoring Report dated 2021-11-25 v 3.0 Monitoring Report dated 2021-12-06 v 4.0
<b>ER Spreadsheet</b>	
<b>/ER1/</b>	Emission reduction worksheet for Monitoring Report dated 2021-04-07 version 03.0 and 2021-11-25 version 04.0
<b>Database</b>	
<b>/DB1/</b>	Sales Database
<b>/DB2/</b>	Survey <b>Spreadsheet</b> – <ul style="list-style-type: none"> <li>•</li> <li>• Data_Usage_Monitoring_Survey_2018_GS2457_v1</li> <li>• Data_Usage_Monitoring_Survey_2019_GS2457_v1</li> <li>• 2020_Monitoring_Survey_Sampling_FINAL20210201_FOR_REPORT</li> </ul>
<b>/DB3/</b>	Usage Survey <b>Spreadsheet</b> <ul style="list-style-type: none"> <li>• usage_monitoring_survey_sampling2018_GS2457</li> <li>• Sampling Survey 2019_v1</li> <li>• Carbon_Usage_Monitoring_Survey_2020_20210311_FINAL_FOR_REPORT</li> </ul>
<b>/DB6/</b>	Training and employee records
<b>/DB7/</b>	KPT/PFT Survey <b>Spreadsheet</b> : <ul style="list-style-type: none"> <li>• 20190823_FINAL_sampling_FOR_REPORT.xlsx</li> <li>• 20190925_KPT_Data_File_2019_FOR_REPORT</li> </ul>
<b>/DB8/</b>	20191016_KPT_Update_GS2457_V01_FOR_REPORT
<b>/DEV/</b>	GS2457_Deviation-Request-Form_Remote_Audit_20210413_FINAL_GS: Decision ON Deviation request approved by the GS for remote monitoring under COVID-19 dated 26/04/2021
<b>/E-Mail/</b>	E-Mail confirmation from GS on applicability of fNRB default value for Kenya with subject “Re fNRB default value for Kenya (TPDDTEC section 3.1Cf)”
<b>/TA/</b>	Transition Annex submitted by client dated 13/08/2021

Reference	Document
<b>Sustainability Development Indicator</b>	
<b>/SD1/</b>	Employment Records
<b>Training</b>	
<b>/T1/</b>	<ul style="list-style-type: none"> <li>• Artisan Meeting and training records</li> <li>• Artisan_evolution_202105 <b>Spreadsheet</b></li> </ul>
<b>QA/QC</b>	
<b>/QA1/</b>	Operation and Maintenance Manual

Table 0-2: Background investigation and assessment documents

Reference	Document
<b>/CPM/</b>	TÜV NORD JI / CDM CP Manual (incl. CP procedures and forms)
<b>/fnrb/</b>	<ul style="list-style-type: none"> <li>• Default Values of Fraction of Non-Renewable Biomass published by the CDM Board in EB 90</li> </ul>
<b>/GS4GG TA/</b>	GS4GG Requirements
<b>/GSGWPI/</b>	The Application of Global Warming Potentials for Gold Standard Project Activities
<b>/GSM/</b>	Technologies and practices to displace decentralized thermal energy consumption, version 1.0 (TPDDTEC)
<b>/GSP/</b>	PDD- PDD Version 3.3 dated 26/01/2016 Passport- Version 3.1 dated 26/01/2016
<b>/GSR/</b>	Gold Standard Requirements version 2.2
<b>/GSS/</b>	Guidelines for Sampling and Surveys for CDM Project Activities and Programme Of Activities, EB 67, Annex 6
<b>/GST/</b>	Gold Standard Toolkit version 2.2
<b>/IPCC/</b>	Good Practice Guidance and Uncertainty Management in National Greenhouse Gas Inventories: <ol style="list-style-type: none"> <li>1. Non-CO<sub>2</sub> Stationery Combustion</li> <li>2. Emissions from Livestock and Manure Management (Chapter 10)</li> <li>3. IPCC Second Assessment Report – Climate Change 1995: A Report of the Intergovernmental Panel on Climate Change</li> </ol>
<b>/KP/</b>	Kyoto Protocol (1997)
<b>/MA/</b>	Decision 3/CMP. 1 (Marrakesh – Accords)
<b>/PS/</b>	CDM Project Standard (Version 2.0)

Reference	Document
<i>/SSP/</i>	Guideline for Sampling and surveys for CDM project activities and programme of activities, Version 04
<i>/SSS/</i>	Standard for Sampling and Surveys for CDM Project Activities and Programme Of Activities, version 09
<i>/VAL/</i>	Validation Report for GS project “Improved Jikos – Better Living For Rural Population” version 2.1 dated 27/06/2018
<i>/VER1/</i>	Verification Report for GS project “Improved Jikos – Better Living For Rural Population” version 2.1, dated 2018-06-19
<i>/VER/</i>	Documents of previous verification (Monitoring report, verification report, ER calculation sheet)
<i>/VVS/</i>	CDM Validation and Verification Standard (Version 02.0)

Table 0-3: Websites used

Reference	Link	Organisation
<i>/gs/</i>	<a href="http://www.goldstandard.org/">http://www.goldstandard.org/</a>	CDM Gold Standard
<i>/unfccc/</i>	<a href="http://cdm.unfccc.int">http://cdm.unfccc.int</a>	UNFCCC
<i>/ipcc/</i>	<a href="http://www.ipcc-nggip.iges.or.jp">www.ipcc-nggip.iges.or.jp</a>	IPCC publications
<i>/ss/</i>	<a href="http://www.raosoft.com/samplesize.html">http://www.raosoft.com/samplesize.html</a>	Sampling Size

## Appendix 4. Clarification requests, corrective action requests and forward action requests

**Table 1. Remaining FAR from validation and/or previous verification**

<b>FAR ID</b>	03 of validation	<b>Section no.</b>	MR section A1, A2	<b>Date:</b> 08/05/18
<b>Description of FAR</b>				
Please inform whether stakeholders project launch meeting in Nyeri, Machakos and/or Laikipia were conducted and document were submitted to GS. Section A1 of MR is still referring to the Nyeri, Machakos and/or Laikipia.				
<b>Project participant response (1<sup>st</sup> round)</b>				<b>Date:</b> 26/07/2021
<p><b>Validation FAR B3 is stated as:</b> "Documentation about the stakeholders project launch meeting in Machakos and/or Laikipia shall be submitted to GS once available. The DOE shall assess this documentation accordingly during validation (provided that it is available until the end of the validation process)." And also: "[...] to be checked at the time of first periodic verification."</p> <p>The project has not yet expanded into the said project areas. Thus, no additional project launch meetings were held. This information has been added to the monitoring report section B.1.1.</p> <p>It is important to note that the FAR only concerns Machakos and Laikipia. The Local Stakeholder meetings were hold in Nyeri and Kitui as documented in the LSC Report from 2013.</p>				
<b>Documentation provided by project participant (1<sup>st</sup> round)</b>				
<input type="checkbox"/>	Changes in the PDD	Section(s):	New version No.:	
<input type="checkbox"/>	Changes in MR	Section(s):	New version No.:	
<input type="checkbox"/>	Changes in XLS	Worksheet(s):	New version No.:	
<input type="checkbox"/>	Other:			
<b>DOE assessment (1<sup>st</sup> round)</b>				<b>Date:</b> DD/MM/YYYY
<p>It is confirmed via Remote/on-site visit and MR that current monitoring period only covers Kitui. As per interview with the project owner no further developments and expansion tool place in Machakos and Laikipia.</p> <p>FAR remains open</p>				
<b>Conclusion</b> Tick the appropriate checkbox		<input type="checkbox"/> Additional action should be taken (finding remains open) <input type="checkbox"/> The finding is closed <input checked="" type="checkbox"/> To be verified during next verification		

**Table 2. CL from this verification**

<b>CL ID</b>	01	<b>Section no.</b>		<b>Date:</b> 30.06.2021
<b>Description of CL</b>				
<ol style="list-style-type: none"> <li>During the PFT survey it was identified that the number of people/eater in household varies but the quantity of wood in kg they consumed during survey remained same, please clarify this</li> <li>During the PFT survey on-site and via call it was identified that most of the HHs replied that they use 10 kg/Week whereas the PP sample survey for PFT refers to as higher values which are conservative yet different than those of database used for ERs calculation please clarify.</li> <li>During the survey calls some users mentioned they do not use the project stove anymore due to the demolition or other reasons, please clarify how those users are being removed from database and if there is any procedure in place with which users can inform PP of such removal and non-use of project stove please?</li> <li>During the Survey HHs replied with the different survey and stove construction date than the one mentioned in database Excel file by PP please clarify</li> </ol>				
<b>Project participant response (1<sup>st</sup> round)</b>				<b>Date:</b> DD/MM/YYYY
<p>The VVB survey with KPT participants conducted during verification relies on interviews with household members that participated in the PFT update in 2019. Already in European societies where numbers and measures play a far more important role, it would be difficult to receive reliable estimates based on people's memories on an event that took place approximately two years earlier. In the context for rural Kenya (and Kitui specifically), estimating in kg's is much less practiced. In fact, people often do not calculate in terms of kg's but in terms of bundles of firewood or in terms of number of sticks. This</p>				

depends on the families and their habits in terms of fuel wood collection and/or purchase.

However, these differences on household level perception of fuel wood consumption are no issue to the project because the PFT Update is conducted in a very professional manner where trained enumerators weigh the added fuel wood of each household with a calibrated scale. In addition, each household reports on the number of meals served per day and per meal. This allows us to have a very accurate picture of fuel wood consumption and persons being present in the household during PFT update. In short, the estimates of the PFT update are very precise and as reliable as possible in a rural context characterized by difficulty in accessing remote households.

1. The personal cooking patterns of the cook, the types of food prepared and the types of pots, among other reasons, influence the quantity of fuel wood used. Also, preparing food always needs a certain amount of energy, independently of the number of people cooked for. In rural Kenya, households always cook excess food. Therefore, there is no clear correlation between the number of people eating and the fuelwood used.
2. Given the explanations above, we believe that the VVB-survey observation of varying numbers of members in the households while constant kg of fuelwood consumption is due to imprecise answers by interviewees caused by (a) the time passed since the original KPT exercise and (b) the difficulty of people in rural areas of expressing reliable estimates in kg's. Also for the second point, we believe that the households' answers were imprecise due to the two mentioned points above. The values measured during the PFT update are as accurate as possible as explained in the introduction above.
3. Methodologically speaking, the non-used stoves, including demolished ones, are subsumed with the usage rate for each age group that is surveyed yearly with a random, representative sample according to Gold Standard guidelines. The final usage rate is representative for the usage of stoves for each stove age group (as the usage rate is weighed in accordance with the share of each stove age group in the overall database). Some households are only temporarily not using the stoves and might start using them again during the next Usage & Monitoring Survey. Thus, we can conclude that non-used stoves are appropriately subsumed in the applied usage rate. Therefore, stoves are not systematically removed if known not in use. However, the team records stoves out of use during the ongoing project activities (such as consumer awareness campaigns, consumer incentive activities, monitoring activities etc.) and specific project exercises such as monitoring surveys and PFT updates. In addition, households can liaise with the artisan or lead artisans of their region in order to report non-functioning stoves or alternatively, they can call the project implementing team via the project specific phone number that is provided on project leaflets.
4. The reason for this can be manifold, including the wearing out of the letters following usage of the stove and the inability to read of many members of rural households. The remote audit, necessary due to the covid-19-related travel restrictions, added to this. The few site visits by the independent consultant regarding the random sample from stove of the KPT showed no differences between our database and the return to the survey. We compared the concerned stove construction date with the Sales Purchase Agreements (SPAs) and found no differences between our database and the SPAs. The scanned SPAs are attached and the comparison sheets for the Usage and Monitoring Survey related stove sample is updated with the information (yellow columns).

Documentation provided by project participant (1 <sup>st</sup> round)		
<input type="checkbox"/> Changes in the PDD	Section(s):	New version No.:
<input type="checkbox"/> Changes in MR	Section(s):	New version No.:
<input type="checkbox"/> Changes in XLS	Worksheet(s):	New version No.:
<input type="checkbox"/> Other:		

<b>DOE assessment (1<sup>st</sup> round)</b>	<b>Date:</b> DD/MM/YYYY
--	----------------------------

The reason and justification given by client is accepted as plausible considering the fact that in such a community cook stove project there are certain deviation during interviews, which can also be confirmed during on-site/remote site visit by local expert.

All the clarifications and deviations are replied satisfactory based on the proof of PD's local team

1. The clarification reply given by PP is accepted. Cooking pattern and habit of eating are of concern and effect the fuel consumption not number of members in HH.
2. During the remote call and on-site visits for PFT survey verification it was identified that justification given by PP is plausible. Some users were not able to recall all information, as they do not keep them in written form as record. Replies were more of assumption.
3. Methodological explanation regarding GS guideline and usage rate approach is accepted.
4. As per submitted SPAs and justification given by PP it is confirmed that there are no deviations in survey and stove construction dates.

<b>Conclusion</b> <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
---	--

<b>CL ID</b>	02	<b>Section no.</b>		<b>Date:</b> 30.06.2021
<b>Description of CL</b>				
Considering the section B.4 of PDD Please clarify how Leakage is deemed as zero in MR section E2, D2 and in Excel calculation please				
<b>Project participant response (1<sup>st</sup> round)</b>				<b>Date:</b> DD/MM/YYYY
The section E.3 of the monitoring report includes the leakage assessment (as per PDD B.4) and clarifies why leakage is deemed zero in section D.2 and E.2. The corresponding section E.3 in the MR has been slightly updated to make this more explicit.				
<b>Documentation provided by project participant (1<sup>st</sup> round)</b>				
<input type="checkbox"/>	Changes in the PDD			New version No.:
<input type="checkbox"/>	Changes in MR			New version No.:
<input type="checkbox"/>	Changes in XLS	Worksheet(s):		New version No.:
<input type="checkbox"/>	Other:			
<b>DOE assessment (1<sup>st</sup> round)</b>				<b>Date:</b> DD/MM/YYYY
Based on the Remote/on-site interviews and check of PDD and MR it is confirmed that there is no leakage. PP's reply is accepted.				
<b>Conclusion</b> <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			

<b>CL ID</b>	03	<b>Section no.</b>		<b>Date:</b> 24.11.2021
<b>Description of CL</b>				
Please clarify:				
<ol style="list-style-type: none"> <li>Why the project implementation is only limited to Kitui and what is the justification that temporarily suspended cooperation in 2017 with the regional implementing organization in Nyeri, Caritas Nyeri still not lifted up? Reply by Fastenopfer:</li> <li>Why these other two sites are also not yet included in monitoring please, Machakos and Laikipia?</li> </ol>				
<b>Project participant response (1<sup>st</sup> round)</b>				<b>Date:</b> 25.11.2021
<ol style="list-style-type: none"> <li>Fastenopfer's aim is to empower small organization to become more independent. The strict guidelines and high quality expectations of the Gold Standard certification process led to the decision, after a first pilot phase with two partner organisations, to first concentrate on one partner organization so that it will be able to navigate the project more independently. The requirements to pick up a second partner organization are not yet met.</li> <li>The demand for stoves in Kitui County, in conjunction with the local capacities, is currently high enough so that an extension to Machakos and/or Laikipia is not yet necessary.</li> </ol>				
<b>Documentation provided by project participant (1<sup>st</sup> round)</b>				
<input type="checkbox"/>	Changes in the PDD			New version No.:
<input type="checkbox"/>	Changes in MR			New version No.:
<input type="checkbox"/>	Changes in XLS	Worksheet(s):		New version No.:
<input type="checkbox"/>	Other:			
<b>DOE assessment (1<sup>st</sup> round)</b>				<b>Date:</b> DD/MM/YYYY
Based on call interview and discussion with PP above two justifications are accepted. There are many small organisations but not a big organization locally which can support PP which results in lake of capacity building and resources to meet high quality GS requirements. Thus PP decided to concentrate only at location Kitui.				
<b>Conclusion</b> <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			

Table 3. CAR from this verification

<b>CAR ID</b>	01	<b>Section no.</b>		<b>Date:</b> 30.06.2021
<b>Description of CAR</b>				
<p>As per PDD section B.7 and MR section D.2</p> <p>The parameter fNRB,i,y is subject to monitoring parameter as per registered PDD. The value of this parameter is as per the CDM default value, which is already outdated on and after 18 September 2017. Corrective action is requested in this regard.</p>				
<b>Project participant response (1<sup>st</sup> round)</b>				
<p>As per PDD B.4 section A, the fNRB value of this project is the Kenyan official CDM default value. As per methodology, the value is fixed for the crediting period. Therefore, there is no need to update it. The value has been registered under "monitoring parameters" because "the project proponent may at any time over the course of a project activity choose to re-examine renewability by conducting a new NRB assessment." (PDD B.4 section 4).</p> <p>Recently, the PP has investigated whether a more recent fNRB value for Kenya is available, but found that there is no updated fNRB value for Kenya. In addition, the PP has reached out to the Kenyan designated national authorities (DNA) in charge for setting the default values but not received any response. Finally, the PDD of GS-project "Hifadhi-Livelihoods Improved Cookstove Project in Tharaka Nithi County, Kenya" (see PDD document provided section B.4), quotes the Kenyan DNA stating that the DNA does not plan to update the expired value. For these reasons, the PP has chosen not to re-examine the fNRB value in the ongoing verification period (which is the 3<sup>rd</sup> verification of the first crediting period), but to apply the registered fNRB value for Kenya.</p> <p>In addition, during the preparation of documentation for the renewal of crediting period (renewal towards the 2<sup>nd</sup> crediting period is going on in parallel to this verification), we have been in touch with Gold Standard/SustainCert, who confirmed that for the verification linked to the first crediting period we shall use the default fNRB value even if it has expired (email provided).</p>				
<b>Documentation provided by project participant (1<sup>st</sup> round)</b>				<b>Date:</b> 30.06.2021
<input type="checkbox"/>	Changes in the PDD	Section(s):	New version No.:	
<input type="checkbox"/>	Changes in MR	Section(s):	New version No.:	
<input type="checkbox"/>	Changes in XLS	Worksheet(s):	New version No.:	
<input type="checkbox"/>	Other:			
<b>DOE assessment (1<sup>st</sup> round)</b>				<b>Date:</b> DD/MM/YYYY
Email confirmation dated 20.10.2020 from Gold Standard <sup>/E-Mail/</sup> regarding the applicability of fNRB default value. The value of 92% is thus accepted as appropriate.				
<b>Conclusion</b> <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		

<b>CAR ID</b>	02	<b>Section no.</b>		<b>Date:</b> 30.06.2021
<b>Description of CAR</b>				
Not all sustainability monitoring indicators of passport are listed in Monitoring report please correct.				
<b>Project participant response (1<sup>st</sup> round)</b>				
<p>The project is currently transitioning to GS4GG (we provided the transition annex with our first batch of documents for information). The new template of the Monitoring Report focusses on SDGs. When our project started, there have not been any SDGs. We therefore decided to focus in the MR on the selected SDGs and their associated parameters, in order to comply best with the format.</p> <p>During the first feedback round for our Renewal of Crediting Period (parallel to this verification), we did not receive any feedback on the focus on three SDGs. Some comments were given on the associated parameters and their presentation. The Transition Annex has been adapted accordingly, as well as information in the MR.</p>				
<b>Documentation provided by project participant (1<sup>st</sup> round)</b>				<b>Date:</b> DD/MM/YYYY
<input type="checkbox"/>	Changes in the PDD	Section(s):	New version No.:	
<input type="checkbox"/>	Changes in MR	Section(s):	New version No.:	
<input type="checkbox"/>	Changes in XLS	Worksheet(s):	New version No.:	
<input type="checkbox"/>	Other:			

<b>DOE assessment (1<sup>st</sup> round)</b>		<b>Date:</b> DD/MM/YYYY
As per GS4GG transition process PP selected SDG5 and 7 as monitoring indicators for monitoring, which are elaborated appropriately in MR and verification team could also verify necessary evidence and via hybrid Audit conclude that those indicators are fulfilled.		
<b>Conclusion</b> <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	

**Table 4. FAR from this verification**

<b>FAR ID</b>	Not applicable	<b>Section No.</b>	N/A	<b>Date:</b> DD/MM/YYYY
<b>Description of FAR</b>				
N/A				
<b>Project participant response</b>				<b>Date:</b> DD/MM/YYYY
N/A				
<b>Documentation provided by project participant</b>				
N/A				
<b>DOE assessment</b>				<b>Date:</b> DD/MM/YYYY
N/A				