

FINAL VERIFICATION REPORT

“Kitambar Switching Fuel Project”



Document Prepared By RINA Services S.p.A. (RINA)

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Summary:

RINA Services S.p.A. (RINA), commissioned by Sustainable Carbon – Projetos Ambientais Ltda, has verified the greenhouse gas emission reductions reported for the project activity “Kitambar Switching Fuel Project” in Brazil, VCS Registration Reference N° 33, for the period 01/06/2014 to 31/03/2015, with regard to the relevant requirements for VCS and CDM activities.

The objective of the verification is to have an independent review ex post determination of the monitored reductions in GHG emission reductions, Verification was conducted using RINA procedures in line with the requirements specified in the VCS Version 3 Requirements, CDM M&P, the latest version of the CDM Validation and Verification Standard, and relevant decisions of the COP/MOP and the CDM EB and applying standard auditing techniques. The verification consisted of desk review, on-site assessment and the resolution of outstanding issues and the issuance of the final verification report and certification.

The verification shall ensure that reported emission reductions are complete and accurate in accordance with applicable VCS Version 3 requirements, which refer to CDM rules, in order to be certified.

The GHG emission reductions were calculated on the basis of the approved methodology AMS-I.E. Switch from Non-Renewable Biomass for Thermal Applications by the User, version 01 of 01/02/2008 and the monitoring plan included in the registered Project Design Document, version 02 of 17/12/2008.

In conclusion, it is RINA's opinion that the project activity “Kitambar Switching Fuel Project” in Brazil, VCS project ID 33, meets all relevant requirements for VCS standard and guidelines and correctly applies the baseline and monitoring methodology AMS-I.E. Switch from Non-Renewable Biomass for Thermal Applications by the User, version 01 of 01/02/2008. The monitoring system is in place and the emission reductions are calculated without material misstatement. Hence, RINA is able to certify that the emission reductions from the project during the monitoring period 01/06/2014 to 31/03/2015 amount to 43,944 tCO₂e.

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1 INTRODUCTION

1.1 Objective

RINA has been commissioned by “Sustainable Carbon – Projetos Ambientais Ltda” to perform an independent verification of its VCS project, “Kitambar Switching Fuel Project”, already registered under VCS with Project ID. 33 for the reported GHG emission reductions for the given monitoring period 01/06/2014 to 31/03/2015. The VCS projects must undergo independent third party verification and certification of emission reductions as the basis for issuance of Voluntary Emission Reductions (VERs/VCUs).

The objectives of this verification exercise are, by review of objective evidence, to establish that:

- The project activity has been implemented and operated as per the project description (PD) and that all physical features (technology, project equipment, and monitoring and metering equipment) of the project are in place;
- Monitoring report and other supporting documents are complete;
- The data is recorded and stored as per the monitoring methodology and approved monitoring plan.
- To confirm that the monitoring system is implemented and fully functional to generate Voluntary Emission Reductions (VERs/VCUs) without any double counting, and
- To establish that the data reported are accurate, complete, consistent, transparent and free of material error or omission by checking the monitoring records and the emissions reduction calculation.

1.2 Scope and Criteria

The verification scope is:

- to verify that actual monitoring systems and procedures are in compliance with the monitoring systems and procedures described in the monitoring plan;
- to evaluate the GHG emission reduction data and express a conclusion with a reasonable level of assurance about whether the reported GHG emission reduction data is free from material misstatement;
- to verify that reported GHG emission data is sufficiently supported by evidence.

The project is assessed against the requirements of VCS version 3 and related rules and guidance. RINA has, based on the recommendations in the latest version of CDM Validation and Verification Manual, and employed a rule-based approach (as criteria) in the verification, focusing on the identification of significant reporting rules and the reliability of project monitoring.

Verification is not meant to provide any consultancy towards the project participants. However, stated requests for clarifications and/or corrective actions may have provided input for improvement of the monitoring.

1.3 Level of Assurance

All the revisions of the verification report before being submitted to the client were subjected to an independent internal technical review to confirm that all verification activities had been completed according to the pertinent RINA instructions.

The technical review was performed by a technical reviewer(s) qualified in accordance with RINA's qualification scheme for VCS and CDM validation and verification.

The verification team and the technical reviewers consist of the following personnel.

Role	Last Name	First Name	Country
Team Leader, Verifier & Technical Expert	Carvalho	Thaís	Brazil
Technical reviewer	Alfieri	Felice	Italy
Technical reviewer (expert	Augustus Arokiasamy	Cyril	India

1.4 Summary Description of the Project

Kitambar is a small producer of ceramic bricks and tiles located in the countryside of Caruaru (PE), in the northeast of Brazil. The factory historically used native timber without a sustainable management plan from the Caatinga, an endangered and unique Brazilian ecosystem, as fuel to produce ceramic parts. However, in 2007, the factory chose to create a more sustainable production process to reduce its environmental impact and started the process of switching the fuel to renewable biomass. They abandoned the use of native wood and invested in equipment to feed the kilns with renewable biomass, such as cashew tree residues and sawdust. The switch significantly reduced GHG emissions into the atmosphere and also generated carbon credits that are commercialized in the voluntary carbon market. Furthermore, since the implementation of the project, the factory has invested in improving the workplace and supporting social projects that benefit the surrounding community.

The main information of the project activity is summarized in the table below:

Project Participant(s)	Cerâmica Kitambar Artefatos de Cerâmica Ltda. Sustainable Carbon – Projetos Ambientais Ltda
Project Title	Kitambar Switching Fuel Project
Location of the project	Rodovia BR 232, Km 136, Distrito Industrial Caruaru - Pernambuco – Brazil Postal code: 55.000-000

Methodology(ies)	AMS-I.E. Switch from Non-Renewable Biomass for Thermal Applications by the User, version 01 of 01/02/2008		
Sectoral Scope(s)	1	RINA's Technical Area(s)	1.1
Registered PDD	version 2 of 17/12/2008		
Starting date of the crediting period	01/01/2007		
Project's crediting period	01/01/2007 to 31/12/2016		
Project documentation link	VCS project page available at < http://www.vcsprojectdatabase.org/#/project_details/33 > accessed on 29/04/2015		

2 VERIFICATION PROCESS

The project was validated by TÜV NORD CERT GmbH (VCS validation report number 6078 – 08/520 of 13/01/2009) and it was registered under the VCS registration reference No-33. This is the fifth verification assessment for the monitoring period 01/06/2014 to 31/03/2015 by RINA.

2.1 Method and Criteria

Verification was conducted using RINA procedures in line with the requirements specified in the VCS Requirements, i.e. VCS Program Guide, VCS Version 3 (v3.5), Requirements Document of 08/10/2013 and VCS Standard, VCS Version 3 (v3.4), Requirements Document of 08/10/2013. The GHG emission reductions are on the basis of the approved Baseline and monitoring methodology AMS-I.E. Switch from Non-Renewable Biomass for Thermal Applications by the User, version 01 of 01/02/2008.

The verification consisted of the following three phases

- Document review;
- On-site assessment including Interviews and Site Inspections;
- Resolution of Any Material Discrepancy and the issuance of the final verification report and certification.

The following sections outline each step in more detail.

2.2 Document Review

The monitoring report (MR) version 3 of 06/08/2015 and previous version /01/, the emission reduction calculations spreadsheet version 3, no date available (VCS MR Calculation Kitambar_period_05_ 01 06 2014_31 03 15_v03.xls) and previous versions /03/, were assessed as part of the verification. In addition the registered Project Design Document (CDM PDD) /02/ in particular the baseline estimations and the monitoring plan for the project were reviewed.

/01/	Sustainable Carbon – Projetos Ambientais Ltda: VCS monitoring report for the project activity “Kitambar Switching Fuel Project”, version 3 of 06/08/2015 version 1.0 of 13/04/2015, version 2.0 of 25/06/2015 for the monitoring period 01/06/2014 to 31/03/2015
/02/	Sustainable Carbon – Projetos Ambientais Ltda: Registered VCS project description for project activity “Kitambar Switching Fuel Project” in Brazil, version 2 of 17/12/2008
/03/	Sustainable Carbon – Projetos Ambientais Ltda: Emission Reduction spreadsheet titled “VCS MR Calculation Kitambar_period_05_01 06 2014_31 03 15_v03.xls” version 3, VCS MR Calculation Kitambar_period_05_01 06 2014_31 03 15_v02.xls, referent to the monitoring report version 2, no date available “VCS MR Calculation Kitambar_period_05_01 06 2014_31 03 15_v01.xls” version 01 of 13/04/2015
/04/	VCS: VCS Program Guide, VCS Version 3 (v3.5), Requirements Document of 08/10/2013
/05/	VCS: VCS Standard, VCS Version 3 (v3.4), Requirements Document of 08/10/2013
/06/	CDM Executive Board: Approved consolidated baseline and monitoring methodology AMS-I.E. Switch from Non-Renewable Biomass for Thermal Applications by the User, version 01 of 01/02/2008
/07/	VCS: Monitoring report form (MONITORING REPORT: VCS Version 3) , version 03.3 dated 08/10/2013
/08/	VCS project page available at < http://www.vcsprojectdatabase.org/#/project_details/33 > accessed on 29/04/2015
/09/	TÜV NORD CERT GmbH validation report No: 6078 – 08/520 of 13/01/2009
/10/	IBOPE Instituto Brasileiro de Opinião Pública e Estatística Ltda Verification report for the forth period, number 220805-2014 of 22 August 2014
/11/	Sustainable Carbon – Projetos Ambientais Ltda internal audit report for the MR5, no date available (Relatorio de Auditoria Interna_Kitambar.pdf)
/12/	Kitambar internal control of the amount of products produced verified during the on site – hard copies(data for the monitoring period)
/13/	Purchase invoice, delivery notes or other documents concerning the acquisition of renewable biomasses, including DOF, original documents confirmed during the on site visit
/14/	Internal spreadsheet control with data for the project activity “Cer Kitambar planilha de monitoramento 2014.xls” “Cer Kitambar planilha de monitoramento 2015.xls”
/15/	* CPRH Agência Estadual de Meio Ambiente license for clay extraction number 05.14.05.002493-5, valid until 15/05/2015 * CPRH Agência Estadual de Meio Ambiente operation license number 03.14.11.006190-6, valid until 21/11/2015 * CPRH Agência Estadual de Meio Ambiente license for water use number 18.13.11.005066-2, valid until 03/12/2015 * IBAMA Federal Technical Registry number 26588, valid until 17/07/2015 * Departamento Nacional de produção mineral license for the clay extraction number 840.089/2002, valid until 23/07/2022
/16/	Registered PDD data used to calculate the parameter NCVnon-renewable wood QUIRINO, W. F. et al. Poder Calorífico da Madeira e de Resíduos Lignocelulósicos. Biomassa & Energia, v.1, n.2, p. 173-182, 2004. Available at:

	<http://www.renabio.org.br/06-B&E-v1-n2-2004-173-182.pdf >. OLIVEIRA, E. et al. Estrutura anatômica da madeira e qualidade do carvão de Mimosa tenuiflora (Willd.) Poir. Revista Árvore, Viçosa-MG, v.30, n.2, p.311-318, 2006. Available at: <http://www.scielo.br/pdf/rarv/v30n2/a18v30n2.pdf>.
/17/	IPCC 2006 Guidelines for National Greenhouse Gas Inventories. Available in English at: <http://www.ipcc-nggip.iges.or.jp/public/2006gl/pdf/2_Volume2/V2_2_Ch2_Stationary_Combustion.pdf>. Page 2.18. Table 2.3. IPCC, accessed on 08/07/2015.
/18/	Registered PDD data used to calculate the parameter ρ_{wood} Brazilian studies carried out with <i>Caatinga</i> wood: - LORENZI, H. Árvores Brasileiras: Manual de Identificação e Cultivo de Plantas Arbóreas Nativas do Brasil, vol.1. 4.ed. Nova Odessa, SP: Instituto Plantarum, 2002. - QUIRINO, W. F. et al. Poder Calorífico da Madeira e de Resíduos Lignocelulósicos. Biomassa & Energia, v.1, n.2, p. 173-182, 2004. Available at: <http://www.renabio.org.br/06-B&E-v1-n2-2004-173-182.pdf >. - IPCC: Intergovernmental Panel on Climate Change. Orientación del IPCC sobre las buenas prácticas para UTCUTS - chapter3 – Table 3A.1.9-2. - OLIVEIRA, E. et al. Estrutura anatômica da madeira e qualidade do carvão de Mimosa tenuiflora (Willd.) Poir. Revista Árvore, Viçosa-MG, v.30, n.2, p.311-318, 2006. Available at: <http://www.scielo.br/pdf/rarv/v30n2/a18v30n2.pdf>.. -IBAMA – Madeiras Brasileiras. <https://web.archive.org/web/20091226033704/http://www.ibama.gov.br/lpf/madeira/caracteristicas.php?ID=195&caracteristica=139>.
/19/	Sustainable Carbon – Projetos Ambientais Ltda spreadsheet to control the origin of the biomass “Origin of renewable biomass from kitambar.xlsx”, no data available Sustainable Carbon – Projetos Ambientais Ltda Interview audio files “Afo Moveis.m4a”; “Augusto Gonçalves.mp3”; “Fabio mc cavalcante.m4a”; “Leno Galdino.m4a”; “Primavera.m4a”; “São Carlos.m4a”; “Spíndola.mp3” *Afo Moveis e Artefatos Ltda. , invoices (AFO MOVEIS NF 01.jpg; AFO MOVEIS NF 02.jpg) *Movéis São Carlos Ltda invoices (NF - 136759.pdf; NF - 138358.pdf; NF - 140447.pdf; NF - 142787.pdf; NF - 144582.pdf; NF - 147941.pdf; NF - 149619.pdf; NF - 165677.pdf; NF - 176184.pdf; NF - 176185.pdf; NF - 179485.pdf; NF - 250218.pdf; NF - 537193.pdf; NF - 605020.pdf; NF - 616008.pdf; NF - 616009.pdf) *Mademaster Ind. De Moveis e Artef. De Madeira Ltda. (platefix) Invoices (MADESMASER NOTA 01.jpg; MADESMASER NOTA 02.jpg; MADESMASER NOTA 03.jpg; MADESMASER NOTA 04.jpg) * RINALDO CABRAL DE AGUIAR – ME invoices (NOTA 5233.pdf; nota 5361.pdf; nota 5661 (4).pdf) *Augusto Gonçalves (madereira Spindola) transportation authorization –GF3 DVPF3: 1237, dated 13/07/2014 (CB987679D1D18154B8F658DE88DD993A^pimgpsh_fullsize_distr.jpg)
/20/	Ministry of the Environment (MMA) caatinga biome information available in Portuguese at <http://www.mma.gov.br/biomas/caatinga>, accessed on 30/07/2015.
/21/	Associação Plantas do Nordeste (APNE, 2012) article Plants of the sustainable management in the Caatinga form the Portuguese “Plantas de Manejo Sustentado na Caatinga”. Available in Portuguese at: http://www.cnip.org.br/planos_manejo.html, accessed on 30/07/2015
/22/	CDM Executive Board: CDM definition of renewable biomass, Annex 18 of the 23rd Report.

/23/	- Algaroba wood: PEREIRA, J. C. D.; LIMA, P. C. F. Comparação da Qualidade da Madeira de seis Espécies de Algarobeira para a Produção de Energia. Colombo: Embrapa Florestas, 2002. p. 99-107. Available at: <http://www.cnpf.embrapa.br/publica/boletim/boletarqv/bolet45/pag-99_106.pdf>. Accessed on 08/09/2015. - Native Wood from manamegent areas: LORENZI, H. Árvores Brasileiras: Manual de Identificação e Cultivo de Plantas Arbóreas Nativas do Brasil, vol.1. 4.ed. Nova Odessa, SP: Instituto Plantarum, 2002. - Forest residues: PINHEIRO, G. F.; RENDEIRO, G.; PINHO J. T. Densidade Energética de Resíduos Vegetais. 2006. Available at: < http://www.renabio.org.br/03-B&E-014-GiorgianaFP-DensEn-2005-p113-123.pdf>. Accessed on: 08/09/2015. - Native Wood from forest management areas: - The same applied in pwood. Acoording to FERRAZ, Douglas Galvão. Inventário Florestal de Três Fragmentos com Candeia (<i>Eremanthus erythropappus</i>) no Município de Itajubá - MG. 2008. - Algaroba wood (conversion factor): PEREIRA, J. C. D.; LIMA, P. C. F. Comparação da Qualidade da Madeira de seis Espécies de Algarobeira para a Produção de Energia. Colombo: Embrapa Florestas, 2002. P99-107 Available at: < http://web.archive.org/web/20070609133129/http://www.cnpf.embrapa.br/publica/boletim/boletarqv/bolet45/pag-99_106.pdf> Accessed on 08/09/2015.
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2.3 Interviews

The key personnel interviewed and the main topics of the interviews are summarized in the table below:

	Date	Name and Role	Organization	Topic
/a/	27-28/04/2015	Mr. Antonio Marcos Tavares Barbosa- Director	Cerâmica Kitambar	Data for the social carbon and VCS report
/b/	27-28/04/2015	Mr. Ailton Luiz da Silva- Director	SETEC	Data for the social carbon and VCS report
/c/	27-28/04/2015	Mr. Severino Francisco Torres- Financial	Cerâmica Kitambar	Data for the social carbon and VCS report
/d/	27-28/04/2015	Ms. Larissa Tega da Fonseca- Sustainability coordinator	Sustainable Carbon	Social carbon and VCS report development
/e/	28/04/2015	Ms. Ayane Karine de Melo Moura- Work Safety Technician	Cerâmica Kitambar	Data for the social carbon and VCS report
/f/	28/04/2015	Mr. José Everaldo da Silva Araujo-	Cerâmica Kitambar	Diary control of ceramic pieces produced
/g/	28/04/2015	Mr. Ailton Pedro da Silva- employee	Cerâmica Kitambar	Stakeholder interview/ student
/h/	28/04/2015	Mr. José Caetano- employee	Cerâmica Kitambar	Stakeholder interview/ student
/i/	28/04/2015	Mr. Anderson Correa- journalist	ICIA	Stakeholder

2.4 Site Inspections

On 27-28/04/2015, RINA visited the Cerâmica Kitambar site in Caruaru, Brazil. During the on-site assessment of the project, there were no hindrance and all the equipment's and the systems were accessible. RINA assessed the implementation and operation of the proposed project activity, reviewed the information flows for generating, aggregating and reporting the monitoring parameters, interviewed key personnel of the plant to confirm the operational and data collection procedures, cross-checked between information provided in the monitoring report and data plant, checked the monitoring equipment, reviewed calculations and assumptions made in determining the GHG data and emission reductions, checked the quality control and quality assurance procedures in place to prevent or identify and correct any errors or omissions in the reported monitoring parameters.

2.5 Resolution of Findings

The objective of this phase of the verification is to resolve any outstanding issues, which need to be clarified for RINA's positive conclusion on the monitoring report and emission reductions.

To guarantee transparency a verification protocol has been customized for the project. The protocol shows in a transparent manner the requirements, means of verification and the results from verifying the identified criteria. The verification protocol consists of three tables; the different columns in these tables are described in the figure below (see Figure 1). The completed verification protocol is enclosed in Appendix A to this report.

A corrective action request (CAR) is raised if one of the following occurs:

- Non-conformities with the monitoring plan or methodology are found in monitoring and reporting, or if the evidence provided to prove conformity is insufficient;
- Mistakes have been made in applying assumptions, data or calculations of emission reductions that will impair the estimate of emission reductions;
- Issues identified in a FAR during validation to be verified during verification have not been resolved by the project participants.

A clarification request (CR) is raised if information is insufficient or not clear enough to determine whether the applicable VCS requirements, which refer to CDM rules, have been met.

CARs, CRs identified are included in the verification protocol in Appendix A of this report.

Figure 1 Verification protocol tables

Verification Protocol, Table 1 - Requirement checklist					
Checklist Question	Ref.	MoV	Comments	Draft Conclusion	Final Conclusion
Checklist questions organized in seven different sections.	Makes reference to documents where the answer to the checklist question or item is found.	Explain how conformance with the checklist question is investigated. Examples are document review (DR), interview or any other follow-up actions (I), cross checking (CC) with available information relating to projects, (N/A) means not applicable.	The discussion on how the conclusion is arrived at and the conclusion on the compliance with checklist question so far.	For CAR, CR and FAR see the definitions above.	OK is used if the information and evidence provided is adequate to demonstrate compliance with VCS requirements which refer to CDM rules.

Verification Protocol, Table 2: Resolution of Corrective Action Requests and Clarification			
Corrective action requests and/or clarification requests	Reference to Table 1	Response by project participants	Verification Conclusion
The CAR and/or CRs raised in table 1 are repeated here.	Reference to the checklist question number in Table 1 where the CAR or CR is explained.	The responses given by the project participants to address the CARs and/or CRs.	The verification team's assessment and final conclusion of the CARs and/or CRs.

Verification Protocol, Table 3 - Forward Action Requests		
Forward action request	Reference to Table 1	Response by project participants Verification Conclusion
The FAR raised in table 1 is repeated here.	Reference to the checklist question number in Table 1 where the FAR is explained.	Response by the project participants on how forward action request will be addressed.

2.5.1 Forward Action Requests

In the previous monitoring period a FAR was raised in the verification report /10/:

The parameter origin of renewable biomass was verified in accordance with material and data provided, for example the interviews (audio and picture files) carried out with sawdust and forest residues suppliers of Kitambar ceramic industry. However, for the next monitoring period the project developer shall determine the most applicable presentation format (e.g. documents, scientific papers, sectorial studies) to prove the origin of renewable biomass, in order to guarantee a continuous assessment of the relevant suppliers of Kitambar industry project activities.

For this monitoring period, PP has also provided some invoices (provided by the biomass suppliers) to demonstrate the origin of the biomass used by the suppliers of the sawdust and forest residues. PP has interviewed the suppliers of approximately 92% of Kitambar demand for this biomass for this monitoring period, and the invoices were sent by suppliers that represented 89% of the Kitambar demand /19/. Therefore this FAR is closed.

2.6 Eligibility for Validation Activities

The project activity is registered under VCS registration reference Number 33 /1/, hence this section is not applicable.

3 VALIDATION FINDINGS

The project was validated by TÜV NORD CERT GmbH (VCS validation report number 6078 – 08/520 of 13/01/2009) /09/ and it was registered under the VCS registration reference No-33. This is the fifth verification assessment for the monitoring period 01/06/2014 to 31/03/2015 by RINA.

3.1 Participation under Other GHG Programs

Not applicable. The project is not validated/ verified under other GHG Projects.

3.2 Methodology Deviations

There were no methodology deviations during this monitoring period.

3.3 Project Description Deviations

The following deviations are described in the monitoring of the project activity:

1) Qrenbiomass parameter

The registered VCS PD version 02 establishes that the project proponent (meaning the ceramic owner) would measure the amount of renewable biomasses used (parameter Qrenbiomass). However, during the entire monitored period, this parameter was monitored through all the receipts and invoices of biomass received by the ceramic industries /12/. This means the amount of renewable biomass is controlled by the ceramics owners, by storing receipts and invoices. In this monitoring period, starting from October a new measure system for the parameter Qrenbiomass was implemented, based weight in tones in partnership with a third party (Daiara Empreendimentos Ltda, therefore no conversion is necessary from volume to tonnes. RINA confirmed the receipts /13/ presented during the onsite visit.

2) Conversion factor for algarroba and native wood from forest management areas

The registered VCS PD v.2 did not consider the conversion factor from stereo meter (m^3 stereo) to cubic meter (m^3) for the amount of renewable biomass that arrives in volume units (parameter Qrenbiomass). Therefore, in the Monitoring Report (MR), the values presented in the table Qrenbiomass of the VCS PD (section 3.3) for cashew wood (not used in the current monitoring period), Algaroba wood and native wood from management areas were corrected, according to the conversion factors presented in the Section 3.2 of MR, and presented below. RINA verified that conversion factors are consistent with the ones used in the previous monitoring report /10/:

Conversion factor from " m^3 stereo" to " m^3 " /23/

- Algaroba and Cashew tree wood: 0.3745
- Native Wood from forest management areas: 0.3388

Specific gravity (tonne/ m^3) /23/

- Algaroba Wood: 0.836
- Cashew tree residues: 0.42
- Forest Residues: 0.35
- Native Wood from forest management areas: 0.88

3) Native wood from forest management areas

Since previous monitoring period, the ceramic factory started using native wood from forest management areas as renewable biomass. The native wood from forest management areas is a biomass composed of firewood that is produced in existing areas of native forest where sustainable management techniques are applied. These techniques aim to ensure sustainable exploitation of wood, ensuring the conservation of areas and carbon stocks. This biomass is considered renewable according option I from CDM definition of renewable biomass (Annex 18 of the 23rd Report from the Executive Board) /22/, in accordance with all the assumptions below:

The biomass is originating from land areas that are forest where:

- (a) The land area remains a forest; and
- (b) Sustainable management practices are undertaken on these land areas to ensure, in particular, that the level of carbon stocks on these land areas does not systematically decrease over time (carbon stocks may temporarily decrease due to harvesting); and
- (c) Any national or regional forestry and nature conservation regulations are complied with.

According to the IBAMA Normative Instruction N° 112 from August 21st, 2006 /18/, the entrepreneur who uses raw material from native forests is obliged to use the DOF (Forest Origin Documents) to control the origin, transport, and storage of forest products and by-products. Therefore, to use firewood obtained from native forests in a sustainable manner, it is necessary to use the DOF, which is required by national law. This requirement it is not enforced namely due to the lack of control, and constitutes the baseline scenario, as described in Section B.5 of VCS PD. During the project, however, all firewood used will have DOF, thus demonstrating that it is sustainable.

Furthermore, the other renewable biomasses likely to be used by the project, such as residues from cashew tree, algaroba wood and forest residues, do not require documents for residues, since they do not fall under the forest by-products definition of IBAMA Normative Instruction N° 112/06 /18/.

3.4 Grouped Project

This project is not a grouped project. Hence, this section is not applicable.

4 VERIFICATION FINDINGS

4.1 Project Implementation Status

An onsite visit was performed on 27-28/04/2015 to verify the real implementation of the project against the description in the registered VCS PD.

RINA confirmed the eight "Round kilns" at Kitambar Ceramic, as described in the VCS-PD. Verified during the onsite visit that Kitambar Ceramic uses *Algaroba* wood, forest residues (sawdust and MDF) and Native Wood from forest management areas, renewable biomasses.

Based on the onsite inspection and checking the above documents, does RINA confirm that the project activity has been implemented and it is in operation as described above in accordance with the project activity in the registered PD.

4.2 Accuracy of GHG Emission Reduction and Removal Calculations

In accordance with the applied methodology AMS-I.E. Switch from Non-Renewable Biomass for Thermal Applications by the User, version 01 of 01/02/2008 /06/ the emission reduction is calculated /03/ as baseline emissions (BEy) minus project emissions (PEy) minus leakage emissions (LEy). Since no project and leakage emissions are identified according to the applied methodology, baseline emissions are equal to the amount of emission reduction.

Baseline emissions

$$ER_y = B_y \times f_{NRB,y} \times NCV_{biomass} \times EF_{projected_fossilfuel} \quad (\text{Equation 01})$$

Where:

ER_y : Emission reductions during the year y in tCO₂e

B_y : Quantity of biomass that is substituted or displaced in tonnes

$f_{NRB,y}$: Fraction of non-renewable biomass (wood) used in the absence of the project activity in year y

$NCV_{biomass}$: Net calorific value of non-renewable biomass in TJ/tonne

$EF_{projected_fossil\ fuel}$: Emission factor for the projected fossil fuel consumption in the baseline in tCO₂/TJ¹.

B_y is determined using the option:

Calculated from the thermal energy generated in the project activity as:

$$B_y = PR_y \times BF_y \quad B_y = \frac{HG_{p,y}}{\eta_{old} \times NCV_{biomass}} \quad (\text{Equation 02})$$

Where:

$HG_{p,y}$: Quantity of thermal energy generated by the renewable energy in the project in year y in TJ.

η_{old} : Efficiency of the system being replaced

$$HG_{p,y} = SGE \times PR_y \quad (\text{Equation 03})$$

Where:

SGE : Specific energy which has to be generated in the process to produce a certain amount of ceramic devices in TJ/thousand of ceramic device.

PR_y : Amount of product produced in year y in thousand of ceramic devices

$$\eta_{old} = \frac{SGE}{SFE} \quad (\text{Equation 04})$$

Where:

SFE : Specific fuel energy needed for the process to produce a certain amount of ceramic devices in TJ/ thousand of ceramic device

$$SFE = BF_y \times NCV_{biomass} \quad (\text{Equation 05})$$

¹ The fossil fuel likely to be used by similar consumers is taken the IPCC default value of residual fossil fuel.

Where:

BF_y: Amount of native firewood needed to produce a certain amount of product in tonnes/thousand of ceramic devices

Using the Equations 3, 4 and 5 in the Equation 1, it results to:

$$B_y = PR_y \times BF_y \quad (\text{Equation 06})$$

As shown in the calculations above, the η_{old} and the NCV biomass are not required to calculate the Emission Reductions, thus they were excluded.

During the onsite visit verified that some biomass data was wrong described in the receipts. As a conservative approach PP has not considered the energy generated for the biomass with wrong description in the receipt /13/, discounting it in the VERs calculation /03/.

RINA has cross checked the Kitambar internal control /12/ for the amount of ceramic pieces produced during the monitoring against the spreadsheet control data /14/ used to calculate the VERs /03/. No error was found.

Moreover, as a QA/QC procedure, PP calculated that the thermal energy generated by the use of Algaroba, forest residues and native wood from management areas per thousands of ceramic devices produced during the current monitoring period was 12% lower than the VCS PD version 02. This difference is likely caused by the efficiency increase in comparison with the VCS PD version 02. RINA verified that the difference is in accordance with the previous monitoring period /10/.

Project emissions

The applied methodology does not include any source of project emissions. Verified during the on-site visit that project activity does not involve the use of equipment with significant use of fossil fuels or electricity or any other relevant sources of emissions.

Leakage

Leakage is estimated as 0 (zero) tCO₂e during the entire monitoring period.

Verified that the PP has accessed the possible three sources of leakage predicted in the Category AMS-I.E

- A) If the project activity includes substitution of non-renewable biomass by renewable biomass, leakage in the production of renewable biomass must be considered

Verified that the project activity uses less than 1% of the total of biomass available (Algaroba, Native wood from management areas and Forest Residues), therefore no leakage needs to be considered /01/ /03/ /21/.

For Algaroba: The production of *Algaroba* wood in the project's region is about 2,500 thousands of m³ per year /01/. In this monitoring period *Kitambar* Ceramic consumed approximately 5,939.98 m³ of *Algaroba* wood per year, which represented less than 1% of the total.

For forest residues: In this monitoring period Kitambar ceramic utilized 1,585.86 m³ per year of sawdust and MDF which represented less than 1% of the biomass availability in the state of Pernambuco of 1,151,920 m³ /21/

For native wood from management areas: In this monitoring period Kitambar ceramic utilized 720.00 m³ per year of native wood from management areas which represented less than 1% of the biomass availability in the state of Pernambuco of 319,891.88 m³ /01/

- B) Leakage relating to the non-renewable biomass shall be assessed from ex-post surveys of users and areas from where biomass is sourced.*

The following potential sources of this type of leakage could be identified:

- Use/diversion of non-renewable biomass saved under the project activity by non-project households/users who previously used renewable energy sources. If this leakage assessment quantifies an increase in the use of non-renewable biomass used by the non-project households/users attributable to the project activity then baseline is adjusted to account for the quantified leakage.
- Use of non-renewable biomass saved under the project activity to justify the baseline of other project activities can also be potential source of leakage. If this leakage assessment quantifies a portion of non-renewable biomass saved under the project activity that is used as the baseline of other project activity then baseline is adjusted to account for the quantified leakage.
- Increase in the use of non-renewable biomass outside the project boundary to create non-renewable biomass baselines can also be potential source of leakage. If this leakage assessment quantifies an increase in use of non-renewable biomass outside the project boundary then baseline is adjusted to account for the quantified leakage

The carbon credits incomes stimulate the use of renewable biomass to other ceramic companies presenting a huge possibility for sustainable development in the region. Therefore, the sources of leakages mentioned above are not applicable as the project activity does not displace the use of renewable biomass of a non-project user, due to the likely decrease in the use of non-renewable biomass in the region and there is current great amount of renewable biomasses available locally as described before. The non-renewable biomass employed which would be employed in this project activity is not being saved for other project activity, since other ceramics were already consuming wood from non-sustainable forest management (common practice), confirmed through interview during the on site inspection.

The project will contribute to reduce the use of non-renewable biomass, especially due to the incentive of carbon credits. Therefore, it can be concluded that this source of leakage, until the date of this monitoring report, is not considered for this project activity. This leakage was monitored in order to guarantee the project conservativeness

- C) If the equipment is transferred from another activity or if the existing equipment is transferred to another activity, leakage is to be considered*

Not applicable to the project activity. No existing equipment was transferred to another activity during the monitoring period, confirmed in the on site visit.

4.3 Quality of Evidence to Determine GHG Emission Reductions and Removals

During the onsite visit verified that Cerâmica Kitambar has adequate monitoring mechanisms and uses the required parameters to monitor on a monthly basis. The amount of renewable biomass used in the project activity is from receipts and invoices of biomass received by Cerâmica Kitambar from their sources /13/. The production of ceramic units per month (PRy) are from the internal control sheets used by Cerâmica Kitambar, which are organized per month and daily filled according to data based on ceramic units burned in the kilns, and data from production process directly coming from factory /12/. Monitored data from the ceramic is transferred to a spreadsheet /14/ that is used to input data in the VERs spreadsheet /03/. During the on site visit RINA has cross checked the original documents /12/ /13/ against the spreadsheet /14/ to confirm the correct data transference. Kitambar is responsible for the monitoring of the parameters. There is a spreadsheet where data is described and this spreadsheet /14/ is the basis for the VERs calculation /03/.

Moreover Sustainable Carbon has conducted an internal audit to verify the project data monitoring /11/.

The MR describes that data will be kept for two years after the end of the crediting period or the last issuance of carbon credits for this project activity, whichever occurs later.

The following parameters were available at validation as per the registered VCS PD/02/ and the validation report /08/:

DATA/PARAMETER Unit	Source of data	Reported value for the project period	Assessment/Observation
EF_{projected_fossilfuel} (tCO₂/TJ)- CO ₂ Emission factor of residual fuel oil	Registered PD describes that was taken from the IPCC 2006 Guidelines for National Greenhouse Gas Inventories./17/	77.4	RINA verified, it is in accordance with the value described in the registered PD /02/ and IPCC /17/
NCV_{non-renewable wood} (TJ/ton)- Net Calorific Value of non-renewable wood	Registered VCS PD /02/ describes that it was taken from Brazilian studies for the Caatinga wood.	0.019	RINA verified that the value applied is in accordance with the registered PD and it corresponds to the Caatinga biome /16/, applicable to the project activity
ρ_{wood} (Tonnes/m³)- Specific gravity of non-renewable wood.	Registered VCS PD /02/ describes that it was taken from Brazilian studies for the Caatinga wood.	0.88	RINA verified that the value applied is in accordance with the registered PD and it corresponds to the Caatinga biome /18/, applicable to the project activity
BF_y (Tonnes of wood per thousand of devices)- Consumption of non-renewable biomass per thousand of ceramic.	Registered PD describes that Historical data from from project the project developer was used /02/	2.28	RINA verified that the value applied is in accordance with the registered PD /02/

Parameters monitored ex post:

Data/Parameter	$Q_{\text{renewable biomass}}$								
Data Unit	Tonnes per month								
Description	Amount of renewable biomass								
Source of data to be used	Measured by the biomass providers and controlled by the ceramic owner. The registered VCS PD v.02 establishes that the ceramic owner would measure this parameter; however, during the entire monitored period, this parameter was monitored through all the receipts and invoices of biomass received by the ceramic industry.								
Value of monitored parameter for the monitoring period	<table border="1"> <thead> <tr> <th>Biomass</th><th>Amount of biomass consumed (tonnes)</th></tr> </thead> <tbody> <tr> <td><i>Algaroba</i> Wood</td><td>4,138.19</td></tr> <tr> <td>Forest Residues</td><td>462.54</td></tr> <tr> <td>Native Wood from forest management areas</td><td>528.00</td></tr> </tbody> </table> RINA verified that the amount of biomass is controlled through purchase invoice, delivery notes or other documents concerning the acquisition of renewable biomasses /13/. Data is transferred to a spreadsheet /14/ that is used to input data in the VERs spreadsheet /03/. During the on site visit RINA has cross checked the original documents /13/ against the spreadsheet /14/ to confirm the correct data transference. (Observation: from October, the values are presented in the tonnes, since PP with partnership with a third party started weight the biomass). Please, refer to the section 3.3 above.	Biomass	Amount of biomass consumed (tonnes)	<i>Algaroba</i> Wood	4,138.19	Forest Residues	462.54	Native Wood from forest management areas	528.00
Biomass	Amount of biomass consumed (tonnes)								
<i>Algaroba</i> Wood	4,138.19								
Forest Residues	462.54								
Native Wood from forest management areas	528.00								
Monitoring equipment	No monitoring equipment is used to determine this parameter. Values are from the receipts.								
Accuracy of the monitoring equipment	Not applicable.								
Measuring/Reading/Recording frequency	In accordance with registered PD parameter is monitored monthly. Verified during the on site visit that all biomass is controlled and registered by PP.								
Calculation method (if applicable)	The energy generated by the amount of renewable biomass during the current monitoring period was calculated based on the Net Calorific Value of each biomass, as can be seen on the VCS MR Calculation spreadsheet.								

	Receipts registered on "stereo" as unit of measure were converted to "m³" using the Conversion Factors below <table border="1"> <tr> <th colspan="2">Conversion factor from "m³ stereo" to "m³"</th></tr> <tr> <td><i>Algaroba</i></td><td>0.3745</td></tr> <tr> <td><i>Native Wood from forest management areas</i></td><td>0.3388</td></tr> </table> The amount of biomasses was monitored in accordance to the weight or volume described in the receipts from the providers. The values in the receipts may be described in m³, therefore it is necessary the conversion to tonnes through the specific gravity of each biomass. The specific gravity values of the renewable biomasses utilized in this project are: <table border="1"> <tr> <th>Biomass</th><th>Specific gravity (tonne/m³)</th></tr> <tr> <td><i>Algaroba Wood</i></td><td>0.836</td></tr> <tr> <td>Forest Residues</td><td>0.35</td></tr> <tr> <td>Native Wood from forest management areas</td><td>0.88</td></tr> </table>	Conversion factor from "m ³ stereo" to "m ³ "		<i>Algaroba</i>	0.3745	<i>Native Wood from forest management areas</i>	0.3388	Biomass	Specific gravity (tonne/m ³)	<i>Algaroba Wood</i>	0.836	Forest Residues	0.35	Native Wood from forest management areas	0.88
Conversion factor from "m ³ stereo" to "m ³ "															
<i>Algaroba</i>	0.3745														
<i>Native Wood from forest management areas</i>	0.3388														
Biomass	Specific gravity (tonne/m ³)														
<i>Algaroba Wood</i>	0.836														
Forest Residues	0.35														
Native Wood from forest management areas	0.88														
Calibration															
Calibration frequency/interval Is the calibration interval in line with the monitoring plan of the PDD?	Calibration is not applicable.														
Does the calibration cover the monitoring period? Has the calibration frequency been respected?	Calibration is not applicable.														
Calibration certificates	Calibration is not applicable.														

Data/Parameter	PRy
Data Unit	Unity of ceramic pieces
Description	Production of ceramic devices
Source of data to be used	Controlled by the project developer
Value of monitored parameter for the monitoring period	13,129,390 Cross check: RINA has cross checked the Kitambar internal control /12/ against the spreadsheet control data /14/ used to calculate the VERs /03/.
Monitoring equipment	Not applicable. Parameter is controlled manually (counted) by a responsible from each ceramic factory.
Accuracy of the monitoring equipment	Not applicable. Parameter is controlled manually (counted) by a responsible from each ceramic factory.
Measuring/Reading/Recording frequency	In accordance with registered PD parameter is monitored monthly. Verified during the on site visit that the production is controlled and registered by PP daily, and aggregated on a monthly and yearly basis.
Calculation method (if applicable)	Not applicable.
Calibration	
Calibration frequency/interval Is the calibration interval in line with the monitoring plan of the PDD?	Calibration is not applicable.
Does the calibration cover the monitoring period? Has the calibration frequency been respected?	Calibration is not applicable.
Calibration certificates	Calibration is not applicable.

Data/Parameter	Origin of renewable biomass
Data Unit	Not applicable
Description	Renewable origin of the biomass
Source of data to be used	Controlled by the project developer
Value of monitored parameter for the monitoring period	Value is not applicable In the current monitoring period it was used Algaroba Wood; Forest Residues and Native Wood from forest management . Algaroba wood, native wood from management areas and forest residues are considered renewable as fulfilling the options described in the methodology applied (please, refer to the section 3.3, item 3). According to the IBAMA Normative Instruction N° 112 from August 21st, 2006, the entrepreneur who uses raw material from native forests is obliged to use the DOF (Forest Origin Documents) to control the origin, transport, and storage of forest products and by-products. DOFs were provided by PP to confirm native wood from management areas /13/. Furthermore, the other renewable biomasses used by the project, such as residues from algaroba wood and forest residues, do not require documents for residues, since they do not fall under the forest by-products definition of IBAMA Normative Instruction N° 112/06 /18/. The algarroba biomass and forests residues were confirmed in the purchase invoices and delivery notes. /13/ Moreover, due to a FAR raised in the previous monitoring report, PP has also provided invoices (provided by the biomass suppliers) to demonstrate the origin of the biomass used by the suppliers of the sawdust and forest residues. PP has interviewed the suppliers of approximately 92% of Kitambar demand for this biomass for this monitoring period (audio files available to RINA /19/), and the invoices were sent by suppliers that represented 89% of the Kitambar demand /19/. Therefore, RINA closed the FAR.
Monitoring equipment	Not applicable.
Accuracy of the monitoring equipment	Not applicable.
Measuring/Reading/Recording frequency	Annually.
Calculation method (if applicable)	Not applicable.
Calibration	
Calibration frequency/interval	Calibration is not applicable.
Is the calibration interval in line	

with the monitoring plan of the PDD?	
Does the calibration cover the monitoring period? Has the calibration frequency been respected?	Calibration is not applicable.
Calibration certificates	Calibration is not applicable.

Data/Parameter	Renewable biomass surplus		
Data Unit	tonnes or m ³		
Description	Amount of renewable biomass available		
Source of data to be used	monitored		
Value of monitored parameter for the monitoring period	Parameter used to calculate leakage of the project activity. In the monitoring period no leakage needs to be accounted.		
	Biomass	Surplus	Project activity/leakage
	Algaroba wood in m ³ (2007)	2,500,000, in accordance with the registered PD /01/	Leakage is not applicable, project activity uses less than 1% of the total of biomass available In this monitoring period Kitambar Ceramic consumed approximately 5,939.98 m ³ of Algaroba wood per year, which represented less than 1% of the total.
	Native wood from management areas in m ³ (2012)	1,151,920, in accordance with article Plants of the sustainable management in the Caatinga /21/	Leakage is not applicable, project activity uses less than 1% of the total of biomass available In this monitoring period Kitambar Ceramic consumed approximately 1,585.86 m ³ of Algaroba wood per year, of sawdust and MDF which represented less than 1% of the biomass availability

			in the state of Pernambuco of 1,151,920 m ³
	Forest Residues in m ³ (2007)	319,891.88 in accordance with the registered PD /01/	Leakage is not applicable, project activity uses less than 1% of the total of biomass available In this monitoring period Kitambar Ceramic consumed approximately 720.00 m ³ native wood from management areas which represented less than 1% of the biomass availability in the state of Pernambuco of 319,891.88 m ³
Monitoring equipment	Not applicable.		
Accuracy of the monitoring equipment	Not applicable.		
Measuring/Reading/Recording frequency	Annually		
Calculation method (if applicable)	Not applicable.		
Calibration			
Calibration frequency/interval Is the calibration interval in line with the monitoring plan of the PDD?	Calibration is not applicable.		
Does the calibration cover the monitoring period? Has the calibration frequency been respected?	Calibration is not applicable.		
Calibration certificates	Calibration is not applicable.		

Data/Parameter	Leakage of non-renewable biomass
Data Unit	tCO ₂ e
Description	Leakage resulted from the non-renewable biomass
Source of data to be used	Monitored
Value of monitored parameter for the monitoring period	0 RINA verified that that there was no leakage from non-renewable biomass. Refer to the assessment described in the section 4.2: Leakage
Monitoring equipment	Not applicable.
Accuracy of the monitoring equipment	Not applicable.
Measuring/Reading/Recording frequency	Annually
Calculation method (if applicable)	Not applicable.
Calibration	
Calibration frequency/interval Is the calibration interval in line with the monitoring plan of the PDD?	Calibration is not applicable.
Does the calibration cover the monitoring period? Has the calibration frequency been respected?	Calibration is not applicable.
Calibration certificates	Calibration is not applicable.

Data/Parameter	$f_{NRB,y}$
Data Unit	Percentage
Description	Fraction of biomass (wood) used in the absence of the project activity in year y that can be established as non-renewable biomass using survey methods
Source of data to be used	Survey methods
Value of monitored parameter for the monitoring period	99.3 RINA verified that PP has used the latest data available from 2012 /20/ /21/
Monitoring equipment	Not applicable.
Accuracy of the monitoring equipment	Not applicable.
Measuring/Reading/Recording frequency	Annually
Calculation method (if applicable)	Not applicable.
Calibration	
Calibration frequency/interval Is the calibration interval in line with the monitoring plan of the PDD?	Calibration is not applicable.
Does the calibration cover the monitoring period? Has the calibration frequency been respected?	Calibration is not applicable.
Calibration certificates	Calibration is not applicable.

The data presented in the monitoring report /01/ were assessed by reviewing in detail project documentation, collection of monitored data, observation of established monitoring and reporting practices and assessment of the reliability of monitoring equipment. Sufficient evidence was presented and verified by RINA for the reported emission reductions as listed in the above Section 3.

4.4 Non-Permanence Risk Analysis

Not applicable as it is a non-AFOLU project.

5 VERIFICATION CONCLUSION

RINA Service S.p.A (RINA) has performed verification of the emission reductions reported for the project activity “Kitambar Switching Fuel Project” in Brazil, VCS Registration Reference ID - 33, for the VCS monitoring period from 01/06/2014 to 31/03/2015, with regard to the relevant requirements for VCS and CDM rules.

The project participants Cerâmica Kitambar Artefatos de Cerâmica Ltda and Sustainable Carbon – Projetos Ambientais Ltda of the project “Kitambar Switching Fuel Project” are responsible for:

- The preparation of greenhouses gas emissions data and the reported greenhouse gas emission reductions from the project on the basis set out in the monitoring plan contained in the registered VCS Registration Reference ID - 33, for the VCS monitoring period from 01/06/2014 to 31/03/2015.
- The development and maintenance of records and reporting procedures in accordance with that plan, including the calculation and determination of greenhouse gas emission reductions of the project.

It is the responsibility of RINA to express an independent verification opinion about the project’s conformity with the VCS requirements and procedures and on the reported greenhouse gas emission reductions from the project.

Based on documented evidence and corroborated by an on-site assessment RINA can confirm that:

- The project has been implemented and operated as per the registered VCS PD;
- The monitoring plan in the registered VCS-PD is as per the applied baseline and monitoring methodology.
- The monitoring report and other supporting documents provided are complete and verifiable and in accordance with the applicable VCS and CDM requirements

It is RINA’s opinion that the GHG emission reduction stated in the VCS monitoring report version 3 of 06/08/2015 for the “Kitambar Switching Fuel Project” in Brazil for the period 01/06/2014 to 31/03/2015 are fairly stated. The GHG emission reductions were calculated correctly on the basis of the baseline and monitoring methodology, AMS-I.E. Switch from Non-Renewable Biomass for Thermal Applications by the User, version 01 of 01/02/2008.

Hence, RINA is able to certify that the emission reductions from the project during the monitoring period 01/06/2014 to 31/03/2015 amount to 43,944 tCO₂e.

Reporting period: From 01/06/2014 to 31/03/2015

Verified GHG emission reductions and removals in the above verification period:

Year	Baseline emissions or removals (tCO ₂ e)	Project emissions or removals (tCO ₂ e)	Leakage emissions (tCO ₂ e)	Net GHG emission reductions or removals (tCO ₂ e)
Year 2014 (from 01/06/2014 to 31/12/2014)	31,249	0	0	31,249
Year 2015 (from 01/01/2015 to 31/03/2015)	12,695	0	0	12,695

APPENDIX A

VERIFICATION PROTOCOL

TABLE 1 REQUIREMENTS CHECK LIST

Checklist Question		Reference	MoV ²	Comments	Conclusion
A Monitoring Report					
A.1	Does the used project title clearly enable the reader to identify the unique VCS activity? Is there an indication of a revision number, the date of the revision and the monitoring period?	/1/ /2/	/DR/ /CC/	Yes; the title of the project activity is “Kitambar Switching Fuel Project” in the Monitoring Report version 1.0 of 13/04/2015, which enables the reader to identify the unique VCS activity. The title is also in line with the validated VCS PD and Validation Report. The monitoring period for the project activity is 01/06/2014 to 31/03/2015.	OK
A.2	Does the project comply with the applicable requirements for completing the Monitoring Reports (latest version available)?	/1/ /2/ /5/ /6/ /7/ /8/ /9/	/DR/ /CC/	Yes, the project complies with the applicable requirements for completing the Monitoring Report Template (v 3.3), VCS version 3, dated 08/10/2013.	OK
A.3	Does the MR comply with the template available (latest version)?	/1/ /2/ /5/ /6/ /7/ /8/ /9/	/DR/ /CC/	Yes, the project complies with the applicable requirements for completing the Monitoring Report Template (v 3.3), VCS version 3, dated 08/10/2013.	OK

² MoV: DR document review, I interview, CC cross checking

Checklist Question		Reference	MoV ²	Comments	Conclusion
B Description of Project Activity					
A.1	Title of the project activity, revision number and date of Monitoring Report	/1/ /2/	/DR/,/CC/	The title of the project activity is "Kitambar Switching Fuel Project" version 1.0 of 13/04/2015 and the same is found to be in line with the registered VCS PD.	OK
A.2	Is the actual implementation and operation of the proposed project activity in accordance with the project activity in the registered VCS-PD?	/1/ /2/	DR//CC	An onsite visit was performed on 27-28/04/2015 to verify the real implementation of the project against the description in the registered VCS PD. Rina confirmed the eight "Round kilns" at Kitambar Ceramic, as described in the VCS-PD. In the current monitoring period it was used Algaroba Wood; Forest Residues and Native Wood from forest management. In the MR section 2.1, it is described that <i>"in the current period and at the 4th, the ceramic factory did not utilize coconut husk, instead it used native wood from forest management areas as renewable biomass. An analysis (regarding the current monitoring period) was made to ensure that this situation does not impact in the project additionality."</i>, however no analysis was presented and discussed in the MR	CR1 OK
A.3	Methodology applied for the registered project activity	/1/ /2/ /6/	DR/CC	Project activity applies the methodology AMS-I.E. Switch from Non-Renewable Biomass for Thermal Applications by the User, version 01 of 01/02/2008.	OK

Checklist Question		Reference	MoV ²	Comments	Conclusion
B Monitoring					
B.1 Monitoring plan					
B.1	Is the actual implementation and operation of the proposed project activity in accordance with the project activity in the registered VCS-PD?	/1/ /2/	DR//CC	The project was validated by TÜV NORD CERT GmbH (validation report N° 6078 – 08/520 issued on 13/01/2009) and it was registered under the VCS registration reference N° 33. This is the verification of the 5 th monitoring period of the project activity.	OK
B.2	In case of deviation between the registered project and the actual implementation/operation, do they comply with the requirements of the Project Standards?	/1/ /2/	DR//CC	1) Qrenbiomass parameter The description of the deviation in the parameter Qrenbiomass presented in the section 2.2.2 is not in accordance with the description presented in the table of the monitored parameter in the section 3.2 2) Conversion factor for algarroba and native wood from forest management areas The registered VCS PD v.2 did not consider the conversion factor from stereo meter (m³ stereo) to cubic meter (m³) for the amount of renewable biomass that arrives in volume units (parameter Qrenbiomass). Therefore, in the Monitoring Report (MR), the values presented in the table Qrenbiomass of the VCS PD (section 3.3) for cashew wood, Algaroba wood and native wood from management areas were corrected, according to the conversion factors presented in the Section	OK ~~CAR 1~~

Checklist Question	Reference	MoV ²	Comments	Conclusion
			3.2 of MR, and presented below: <u>Conversion factor from "m³ stereo" to "m³"</u> - Algaroba and Cashew tree wood: 0.3745 - Native Wood from forest management areas: 0.3388 <u>Specific gravity (tonne/m³)</u> - Algaroba Wood: 0.836 - Cashew tree residues: 0.42 - Forest Residues: 0.35 - Native Wood from forest management areas: 0.88 3) Native wood from forest management areas In the current period, the ceramic factory started using native wood from forest management areas as renewable biomass. The native wood from forest management areas is a biomass composed of firewood that is produced in existing areas of native forest where sustainable management techniques are applied. These techniques aim to ensure sustainable exploitation of wood, ensuring the conservation of areas and carbon stocks. This biomass is considered renewable according option I from CDM definition of renewable biomass (Annex 18 of the 23rd Report from the Executive	

Checklist Question	Reference	MoV ²	Comments	Conclusion
			Board), in accordance with all the assumptions below: The biomass is originating from land areas that are forest where: (a) The land area remains a forest; and (b) Sustainable management practices are undertaken on these land areas to ensure, in particular, that the level of carbon stocks on these land areas does not systematically decrease over time (carbon stocks may temporarily decrease due to harvesting); and (c) Any national or regional forestry and nature conservation regulations are complied with. According to the IBAMA Normative Instruction Nº 112 from August 21st, 2006¹, the entrepreneur who uses raw material from native forests is obliged to use the DOF (Forest Origin Documents) to control the origin, transport, and storage of forest products and by-products. Therefore, to use firewood obtained from native forests in a sustainable manner, it is necessary to use the DOF, which is required by national law. This requirement it is not enforced namely due to the lack of control, and constitutes the baseline scenario, as described in Section B.5 of VCS PD. During the project, however, all firewood used will have DOF, thus demonstrating that it is	

Checklist Question		Reference	MoV ²	Comments	Conclusion
				sustainable. Furthermore, the other renewable biomasses likely to be used by the project, such as residues from cashew tree, algaroba wood and forest residues, do not require documents for residues, since they do not fall under the forest by-products definition of IBAMA Normative Instruction N° 112/06. In the current monitoring period it was used Algaroba Wood; Forest Residues and Native Wood from forest management. In the MR section 2.1, it is described that <i>"in the current period and at the 4th, the ceramic factory did not utilize coconut husk, instead it used native wood from forest management areas as renewable biomass. An analysis (regarding the current monitoring period) was made to ensure that this situation does not impact in the project additionality."</i>, however no analysis was presented and discussed in the MR	GR-1
B.3	For project activity that consist of more than one site: - describe the status of the implementation and starting date of operation of each site; For project activity with phased	/1/ /2/	DR//CC	Not applicable. Just one site is included in the project activity	OK

Checklist Question		Reference	MoV ²	Comments	Conclusion
	implementation: - describe the progress of the proposed project activity achieved in each phase number; - if the phased implementation is delayed, described the reasons and the expected implementation dates.				
B.4	Methodology and methodological tool applied for the registered project activity	/1/ /2/	DR//CC	The approved methodology AMS-I.E. Switch from Non-Renewable Biomass for Thermal Applications by the User, version 01 of 01/02/2008 is applied for the registered project activity as per the registered PD.	OK
C Compliance of the monitoring activities with the registered monitoring plan / Compliance of the monitoring plan with the monitoring methodology and methodological tool					
C.1 Monitoring plan					
C.1.1	Does the monitoring plan included in the registered VCS project activity comply with the applied methodology?	/1/ /2/	DR/CC	Yes. The monitoring plan included in the registered VCS-PD complies with the applied methodologies as the plan includes all the monitoring parameters as required by the methodology applied.	OK
C.1.2	Does the monitoring comply with the monitoring plan in the registered VCS-	/1/,/2/,	DR/CC	Yes. The monitoring complies with monitoring plan included in the registered VCS-PD.	OK

Checklist Question		Reference	MoV ²	Comments	Conclusion
	PD?				
C.2 Data and parameters fixed ex-ante or at renewal crediting period					
C.2.1	Which parameters were available at validation and how were they verified?	/1/ /2/	DR/CC/I	The parameters available at the time of validation are as follows: EF_{projected fossil fuel}: CO₂ Emission factor of residual fuel oil. The value for this parameter is 77.4 tCO₂/TJ fixed as per the registered VCS PD that describes that it was taken from the IPCC 2006 Guidelines for National Greenhouse Gas Inventories. NCV_{non-renewable wood}: Net Calorific Value of non-renewable wood. The value for this parameter is 0.019 TJ/tonne of wood and fixed as per the registered VCS PD fixed as per the registered VCS PD that describes that it was taken from Brazilian studies for the Caatinga wood. p_{wood}: Specific gravity of non-renewable wood. The value for this parameter is 0.88 tonne/m³ of wood and fixed as per the registered VCS PD fixed as per the registered VCS PD that describes that it was taken from Brazilian studies for the Caatinga wood. BF_y: Consumption of non-renewable biomass per thousand of ceramic. The value for this parameter is 2.28 tonne/m³ of wood and fixed as per the	OK

Checklist Question		Reference	MoV ²	Comments	Conclusion
				registered VCS PD fixed as per the registered VCS PD that describes that it was defined using Historical data from the ceramic owner. The values of the above parameters are derived from the registered PD and are consistent with the value in the validation report, the value of the parameter will be fixed during the whole fixed crediting period.	
C.2.2	What default data were selected and applied?	/1/ /2/	DR/CC/I	Please refer sector C.2.1 above	OK
C.3 Data and parameters monitored ex-post					
C.3.1	Which parameter have been monitored during the monitoring period? (Data/Parameter monitored / Data unit / Description / Source of data to be used / Value data for the monitoring period)	/1/ /2/ /3/ /12/ /13/	DR/CC/I	The following are the parameters monitored during the monitoring period. Data/Parameter: $Q_{renbiomass}$ Data unit: Tonnes per month Description: Amount of renewable biomass Source of data: Measured by the biomass providers and controlled by the ceramic owner. The registered VCS PD v.02 establishes that the ceramic owner would measure this parameter; however, during the entire monitored period, this parameter was monitored through all the receipts and invoices of biomass received by the ceramic	OK CAR-2

Checklist Question	Reference	MoV ²	Comments	Conclusion
			industry. Values of monitored parameter: MR version 1 describes in the monitored value line for the parameter $Q_{\text{renbiomass}}$ that more detailed information is available in Appendix 1. However appendix 1 is not provided in the MR. Cross check: The amount of biomass is controlled through purchase invoice, delivery notes or other documents concerning the acquisition of renewable biomasses /13/. Data is transferred to a spreadsheet /14/ that is used to input data in the VERs spreadsheet /03/. During the on site visit RINA has cross checked the original documents /13/ against the spreadsheet /14/ to confirm the correct data transference. Verified that the values reported for Native Wood from forest management are not in accordance with value provided in the DOF (Forest Origin Documents) It was not presented the evidences for the following reported biomass values: 22/07/2014: 49 m³ of algaroba; 18/09/2014: 51,4 m³ of algaroba During the onsite visit verified that for some biomass data, there was a receipt describing the biomass as "lenha branca", however it is reported in the spreadsheet as algaroba and no DOF was	~~CR-3~~ CR-2 CR-3

Checklist Question	Reference	MoV ²	Comments	Conclusion
			available. It is not clear the biomass unit and the conversion applied in the spreadsheet with the monitoring data for the project activity. Data is not coherent through the monitoring period. The thermal energy calculated in the VERs spreadsheet is not considering the correct data of the project activity, moreover the conclusion presented in the MR is not in accordance with the results presented for the thermal energy. ----- Data/Parameter: PRy Data unit: Unity of ceramic pieces Description: Production of ceramic devices Source of data: Controlled by the project developer Values of monitored parameter: The amount of ceramic pieces reported in the day 20/11/2014 for the kiln 5 is not in accordance with the evidence verified during the onsite visit. Moreover the production of kiln 4 in the day 29/09/2014 was not included in the spreadsheet. Cross check: RINA has cross checked the	~~GR-4~~ ~~GAR-4~~ ~~GAR-5~~

Checklist Question	Reference	MoV ²	Comments	Conclusion
			Kitambar internal control /12/ against the spreadsheet control data /14/ used to calculate the VERs /03/. ----- Data/Parameter: Origin of renewable biomass Data unit: Not applicable Description: Renewable origin of the biomass Source of data: Controlled by the project developer Values of monitored parameter: Not applicable. In previous verification FAR 1 was raised: <i>The parameter origin of renewable biomass was verified in accordance with material and data provided, for example the interviews (audio and picture files) carried out with sawdust and forest residues suppliers of Kitambar ceramic industry. However, for the next monitoring period the project developer shall determine the most applicable presentation format (e.g. documents, scientific papers, sectorial studies) to prove the origin of renewable biomass, in order to guarantee a continuous assessment of the relevant suppliers of Kitambar industry project activities . PP is requested to provide the evidences as required by FAR 1, therefore, CAR 6 was raised.</i>	CAR-6

Checklist Question	Reference	MoV ²	Comments	Conclusion
			----- Data/Parameter: Renewable biomass surplus Data unit: tonnes or m³ Description: Amount of renewable biomass available Source of data: monitored Values of monitored parameter: In accordance with the VCS-PD the monitoring frequency of the parameter “renewable biomass surplus” is annually. The values presented in the monitoring report data are from 2007/2008 and 2012 depending on the biomass. ----- Data/Parameter: Leakage of non-renewable biomass Data unit: tCO₂e Description: Leakage resulted from the non-renewable biomass Source of data: Monitored Values of monitored parameter: 0	CR-5

Checklist Question		Reference	MoV ²	Comments	Conclusion
				Please, refer to the CR 5 above for monitored data “biomass surplus” used to calculate the leakage. ----- Data/Parameter: $f_{NRB,y}$ Data unit: Percentage Description: Fraction of biomass (wood) used in the absence of the project activity in year y that can be established as non-renewable biomass using survey methods Source of data: Survey methods Values of monitored parameter: In accordance with the VCS-PD the monitoring frequency of the parameter “$f_{NRB,y}$” is annually. MR describes that <i>two sheets were made to calculate the amount of wood consumed. The first one encompasses the amount of wood consumed by the ceramics located at the Caatinga biome. The other sheet calculates the amount of wood consumed regarding only Kitambar Ceramic, however the year data to confirm the monitoring frequency is not described.</i>	CR-6
C.3.2	Is the measurement equipment described? Is the accuracy of the measurement equipment addressed and	/1/,/2/, /3/, /12/ /13/	DR/CC/I	Measurement equipment is not applicable to the project activity /12/ /13/	OK

Checklist Question		Reference	MoV ²	Comments	Conclusion
	deemed appropriate?				
C.3.3	Is the measuring/reading/recording frequency adequate for all monitoring parameters? Is it in line with the registered monitoring plan?	/1/ /2/ /3/	DR/CC/I	Please, refer to the section C.3.1 above.	OK ~~CR-5~~ ~~CR-6~~
C.4 Calibration requirements					
C.4.1	Are the requirements for maintenance and calibration of measurement equipment described and deemed appropriate?	/1/ /2/	DR/ CC	Calibration is not applicable.	OK
C.4.2	Does the calibration cover the monitoring period?	/1/ /2/	DR/ CC	Calibration is not applicable.	OK
C.4.3	Has the calibration frequency been respected?	/1/ /2/	DR/ CC	Calibration is not applicable.	OK
C.4.4	In case of delay, describe the applied maximum permissible error	/1/ /2/	DR/ CC	Calibration is not applicable.	OK
C.5 Monitoring of the sustainable indicators					

Checklist Question		Reference	MoV ²	Comments	Conclusion
C.5.1	Is the monitoring of sustainable development indicators/ environmental impacts warranted by legislation in the host Country?	/1/ /2/	DR/CC	PP is applying the Social Carbon Standard. The monitoring of the indicator is being verified in parallel to the verification, presented in a separate report.	OK
C.6 Management system and quality control					
C.6.1	How has it been assessed that the monitoring arrangements described in the monitoring plan are feasible within the project design?	/1/ /2/ /3/ /12/ /13/	DR/ I/CC	During the onsite visit verified that Cerâmica Kitambar has adequate monitoring mechanisms and uses the required parameters to monitor on a monthly basis. The amount of renewable biomass used in the project activity is from receipts and invoices of biomass received by Cerâmica Kitambar from their sources /13/. The production of ceramic units per month (PRy) are from the internal control sheets used by Cerâmica Kitambar, which are organized per month and daily filled according to data based on ceramic units burned in the kilns, and data from production process directly coming from factory /12/. In previous verification FAR 1 was raised: <i>The parameter origin of renewable biomass was verified in accordance with material and data provided, for example the interviews (audio and picture files) carried out with sawdust and forest residues suppliers of Kitambar ceramic industry. However, for the next monitoring period the project developer shall determine the most applicable presentation format (e.g. documents, scientific papers, sectorial studies) to prove the origin of</i>	OK CAR-6

Checklist Question		Reference	MoV ²	Comments	Conclusion
				<i>renewable biomass, in order to guarantee a continuous assessment of the relevant suppliers of Kitambar industry project activities . PP is requested to provide the evidences as required by FAR 1.</i>	
C.6.2	Are procedures identified for day-to-day record handling (including what records to keep, storage area of records and how to process performance documentation)? Will all monitored data required for verification and issuance be kept for two years after the end of the crediting period or the last issuance of CERs, for this project activity, whichever occurs later?	/1/ /2/ /03/ /12/ /13/ /14/	DR//CC	Yes, monitored data from the ceramic is transferred to a spreadsheet /14/ that is used to input data in the VERs spreadsheet /03/. During the on site visit RINA has cross checked the original documents /12/ /13/ against the spreadsheet /14/ to confirm the correct data transference. The MR describes that data will be kept for two years after the end of the crediting period or the last issuance of carbon credits for this project activity, whichever occurs later	OK
C.6.3	Are the data management and quality assurance and quality control procedures sufficient to ensure that the emission reductions achieved by/resulting from the project can be reported ex post and verified?	/1/ /2/ /3/	DR/I /CC	Yes. The data management, quality assurance and quality control procedures followed at site ensure that the emission reductions achieved by/resulting from the project can be reported ex post and verified.	OK
C.6.4	Are the responsibilities and authorities for monitoring and reporting in accordance with the responsibilities and authorities stated in the monitoring plan?	/1/ /2/ /03/ /11/ /14/	DR/I /CC	Yes. Kitambar is responsible for the monitoring of the parameters. There is a spreadsheet for each where data is described and this spreadsheet /14/ is the basis for the VERs calculation /03/. Moreover Sustainable Carbon has conduct an	OK

Checklist Question		Reference	MoV ²	Comments	Conclusion
				internal audit to verify the project data monitoring /11/	
C.6.5	Does data management (from monitoring equipment to emission reduction calculation) ensure correct transfer of data and reporting of emission reductions?	/01/ /02/ /03/	DR// CC	Yes, data to cross check the monitored parameters are available at the Kitambar office.	OK
D.1 Assessment of data and calculation of emission reductions/Accuracy of emission reduction calculations					
D.1.1	How were the values in the monitoring report verified and cross-checked?	/01/ /02/ /03/	DR// CC	Please refer to section C.3.1.	OK ~~CAR-3~~ ~~CAR-5~~ ~~CAR-6~~
D.1.2	If only partial data are available because activity levels or non-activity parameters have not been monitored in accordance with the registered monitoring plan, has the most conservative assumption theoretically possible been applied or has a request for deviation been approved?	/01/ /02/ /03/	DR// CC	VERs was based on monitored data.	OK
D.1.3	Emission reductions reported	/01/ /02/ /03/	DR// CC	Additional information is requested to the VERs calculation. Please, refer to the section C.3.1	OK CAR-3

Checklist Question		Reference	MoV ²	Comments	Conclusion
					~~CAR-5~~ ~~GR-2~~ ~~GR-3~~
D.1.4	Difference between the emission reductions estimated in the registered PD and the emission reductions reported for the monitoring period.	/01/ /02/ /03/	DR// CC	PP is requested to clarify the difference between the emission reduction estimated in the registered PD and the emission reductions reported for the monitoring period.	OK ~~GR-7~~

TABLE 2 RESOLUTION OF CORRECTIVE ACTION REQUESTS AND CLARIFICATION REQUESTS

Corrective action and/ or clarification requests	Reference to Table 2	Response by project participants	Verification Conclusion
~~CAR-1~~ The description of the deviation in the parameter Qrenbiomass presented in the section 2.2.2 is not in accordance with the description presented in the table of the monitored parameter in the section 3.2	B.2	The description of the deviation in the parameter Qrenbiomass in the section 2.2.2 was aligned with the table of the monitored parameter in the section 3.2.	MR was revised and clarified that the thermal energy generated per thousand of ceramic units produced at Kitambar Ceramic on the monitored period was lower than the estimated in the VCS PD. Differences are likely caused by energy efficiency gains. This CAR is closed
~~CAR-2~~ MR version 1 describes in the monitored value line for the parameter Qrenbiomass that more	C.3.1	The detailed information about biomass per month in the monitoring period was added with the section Appendix 1 in MR.	The information about biomass consumption per month was correctly presented in the annex 1 of the revised MR.

Corrective action and/ or clarification requests	Reference to Table 2	Response by project participants	Verification Conclusion
detailed information is available in Appendix 1. However appendix 1 is not provided in the MR.			This CAR is closed
CAR-3 Verified that the values reported for Native Wood from forest management are not in accordance with value provided in the DOF (Forest Origin Documents)	C.3.1 D.1.1	According to the methodology applied, the effective capacity of a managed forest to sustain a certain level of harvest depends on its growth rate, indicated by the Mean Annual Increment (MAI). This value represents the mean rate of harvestable growth of wood that is expected to occur in the managed area and consists of measuring the harvestable stock by an inventory and dividing this value by the number of years in the cutting cycle. However, this methodology does not take into consideration two facts that in practice increase the standing stock in the coupes not yet harvested.1-The trees keep growing after the inventory is made so that their volume and mass will continuously increase. Thus, in every coupe of the cutting series the forest will be older and more heavily stocked than it was at the time of the inventory; 2- New trees grow in the not harvested coupes along the same time series, adding new biomass to the standing stock. When these two factors are considered it is evident that the standing stock in the not harvested coupes is dynamic and grows along the cutting cycle, which means an increasing	The revised documents present the value of native wood in accordance with the DOF. This CAR is closed.

Corrective action and/ or clarification requests	Reference to Table 2	Response by project participants	Verification Conclusion
		harvestable stock can be expected along a coupes series, which justify the possibility of different values provided in the DOF and the values reported. Sustainable Carbon developed the methodology based on the certification of a project located in Buenos Aires/PE, which is in the same region of Kitambar Ceremic (both sites are approximately 150 Km apart, but source their biomass from similar regions).	
CAR 4 The thermal energy calculated in the VERs spreadsheet is not considering the correct data of the project activity, moreover the conclusion presented in the MR is not in accordance with the results presented for the thermal energy.	C.3.1	In the thermal energy generated by the renewable biomass in TJ for the monitoring period, the calculation table was linked to thermal energy from VCS PD, when it should be linked to the Monitoring Period. The technical mistake was corrected.	The VERs spreadsheet and MR were revised corretly. This CAR is closed.
CAR 5 The amount of ceramic pieces reported in the day 20/11/2014 for the kiln 5 is not in accordance with the evidence verified during the onsite visit. Moreover the production of kiln 4 in the day 29/09/2014 was not included in the spreadsheet.	C.3.1 D.1.1	The production value from 20/11/2015 for the kiln 5 was corrected acording to the evidence. The production of kiln 4 in the day 29/09/2014 was included in the spreadsheet. The evidences will be available in the biomass and production evidence folder shared by dropbox.	Production described in the revised documents are in accordance with the evidences verified during the onsite visit. This CAR is closed.

Corrective action and/ or clarification requests	Reference to Table 2	Response by project participants	Verification Conclusion
CAR-6 In previous verification FAR 1 was raised: <i>The parameter origin of renewable biomass was verified in accordance with material and data provided, for example the interviews (audio and picture files) carried out with sawdust and forest residues suppliers of Kitambar ceramic industry. However, for the next monitoring period the project developer shall determine the most applicable presentation format (e.g. documents, scientific papers, sectorial studies) to prove the origin of renewable biomass, in order to guarantee a continuous assessment of the relevant suppliers of Kitambar industry project activities . PP is requested to provide the evidences as required by FAR 1, therefore, CAR 6 was raised.</i>	C.3.1 C.6.1 D.1.1	R1: During this monitoring period, all the incoming biomass was controlled by the new system implemented between September and October/2014. The biomass is now measured by its weight in tonnes. All the weighing is registered in invoices and receipts, provided by the contractor, once the weighing process is outsourced. Forest residues are acquired from suppliers near the Project site. These suppliers provided evidences of the origin of biomass through the receipts and invoices acquisition. In addition, part of the suppliers (representing 77% of the sawdust's suppliers) was interviewed by phone. All suppliers interviewed acquire either Medium Density Fiberboard (MDF) from large industries in the Southeast region of Brazil or wood from forest plantations of exotic species (such as Pinus trees) sourced from the Southeast region of Brazil. In order to improve the form of control regarding the suppliers, Sustainable Carbon developed in 2015 an optimized registry system with several information in order to simplify the renewable biomass tracking. A control sheet will be available together with other biomass and production evidences. R2: The spreadsheet name was corrected. Most suppliers interviewed acquire either	PP has provided a spreadsheet, «Origin of renewable biomass from kitambar.xlsx» however, the name inside the spreadsheet is from <i>Nascente ceramic</i>. Moreover, the spreadsheet does not present data specif for the monitoring period. The audio interviews provided by PP it was described that there are providers that are not located in the Southwest region, such as Pará and Bahia states. Moreover, in accordance with the FAR, PP is requested to provide others documented evidences, besides the audio files/interviews. This CAR remains open. 2nd round In addition to the audio files the biomass providers have also made available some invoices to demonstrate the origin their biomass. PP has interviewed the suppliers of approximately 92% of Kitambar demand for this biomass for this monitoring period, and the invoices were sent by suppliers that

Corrective action and/ or clarification requests	Reference to Table 2	Response by project participants	Verification Conclusion
		Medium Density Fiberboard (MDF) from large industries in the Southeast region of Brazil or wood from forest plantations of exotic species (such as Pinus trees) sourced from the Southeast region of Brazil, although some, as reported in the audios, are not located in the Southwest region, such as Pará and Bahia states. In addition, other documents were also collected in order to prove the origin of the renewable biomass. Invoices and receipts of sawdust/MDF from project suppliers are now available as evidences. The data collected represent 92% of Kitambar demand for this biomass for this monitoring period, adding proven and tracked. The proved biomass represent 89% from the biomass in question for the period, because unfortunately some supplier did not provide evidences. For those the audio is the material that we obtained. The representativeness of each supplier will be also available as evidence.	represented 89% of the Kitambar demand. This CAR is closed.
CR 1 In the current monitoring period it was used Algaroba Wood; Forest Residues and Native Wood from forest management. In the MR section 2.1, it is described that “<i>in the current period and at the 4th, the</i>	A.2 B.2	The analysis carried out to ensure that this situation does not impact the project's additionality was made regarding the last monitoring period (4th monitoring period). The correct reference period was included in the MR, section 2.1.	MR was revised and the assesement presented in the previous verification was included.

Corrective action and/ or clarification requests	Reference to Table 2	Response by project participants	Verification Conclusion
<i>ceramic factory did not utilize coconut husk, instead it used native wood from forest management areas as renewable biomass. An analysis (regarding the current monitoring period) was made to ensure that this situation does not impact in the project additionality.”, however no analysis was presented and discussed in the MR</i>			This CR is closed
CR-2 It was not presented the evidences for the following reported biomass values: 22/07/2014: 49 m ³ of algaroba; 18/09/2014: 51,4 m ³ of algaroba	C.3.1 D.1.3	R1: Both evidences will be made available in the biomass and production evidence folder shared by dropbox. The receipt that contains the data from 18/07/2014 had a filling mistake, and the reported biomass value from 22/07/2014 (49 m ³) was excluded. R2: The responsible for completing the monitoring spreadsheets by the ceramic reviewed the evidence in question, and confirmed the fill error for this data. Thus the data was excluded from the monitoring period once there is no evidence connected thereto.	Data from 22/07/2014 was excluded from the spreadsheet. However, the evidence of 18/09/2014: 51,4 m ³ is still not available. This CR remains open. 2nd response Documents were revised accordingly. This CR is closed.
CR-3 During the onsite visit verified that for some biomass data, there was a receipt describing the biomass as “lenha branca”, however it is reported in the spreadsheet as	C.3.1 D.1.3	According to the ceramic owner, the cited biomass data was confirmed as algaroba, and a mistake in the receipt description was detected. However, the PP together with the ceramic owner recognized the mistake and a compensation measure was adopted. The	As a conservative approach PP has not considered the energy generate for the biomass with wrong description in the receipt. This was excluded from the VERs calculation.

Corrective action and/ or clarification requests	Reference to Table 2	Response by project participants	Verification Conclusion
algarroba and no DOF was available.		energy generated by such biomass volume was discounted from the production and thus, from the carbon credit generation. For this calculation, the same data used for algarroba wood was applied.	This CR is closed
CR-4 It is not clear the biomass unit and the conversion applied in the spreadsheet with the monitoring data for the project activity. Data is not coherent through the monitoring period.	C.3.1	From June to September/2014, the ceramic measured the incoming biomass in m³. It's a common practice for ceramic industries to measure and register firewood biomass (even in the documents) as m³, but actually the unit is m³st. M³st is the volume of the biomass without discounting the space between the logs. Therefore, all the incoming biomass stated as m³ should actually be in m³st. The calculation values are described in MR, session 3.2 (Q renbiomass). In September/2014 the ceramic industry started the new measuring system, based on the weight of the incoming biomass in tonnes. Thus, after the full implementation of the mentioned system, no unit conversion was needed.	Verified in the revised documents that data is now coherent. From October, all the biomass was weighted, and June to September, PP has applied the correct conversion from m³st to m³. This CR is closed.
CR-5 In accordance with the VCS-PD the monitoring frequency of the parameter "renewable biomass surplus" is annually. The values presented in the monitoring report	C.3.1 C.3.3	According to CDM General guidance on leakage in biomass project activities v.3 (http://cdm.unfccc.int/methodologies/SSCmethodologies/approved/history/c_leak_biomass/guid_biomass_v03.pdf), section 18, the project participant shall evaluate ex ante if there is a	RINA verified that all the kinds of biomass used in the monitoring period were evaluated ex ante the surplus. This CR is closed

Corrective action and/ or clarification requests	Reference to Table 2	Response by project participants	Verification Conclusion
data are from 2007/2008 and 2012 depending on the biomass.		surplus of the biomass in the region of the project activity, which is not used. Therefore, the renewable biomass surplus values have not been updated from the values presented in the VCS PD v.02.	
CR-6 In accordance with the VCS-PD the monitoring frequency of the parameter " $f_{NRB,y}$ " is annually. MR describes that <i>two sheets were made to calculate the amount of wood consumed. The first one encompasses the amount of wood consumed by the ceramics located at the Caatinga biome. The other sheet calculates the amount of wood consumed regarding only Kitambar Ceramic</i> , however the year data to confirm the monitoring frequency is not described.	C.3.1 C.3.3	R1: The parameters " $f_{NRB,y}$ " is the fraction of biomass (wood) used in the absence of the project activity per year. The data used for the calculation are based on studies developed by CNIIP (Centro Nordestino de Informações sobre Plantas), which were generated in 2005 and used as the reference to the PD calculation. In 2012, the same institution updated the information, which was also updated for $f_{NRB,y}$ calculation. It is important to note that this is the last available information, as no other data was made publicly available. R2: The references available in the $f_{NRB,y}$ spreadsheet were outdated. The right reference is now available in the spreadsheet and MR, section 3.2 ($f_{NRB,y}$).	It is not clear where data from by CNIIP (Centro Nordestino de Informações sobre Plantas) is applied in the VES spreadsheet, since it is not described in the reference of the spreadsheet. Moreover, the data year is not transparent in the spreadsheet. PP is requested to provide the evidences used to update the $f_{NRB,y}$ This CR remains open 2 nd response References were revised accordingly. This CR is closed.
CR-7 PP is requested to clarify the difference between the emission reduction estimated in the registered PD and the emission reductions reported for the monitoring period.	D.1.4	In comparison with the PD, the project had an increase in the monthly production from 1,050,000 ceramic pieces to around 1,312,939. The production increase is justified by the demand for construction growth, which in turn is justified by the Brazilian government program, to increase the	PP clarified that the increase in the the VES is due to the increase in the ceramic pieces production to attend the growth in the Brazilian market. This CR is closed

Corrective action and/ or clarification requests	Reference to Table 2	Response by project participants	Verification Conclusion
		contruction over the national territory. The program named «Programa de Aceleração do Crescimento (PAC)», promoted the resumption of the planning and execution of great works of social infrastructure, urban, logistics and energy of the country, contributing to its accelerated and sustainable development. More information can be accessed at (http://www.pac.gov.br/sobre-o-pac).	

TABLE 3 FORWARD ACTION REQUEST

Forward action request	Reference to Table 2	Response by project participants Verification Conclusion



RINA

CERTIFICATO DI QUALIFICA QUALIFICATION CERTIFICATE

Si attesta che il sig./sig.ra:
We declare that Mr/Mrs/Ms:

Thais De Lima Carvalho

è qualificato come¹:
is qualified as:

CDM -TEC, -VAL, -VER, -TL

per le seguenti aree tecniche:
for the following technical areas:

1.1, 1.2, 2.1, 13.1

AREE TECNICHE TECHNICAL AREAS	DESCRIZIONE DELL'AREA TECNICA TECHNICAL AREA DESCRIPTION	SCOPO SETTORIALE SECTORAL SCOPE
1.1	Thermal energy generation	1
1.2	Renewables	1
2.1	Electricity distribution	2
13.1	Solid waste and wastewater	13

in accordo alle istruzioni della Divisione Certificazione.
in accordance with the instructions of the Certification Division.

REVISIONE REVISION	DATA DATE	MOTIVAZIONI PER LA REVISIONE REASON FOR THE REVISION
0	19-08-2009	-
12	15-01-2015	Added TA 2.1

Il Resp. QPT
Head of QPT

¹ Legend:

VAL: Validator
VER: Verifier
TEC: Technical Expert
TL: Team Leader
FIN-EXP: Financial Expert
DET: Determiner

CDM: Clean Development Mechanism
VCS : Verified Carbon Standard:
GS: Gold Standard
SCS: SocialCarbon Standard
JI: Joint Implementation

RINA Services S.p.A. è accreditato da UNFCCC, quale Entità Operativa Designata (DOE), per condurre la Validazione e la Verifica di Progetti CDM, da VCSA per condurre la Validazione e la Verifica di Progetti VCS, da GS Foundation, per condurre la Validazione e la Verifica di Progetti GS, da Ecologica Institute per condurre la Validazione e la Verifica di rapporti SCS

RINA Services S.p.A. is accredited by the UNFCCC, as Designated Operational Entity (DOE), to carry out Validation and Verification of CDM Projects, by the VCSA, to carry out Validation and Verification of VCS Projects, by the GS Foundation, to carry out Validation and Verification of GS Projects and by the Ecologica Institute, to carry out Validation and Verification of SCS Reports



RINA

CERTIFICATO DI QUALIFICA QUALIFICATION CERTIFICATE

Si attesta che il sig./sig.ra:
We declare that Mr/Mrs/Ms:

Felice Alfieri

è qualificato come¹:
is qualified as:

CDM-TEC,
VAL, ITRP

per le seguenti aree tecniche:
for the following technical areas:

13.2, 5.2

AREE TECNICHE TECHNICAL AREAS	DESCRIZIONE DELL'AREA TECNICA TECHNICAL AREA DESCRIPTION	SCOPO SETTORIALE SECTORAL SCOPE
5.2	Caprolactam, nitric and adipic acid	5
13.2	Manure	13

in accordo alle istruzioni della Divisione Certificazione.
in accordance with the instructions of the Certification Division.

REVISIONE REVISION	DATA DATE	MOTIVAZIONI PER LA REVISIONE REASON FOR THE REVISION
0	13-09-2010	-
9	08-07-2015	Updating qualification as Validator and Technical Reviewer.

Il Resp. QPT
Head of QPT

Roma Severino

¹ Legend:

VAL: Validator
VER: Verifier
TEC: Technical Expert
TL: Team Leader
FIN-EXP: Financial Expert
DET: Determiner

CDM: Clean Development Mechanism
VCS: Verified Carbon Standard:
GS: Gold Standard
SCS: SocialCarbon Standard
JI: Joint Implementation

RINA Services S.p.A. è accreditato da UNFCCC, quale Entità Operativa Designata (DOE), per condurre la Validazione e la Verifica di Progetti CDM, da VCSA per condurre la Validazione e la Verifica di Progetti VCS, da GS Foundation, per condurre la Validazione e la Verifica di Progetti GS, da Ecologica Institute per condurre la Validazione e la Verifica di rapporti SCS

RINA Services S.p.A. is accredited by the UNFCCC, as Designated Operational Entity (DOE), to carry out Validation and Verification of CDM Projects, by the VCSA, to carry out Validation and Verification of VCS Projects, by the GS Foundation, to carry out Validation and Verification of GS Projects and by the Ecologica Institute, to carry out Validation and Verification of SCS Reports



RINA

CERTIFICATO DI QUALIFICA QUALIFICATION CERTIFICATE

Si attesta che il sig./sig.ra:

Amalorpavanathan Cyril Augustus Arokiasamy

We declare that Mr/Mrs/Ms:

è qualificato come¹:
is qualified as:

CDM-TEC, CDM-VAL, CDM-VER, CDM-TL,

per le seguenti aree tecniche:
for the following technical areas:

1.1, 1.2, 3.1, 5.1, 13.1

AREE TECNICHE TECHNICAL AREAS	DESCRIZIONE DELL'AREA TECNICA TECHNICAL AREA DESCRIPTION	SCOPO SETTORIALE SECTORAL SCOPE
1.1	Thermal energy generation	1
1.2	Renewables	1
3.1	Energy Demand	3
5.1	Chemical industry	5
13.1	Solid Waste and wastewater	13

in accordo alle istruzioni della Divisione Certificazione.
in accordance with the instructions of the Certification Division.

REVISIONE REVISION	DATA DATE	MOTIVAZIONI PER LA REVISIONE REASON FOR THE REVISION
0	30/06/2010	-
12	22/12/2014	Updated qualification according to AS ver.6.0

Il Resp. QPT
Head of QPT

¹ Legend:

VAL: Validator
VER: Verifier
TEC: Technical Expert
TL: Team Leader
FIN-EXP: Financial Expert
DET: Determiner

CDM: Clean Development Mechanism
VCS : Verified Carbon Standard:
GS: Gold Standard
SCS: SocialCarbon Standard
JI: Joint Implementation

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