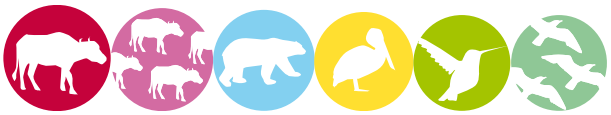
GOLD STANDARD PASSPORT

CONTENTS



SECTION A. Project Title

Ceará Renewable Energy Bundled Project
Version 05
Document completed on 08/03/2012.

SECTION B. Project description

The project activity is the bundled project of five red ceramic factories belonging to Grupo Tavares, a family business that owns several ceramic factories in the State of Ceará, Brazil. The following ceramic factories are included in this project: Antônio Ceramic, Ceará Ceramic, Ceagra Ceramic, Eliane Ceramic and Santa Rita Ceramic. Antônio Ceramic and Eliane Ceramic are located at Itaitinga, in the state of Ceará, northeast region of Brazil. Ceará Ceramic and Ceagra Ceramic are located at Aquiraz, also in the State of Ceará. Santa Rita Ceramic is located at São Gonçalo do Amarante, also in the State of Ceará. The ceramic factories produce ceramic bricks, tiles and construction blocks, destined mainly for the regional market in the metropolitan area of Fortaleza. A brief description of the situation on each ceramic before and after the initiation of the project activity follows:

Antônio Ceramic

This ceramic operates two Hoffmann[1] kilns using in the baseline predominantly native firewood (wood without sustainable forest management) as fuel. A fraction of wood from areas with sustainable forest management plan was also used, representing around 17% of total fuel usage. As the project activity, the proponent has switched its fuel to renewable biomasses such as cashew nut shell, residues from cashew tree, coconut husk and increased amounts of wood from areas with sustainable forest management plan . The ceramic has also acquired new equipments, including automatic feeders, to allow an efficient use of renewable biomass as fuel.

Before being cooked in the kilns, the pieces must be dried. At Antônio Ceramic, the ceramic pieces are dried naturally, so no fuel is used for the drying process. During 2009, Antônio Ceramic has produced 7,921 thousands of ceramic pieces. The identified baseline for this ceramic is the utilization of a total of approximately 5,407 tonnes of non-renewable woody biomass per year to provide thermal energy to the ceramics' kilns.

[1] *"Hoffman" is a very old type of kiln, which has parallel chambers where the heat from one chamber is used in the next, therefore recycling the generated heat in the previous chambers.*

Figure 1. Hoffmann kiln being fed with renewable biomass in Antônio Ceramic.

Figure 2. Cashew nut shells stored prior to use as fuel in Antônio Ceramic.

Ceará Ceramic

This ceramic operates two Hoffmann[2] kilns and three round[3] kilns using in the baseline native firewood as fuel. A fraction of wood from areas with sustainable forest management plan was also used, representing around 38% of total fuel usage. As the project activity, the proponent has switched its fuel to renewable biomasses such as cashew nut shell, residues from cashew tree, coconut husk and increased amounts of wood from areas with sustainable forest management plan . The ceramic has also acquired new equipments, including automatic feeders, to allow an efficient use of renewable biomass as fuel.

Before being cooked in the kilns, the pieces must be dried. At Ceará Ceramic, the ceramic pieces are dried naturally, so no fuel is used for the drying process. During 2009, Ceará Ceramic has produced 11,453 thousands of ceramic pieces. The identified baseline for this ceramic is the utilization of a total of approximately 7,252 tonnes of non-renewable biomass per year on average to provide thermal energy to the ceramics' kilns.

[2] "*Hoffman" is a very old type of kiln, which has parallel chambers where the heat from one chamber is used in the next, therefore recycling the generated heat in the previous chambers.*

[3] *Round kilns are intermittent kilns with round shape and lateral furnaces. Intermittent kilns do not allow the continuous operation, as the fuel needs to be added and the kiln cleaned between each burning cycle. Intermittent kilns are not as efficient as continuous kilns (such as tunnel or Hoffmann kilns) because continuous kilns allow the better distribution of heat.*

Figure 3. Round kiln at Ceará Ceramic.

Figure 4. Hoffmann kiln being fed with renewable biomass in Ceará Ceramic.

This fuel switching project activity will reduce the greenhouse gases (GHG) emissions through the substitution of non-renewable biomass for renewable biomasses to generate thermal energy. As renewable biomasses, the project activity will utilize mostly biomass residues (such as cashew nut shells, residues from cashew tree, coconut husk) and wood from areas with sustainable forest management plan to feed the ceramic's kilns.

Ceagra Ceramic

This ceramic operates two Hoffmann[4] kilns using in the baseline predominantly native firewood (wood without sustainable forest management) as fuel. A fraction of wood from areas with sustainable forest management plan was also used, representing around 34% of total fuel usage. As the project activity, the proponent has switched its fuel to renewable biomasses such as cashew nut shells, residues from cashew tree, coconut

[4] *"Hoffman" is a very old type of kiln, which has parallel chambers where the heat from one chamber is used in the next, therefore recycling the generated heat in the previous chambers.*

husk and increased amounts of wood from areas with sustainable forest management plan. The ceramic has also acquired new equipments, including automatic feeders, to allow an efficient use of renewable biomass as fuel.

Before being cooked in the kilns, the pieces must be dried. At Ceagra Ceramic, the ceramic pieces are dried naturally, so no fuel is used for the drying process. During 2009, Ceagra Ceramic has produced 14,862 thousands of ceramic pieces. The identified baseline for this ceramic is the utilization of a total of approximately 9,424 tonnes of non-renewable woody biomass per year to provide thermal energy to the ceramics' kilns.

Figure 5. Hoffmann kiln being fed with renewable biomass in Ceagra Ceramic.

Figure 6. Cashew nut shells stored prior to use as fuel in Ceagra Ceramic.

Eliane Ceramic

This ceramic operates one Hoffmann kiln and one chamber kiln using in the baseline predominantly native firewood (wood without sustainable forest management) as fuel. A fraction of wood from areas with sustainable forest management plan was also used, though representing around 29% of total fuel usage. As the project activity, the proponent has switched its fuel to renewable biomasses such as cashew nut husk, residues from cashew tree, coconut husk and increased amounts of wood from areas with sustainable forest management plan. The ceramic has also acquired new equipments, including automatic feeders, to allow an efficient use of renewable biomass as fuel.

In Eliane Ceramic biomass is processed to be used as fuel by several Ceramics from Grupo Tavares. Different types of biomass (such as cashew nut shells, coconut residues and wood residues) are chopped and mixed into a single product. Machinery to process

biomass includes electric shredders and screeners.

Before being cooked in the kilns, the pieces must be dried. At Eliane Ceramic, the ceramic pieces are dried naturally, so no fuel is used for the drying process. During 2009, Eliane Ceramic has produced 8,186 thousands of ceramic pieces. The identified baseline for this ceramic is the utilization of a total of approximately 5,117 tonnes of non-renewable woody biomass per year to provide thermal energy to the ceramics' kilns.

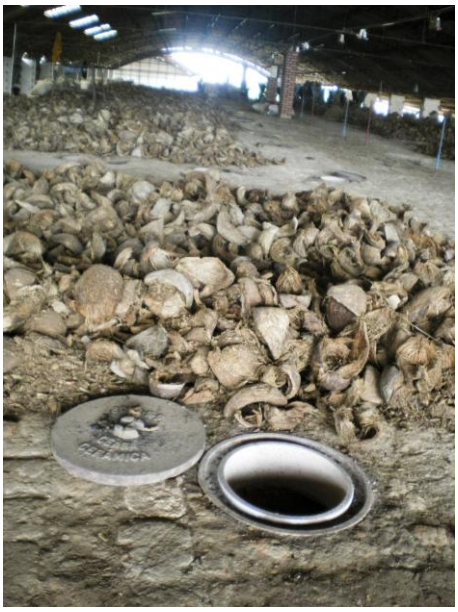


Figure 7. Hoffmann kiln being fed with renewable biomass (coconut residues) in Eliane Ceramic.

Figure 8. Biomass being processed to be used as fuel in Eliane Ceramic.

Santa Rita Ceramic

This ceramic operates three Hoffmann kilns using in the baseline predominantly native firewood as fuel. This ceramic is divided into two nearby sites (distanced 900 meters from each other). In site 1, one Hoffmann kiln is operated (named Kiln 1), while in site two, two Hoffmann kilns exist (named Kiln 2 and Kiln 3). However, the kilns in Site 2 are not operated simultaneously due to the lack of employees and infrastructure. In this project activity only kiln 1 and kiln 2 are included (hence, one in each site), since kiln 3

was not operational during 2009, the year used for the assessment of the baseline scenario A fraction of wood from areas with sustainable forest management plan was also used, though representing around 12% of total fuel usage. As the project activity, the proponent has switched its fuel to renewable biomasses such as cashew nut shells, residues from cashew tree, coconut husk and increased amounts of wood from areas with sustainable forest management plan. The ceramic has also acquired new equipments, including automatic feeders, to allow an efficient use of renewable biomass as fuel.

Before being cooked in the kilns, the pieces must be dried. At Santa Rita Ceramic, the ceramic pieces are dried naturally, so no fuel is used for the drying process. During 2009, Santa Rita Ceramic has produced 8,423 thousands of ceramic pieces. The identified baseline for this ceramic is the utilization of a total of approximately 5,307 tonnes of non-renewable biomass per year on average to provide thermal energy to the ceramics' kilns.

Figure 9. Hoffmann kiln being fed with renewable biomass in Santa Rita Ceramic..

This project activity will reduce the greenhouse gases (GHG) emissions through the substitution of non-renewable biomass for renewable biomasses to generate thermal energy. As renewable biomasses, the project activity will utilize mostly biomass residues (such as cashew nut shells, residues from cashew tree, coconut husk) and wood from areas with sustainable forest management plan to feed the ceramic's kilns.

Estimated start date of construction: This project does not involve significant construction, as only auxiliary equipments are installed to allow the efficient use of biomass. Hence, the start date of construction is actually interpreted as the date when the ceramics have signed contracts with Sustainable Carbon for the development of an emission reduction project. This has occurred on 02/07/2010. Hence, the project is applying for retroactive registration according to Gold Standard Toolkit Section 1.2.6.

SECTION C. Proof of project eligibility

C.1. Scale of the Project

Please tick where applicable:

Project Type	Large	Small
	☐	☐
	☐	☐
	☐	☐
	☐	✔
	☐	☐

	☐

C.2. Host Country

The host country is Brazil.

C.3. Project Type

Please tick where applicable:

Project type	Yes	No
Does your project activity classify as a Renewable Energy project?	✔	☐
Does your project activity classify as an End-use Energy Efficiency Improvement project?	✔	☐

Please justify the eligibility of your project activity:

The project is in compliance with Gold Standard eligibility criteria, as per Section 1.2 of the GS Toolkit v.2.1 and also the additional specific eligibility criteria detailed in Annex C. Furthermore, the project satisfies all applicability conditions of the following small-scale methodology approved under the Clean Development Mechanism: "**AMS-I.E: Switch from Non-Renewable Biomass for Thermal Applications by the User**", version 04[5]. Project eligibility is further detailed in Section B.2 of the Project Design Document.

The main focus of this Project is to allow the substitution of native firewood (non-renewable woody biomass) with renewable biomass as source of thermal energy, thus reducing GHG emissions and discouraging deforestation to obtain firewood. The project will also include energy efficiency measures, thus reducing the amount of energy required for producing non-energy physical goods (ceramic pieces). Therefore, the project qualifies to both categories eligible under the Gold Standard: Renewable Energy Supply and End-use Energy Efficiency Improvement.

The project is capable of generating real, measurable and verifiable emission reductions due to fuel switch to renewable biomass. All measures are considered additional to the common practice and are not mandated by any laws or regulations.

Furthermore, the project will use exclusively demonstrably renewable biomasses whose source can be verified and is expected to involve equipments with thermal output of less than 45 MW thermal.

Pre Announcement	Yes	No
Was your project previously announced?	☐	✔

The project has not been previously announced to be going ahead without the revenues from carbon credits. The ceramics included in the project were aware of the benefits of the voluntary carbon market before investing in the project measures (fuel switching to renewable biomass). All ceramics included in this project belong to Grupo Tavares, which has co-developed with Sustainable Carbon a similar project under the Voluntary Carbon Standard. This project, entitled *Assunção Ceramic Fuel Switching Project*[6] involves fuel

[5] *Methodology available at: <http://cdm.unfccc.int/methodologies/DB/I1DGDUD1D5J0KMLSZFWMD3W9Z47OZZ >. Last visited on 25/04/2011.*

[6] Project information available at: <http://mc.markit.com/br-reg/public/project.jsp?project_id=100000000000238>.

switching to renewable biomass in another ceramic belonging to the Group. *Assunção* Project began validation in October 2008 and was finally approved in September 2009[7]. The successful experience with this first project has encouraged the ceramic owners to develop similar measures in the ceramics included in this project, with the aim to obtain the benefits of the voluntary carbon market, thus allowing them to reduce their environmental impacts.
Hence, the ceramic owners were aware of the carbon credits prior to investing in the project. No announcement on the project measures was made prior to the development of *Assunção* Project.

[7] See Validation Report, available at: <http://mc.markit.com/br-reg/PublicReport.action?getDocumentById=true&document_id=100000000001162>. Information on Page 4 of the document.

C.4. Greenhouse gas

[See Toolkit 1.2.d]

Greenhouse Gas	
Carbon dioxide	✔
Methane	☐
Nitrous oxide	☐

C.5. Project Registration Type

Project Registration Type	
Regular	☐

Pre-feasibility assessment	Retroactive projects (T.2.5.1)	Preliminary evaluation (eg: Large Hydro or palm oil-related project) (T.2.5.2)	Rejected by UNFCCC (T2.5.3)
	✔	☐	☐

If Retroactive, please indicate Start Date of Construction dd/mm/yyyy: 02/07/2010.

SECTION D. Unique project identification

D.1. GPS-coordinates of project location

Antônio Ceramic	**Coordinates**
Latitude	4° 0'42.01"S
Longitude	38°31'15.00"W
Ceará Ceramic	**Coordinates**
Latitude	4° 1'26.94"S
Longitude	38°29'42.65"W
Ceagra Ceramic	**Coordinates**
Latitude	3°59'38.63"S
Longitude	38°30'57.44"W
Eliane Ceramic	**Coordinates**
Latitude	3°58'36.08"S
Longitude	38°30'52.04"W
Santa Rita Ceramic – Site 1	**Coordinates**
Latitude	3°40'31.53"S
Longitude	38°58'53.80"W
Santa Rita Ceramic – Site 2	**Coordinates**
Latitude	3°40'3.78"S
Longitude	38°58'43.83"W

Explain given coordinates

These coordinates indicate the main entrance to the ceramic factories included in the project. More detailed coordinates are available in Section A.4.1.4 of the Project Design Document.

D.2. Map

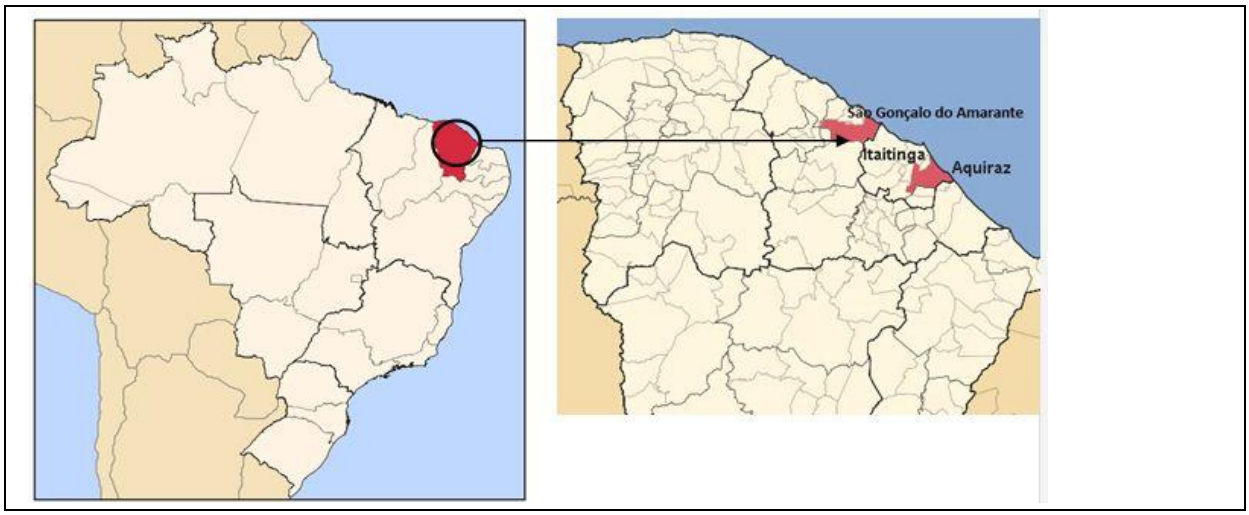


Figure 10. Geographic location of the cities of the project activity.

SECTION E. Outcome stakeholder consultation process

E.1. Assessment of stakeholder comments

This project is applying under the retroactive project cycle. According to Section VIII.b.4 of the Gold Standard v2.1 requirements, Project Proponents submitting a project activity for retroactive registration shall NOT conduct a Local Stakeholder Consultation but instead must apply for a Pre-feasibility Assessment.
As requested during the pre-feasibility assessment, project proponents have developed the Stakeholder Feedback Round in accordance to Gold Standard recommendations for the Local Stakeholder Consultation process.
Section E.2 of this document provides more information on the Stakeholder Feedback Round

E.2. Stakeholder Feedback Round

Please describe report how the feedback round was organized, what the outcomes were and how you followed up on the feedback.

Two meetings were held as part of the Stakeholder Feedback Round. As requested during the pre-feasibility assessment of this project, the Stakeholders Feedback Round was developed following Gold Standard requirements for the Local Stakeholder Consultation process.
One meeting was held in the municipality of Itaitinga/CE, near four of the ceramics included in the project. Another meeting was held in São Gonçalo do Amarante, near the remaining project site, Santa Rita Ceramic.
The agenda of both meetings included the following subjects:
- Opening of the meeting
- Explanation of the project

- Questions for clarification about the project
- Blind SD exercise
- Discussion on monitoring SD
- Closure of the meeting

In a general way, both meeting were very useful. In the meetings, the participation from the community was made possible. Stakeholders included representatives from government agencies, environmental bodies and people related to the community, as business owners and neighbourhood associations.

Most of the comments made by the stakeholders were about the use of residues generated by the enterprises in the region, praising the project to make use of residues that had no proper destination before. On the attendant's opinion, another positive impact on the use of residues is the creation of a sort of extra income for local people, who now can be benefited by selling residues employed in the project.

Other comments included aspects related to improvement on air and water quality and conservation of biodiversity in the region, due to the reduction of deforestation.

Improvement in working conditions was also highlighted, especially regarding workers who feed the kilns. With the acquisition of automatic feeders the workers` contact with the kilns heat was reduced, also reducing the physical efforts of workers in the production sector of the ceramics.

No negative comments were received on the Project activity. Some suggestion of improvements on the design of the consultation meetings were received, regarding the choice of time and duration of the meetings.

The sustainable development assessment is not going to be revised since the majority of comments from stakeholders were very positive. No negative comments were received and during the blind exercise no indicators were scored negatively.

Stakeholders were of the opinion that the project generates significant benefits on biodiversity and ecosystem conservation, as it prevents deforestation to obtain fuel wood. However, project proponents will not consider a positive impact on the biodiversity indicator since the actual conservation of ecosystems depends on several factors not controlled by the project.

Stakeholders were of the opinion that the monitoring of sustainability indicators is well designed and no specific suggestions for improvement were received. Given the exposed, project proponents are of the view that no changes to the sustainable development assessment are needed.

Following the meetings, letters were sent to relevant stakeholders (the same stakeholders invited for the physical meetings) describing how the consultations process was developed.

A summary of the stakeholder comments received and how they were assessed was also described on such letters. In this same letter, stakeholders were informed on how to make additional comments on the project and on how to obtain the current version of the project PDD and Passport. These documents were made available on Sustainable Carbon website (http://www.sustainablecarbon.com/Interaction/).

SECTION F. Outcome Sustainability assessment

F.1. 'Do no harm' Assessment

[See Toolkit 2.4.1 and Toolkit Annex H]

Safeguarding principles	Description of relevance to my project	Assessment of my project risks breaching it (low/medium/high)	Mitigation measure
Human rights			
1. The project respects internationally proclaimed human rights including dignity, cultural property and uniqueness of indigenous people. The project is not complicit in Human right abuses	Not relevant. The project is not expected to result in Human right abuses. Brazil ratified several treaties and conventions on human rights, including the American Convention on Human Rights (also known as the Pact of San José)[8].	Low	None
2. The project does not involve and is not complicit in involuntary resettlement	Not relevant. The project does not involve any kind of resettlement or relocation.	Low	None
3. The project does not involve and is not complicit in the alteration, damage or removal of any critical cultural heritage.	Not relevant. The project has no impact on cultural heritage.	Low	None
LABOUR STANDARDS			
4. The project respects the employees' freedom of association and their right to collective bargaining and is not complicit in restrictions of these freedoms and rights.	Not relevant. The project will not affect the employees' freedom of Association. The Brazillian Government has ratified 5 conventions of the International Labour Organization on Freedom of Association,	Low	None

[8] More information on: <http://en.wikipedia.org/wiki/American_Convention_on_Human_Rights>.

Safeguarding principles	Description of relevance to my project	Assessment of my project risks breaching it (low/medium/high)	Mitigation measure
	Collective Bargaining, and Industrial Relations[9]. These include Conventions C098 (*Right to Organize and Collective Bargaining Convention*), C135 (*Workers' Representatives Convention*), C141 (*Rural Workers' Organizations Convention*), C151 (*Labour Relations (Public Service) Convention*) and C154 (*Collective Bargaining Convention*). Such conventions aim to provide workers' with important rights and benefits, such as protection against acts of anti-union discrimination in respect of their employment, effective protection against any act prejudicial to workers based on their status or activities as a workers' representative or on union membership or participation in union activities, ensure rural workers and public employees the principles of freedom of association, amongst others. These principles are respected by the project proponents.		
5. The project does not involve and is not complicit in any form of forced or compulsory labour	Not relevant. The project will not involve any form of forced or compulsory labour. Brazil has ratified ILO Conventions C29 (*Forced*	Low	None

[9] More information on: <http://www.ilo.org/ilolex/cgi-lex/ratifgroupe.pl?class=g03_01&country=Brazil>.

Safeguarding principles	Description of relevance to my project	Assessment of my project risks breaching it (low/medium/high)	Mitigation measure
	Labour Convention) and C105 (*Abolition of Forced Labour Convention*)[10]. These conventions determine that each Member which ratifies it undertakes to take effective measures to secure the immediate and complete abolition of forced or compulsory labour: (a) as a means of political coercion or education or as a punishment for holding or expressing political views or views ideologically opposed to the established political, social or economic system; (b) as a method of mobilizing and using labour for purposes of economic development; (c) as a means of labour discipline; (d) as a punishment for having participated in strikes; (e) as a means of racial, social, national or religious discrimination.		
6. The project does not employ and is not complicit in any form of child labour.	Not relevant. The project will not involve any form of child labour. Brazil has ratified ILO Conventions C138 (*Minimun Age Convention*)	Low	None

[10] More information on: <http://www.ilo.org/ilolex/cgi-lex/ratifgroupe.pl?class=g03_02&country=Brazil >.

Safeguarding principles	Description of relevance to my project	Assessment of my project risks breaching it (low/medium/high)	Mitigation measure
	and C182 (*Worst Forms of Child Labour Convention*)[11]. Convention C138 determines that each Member for which this Convention is in force undertakes to pursue a national policy designed to ensure the effective abolition of child labour and to raise progressively the minimum age for admission to employment or work to a level consistent with the fullest physical and mental development of young persons. Convention C182 determines that Each Member which ratifies this Convention shall take immediate and effective measures to secure the prohibition and elimination of the worst forms of child labour as a matter of urgency. Worst forms of child labour include: all forms of slavery or practices similar to slavery, the use, procuring or offering of a child for prostitution, for the production of pornography or for pornographic performances, the use, procuring or offering of a child for illicit activities, in particular for the production and trafficking of drugs, work which, by its nature or the circumstances in which it is carried out, is likely to harm the health, safety or morals of		

[11] More information on: <http://www.ilo.org/ilolex/cgi-lex/ratifgroupe.pl?class=g03_04&country=Brazil >.

Safeguarding principles	Description of relevance to my project	Assessment of my project risks breaching it (low/medium/high)	Mitigation measure
	children No child labor is involved in any phase of this project activity, nor in the collection of biomass used by the project proponents.		
7. The project does not involve and is not complicit in any form of discrimination based on gender, race, religion, sexual orientation or any other basis	Not relevant. The project will not result in any form of discrimination. Brazil has ratified international conventions on discrimination, such as the ILO C100 Convention (*Equal Remuneration Convention*) and ILO C111 (*Discrimination (Employment and Occupation) Convention*)[12]. Convention C100 determines that each Member shall, promote, ensure the application to all workers of the principle of equal remuneration for men and women workers for work of equal value. Convention C111 determines that each Member for which this Convention is in force undertakes to declare and pursue a national policy designed to promote, equality of opportunity and treatment in respect of employment and occupation, with a view to eliminating any discrimination in respect thereof.	Low	None
8. The project provides workers with a safe	Relevant. The project might expose workers	Low. Health and safety	Monitoring actions

[12] More information at: <http://www.ilo.org/ilolex/cgi-lex/ratifgroupe.pl?class=g03_03&country=Brazil >.

Safeguarding principles	Description of relevance to my project	Assessment of my project risks breaching it (low/medium/high)	Mitigation measure
and healthy work environment and is not complicit in exposing workers to unsafe or unhealthy work environment	to the risk of accidents and other safety related concerns if due caution is not taken.	regulations are complied with. The project is expected to have a positive effect on the working conditions. As a mitigation measure, the project will monitor Actions of Health and Security in each ceramic.	of Health and Security and the use of safety equipments on each ceramic, as described in the Sustainability Monitoring Plan (Section G of this document).
ENVIRONMENTAL PROTECTION			
9. The project takes a precautionary approach in regard to environmental challenges and is not complicit in practices contrary to the precautionary principle	Sustainable Carbon has significant experience with the project measures. It has helped over 40 ceramics in Brazil to apply renewable biomass as fuel. Hence, the company has a lot of experience with the technology/measures applied by the project.	Low	None
10. The project does not involve and is not complicit in significant conversion or degradation of critical natural habitats, including those that are (a) legally protected, (b) officially proposed for protection, (c) identified by authoritative sources for their big conservation value, or (d) recognized as protected by traditional local communities.	The project will predominantly use abundant biomass residues as fuels. Hence, the impact on environmentally protected areas is not expected. As a mitigation measure, the project will monitor the origin of biomass used to assure they are renewable and do not result in environmental degradation.	Low	Monitoring the origin of biomass, as described in the Sustainability Monitoring Plan (Section G of this document).
ANTI-CORRUPTION			

Safeguarding principles	Description of relevance to my project	Assessment of my project risks breaching it (low/medium/high)	Mitigation measure
11. The project does not involve and is not complicit to corruption	Not relevant. The project does not involve corruption. Brazil has ratified the United Nations Convention against Corruption[13].	Low	None
Additional relevant critical issues for my project type	**Description of relevance to my project**	**Assessment of relevance to my project (low/medium/high)**	**Mitigation measure**
None	None	None	None

[13] More information at: < http://www.unodc.org/unodc/en/treaties/CAC/signatories.html >.

F.2. Sustainable Development matrix

Indicator	Mitigation measure	Relevance to achieving MDG	Choosing parameter and explanation	Preliminary score
Air quality	None	None.	The project is expected to generate positive impacts on air quality, by improving operational procedures related to fuel usage and by increasing monitoring procedures on atmospheric emissions. In the baseline scenario, the ceramic factories used native firewood as fuel and little control existed on the kilns feeding, leaving the possibility of high atmospheric pollution due to irregular burning (i.e. excessive feeding of the kilns and burning of wet firewood). Air quality is expected to improve due to the more efficient burning of fuels, as automatic feeders tend to maximize the use of fuels and avoid excess of smoke due to irregular burning. The project will also improve the monitoring procedures on atmospheric emissions, by applying the following indicator from Social Carbon Standard®[14]: Social Carbon indicators for Ceramic Industry[15]: **Emissions to the atmosphere** - Evaluates the control over the atmospheric emissions involving the gases emitted during the productive process, except the greenhouse gases. This indicator is used to guaranty that appropriated measures is taken regarding the atmospheric emissions in over 40 ceramic factories in Brazil, through a more practical method based on participatory interviews and meetings with stakeholders.	+

[14] The SOCIALCARBON Standard is a certification adept at bringing demonstrable social, environmental and economic benefits to the stakeholders of carbon offset projects. More information at: <http://www.socialcarbon.org/ >.
[15] Available at: <http://www.socialcarbon.org/uploadDocs/Documents/Indicators_for_Industries_of_the_Ceramic_Sector_v8_English.pdf >. Last visit on 14/01/2011.

Indicator	Mitigation measure	Relevance to achieving MDG	Choosing parameter and explanation	Preliminary score
			The project situation is analyzed on a periodical basis and is scored from 1 to 6, where 1 represents a critical situation and 6 represents a sustainable scenario. For the Emissions to the atmosphere indicator, the following scenarios are defined: 1. There is not monitoring of the emissions. There are not actions to control and reduce the emission. 2. There is monitoring, but the entrepreneur can't guarantee that it is in conformity with the legislations, norms and applies requisites. There are not actions to control and reduce the emission. 3. There is not monitoring of the emissions. There are actions to control and reduce the emission with evident results, even though not measurable. 4. There is monitoring, but the entrepreneur can't guarantee that it is in conformity with the legislations, norms and applies requisites. There are actions to control and reduce the emission with evident results and/or measurable. 5. There is monitoring and the entrepreneur can guarantee that it is in conformity with the legislations, norms and applies requisites. There are actions to control and reduce the emission with evident results. 6. There is monitoring and the entrepreneur can guarantee that it is in conformity with the legislations, norms and applies requisites. There are actions to control and reduce the emission with measurable results. Therefore, the project proponent will rely in site visits and	

Indicator	Mitigation measure	Relevance to achieving MDG	Choosing parameter and explanation	Preliminary score
			interviews to determine the level of control over the atmospheric emissions. The aim of the project is to assure environmental impacts are avoided and a sustainable use and disposal of ashes is obtained. Impacts on air quality due to the transportation of biomass are not expected, since similar means of transportation (mainly trucks) were used in the baseline for the transportation of non-renewable biomass.	
Water quality and quantity	None	None	None. The fuel switching project is not expected to result in impacts in water quality and quantity. Although water is used in the brick production process during the molding phase, the project only involves modifications in the burning phase, where impacts on water are unlikely to occur. The use of water shall remain similar to the baseline situation, where major impacts on water quality and quantity are not observed.	0
Soil condition.	Monitoring the procedures related to the control and disposal of ashes following Social Carbon® procedures	Low relevance	The project might result in environmental pollution in case appropriate procedures to manage and dispose ashes are not followed. During the project operation, ashes result from the burning of biomass. In the baseline situation, the ceramics try to minimize the environmental impact of the ashes by recycling it or selling it to third parties and raw material. However, proper procedures are not always observed and the potential for environmental impacts exists. With the project activity, new kinds of fuels will be used (renewable biomasses such as biomass residues) and the generation of ashes might increase. Therefore, the project	0

Indicator	Mitigation measure	Relevance to achieving MDG	Choosing parameter and explanation	Preliminary score
			proponents will monitor the procedures to control and dispose ashes on each ceramic. The project will apply the following indicator from Social Carbon Standard®[16]: Social Carbon indicators for Ceramic Industry[17]: **Ashes** - Evaluates the procedures adopted by the entrepreneur in order to control the ashes and its destination. This indicator is used to guaranty that appropriated measures is taken to regarding the displacement of ashes in over 40 ceramic industries in Brazil, through a more practical method based on participatory interviews and meetings with stakeholders. The project situation is analyzed on a periodical basis and is scored from 1 to 6, where 1 represents a critical situation and 6 represents a sustainable scenario. For the Ashes indicator, the following scenarios are defined: 1. Ashes deriving from the biomass burning in the kilns are discarded without any environmental control. 2. Part of the ashes is designed in an inadequate way and the other part is reused/donates without specific control. 3. Ashes are totally reused or donated, but without specific control. 4. Ashes are totally reused or donated, with control of the quantity and destination of the material. 5. In addition to the last item, part of them is commercialized.	

[16] The SOCIALCARBON Standard is a certification adept at bringing demonstrable social, environmental and economic benefits to the stakeholders of carbon offset projects. More information at: <http://www.socialcarbon.org/ >.

[17] Available at: <http://www.socialcarbon.org/uploadDocs/Documents/Indicators_for_Industries_of_the_Ceramic_Sector_v8_English.pdf >. Last visit on 14/01/2011.

Indicator	Mitigation measure	Relevance to achieving MDG	Choosing parameter and explanation	Preliminary score
			6. The company presented management system that includes procedures to store, to monitor, to reduce the generation, and others. Therefore, the project proponent will rely in site visits and interviews to determine the level of control over the handling and disposal of ashes. In addition, ceramic managers will regularly monitor the production and destination of ashes. More information is described in Section G of this document. The aim of the project is to assure environmental impacts are avoided and a sustainable use and disposal of ashes is obtained.	
Other pollutants	None.	None	None. The fuel switching project is not expected to result in increase or decrease of other pollutants. Brazilian legislation does not establish emission standards to ceramic industries, which indicates that these impacts are not expected to occur. Impacts on other pollutants due to the transportation of biomass are not expected, since similar means of transportation (mainly trucks) were used in the baseline for the transportation of non-renewable biomass.	0
Biodiversity	None.	None.	None. The fuel switching project is expected to result in positive impacts on biodiversity, since it will likely result in the reduction of deforestation of the Caatinga biome by providing alternative fuels. However, the actual effects on biodiversity and on the conservation of the Caatinga biome depend on several factors outside the project boundaries. Hence, as a conservative measure, a neutral impact on biodiversity is considered.	0

Indicator	Mitigation measure	Relevance to achieving MDG	Choosing parameter and explanation	Preliminary score
			Furthermore, the project will use as fuel preferably locally abundant biomass residues as fuel. The project is not expected to result in land use change nor in pressure on ecosystems or existing biomass chains.	
Quality of employment	No.	Low relevance.	The project is likely to result in positive impacts in the quality of employment. The project includes a certain level of automation in the logistics and fuel usage, improving the working conditions of employees responsible for feeding the kilns with bricks and fuels. To monitor the project impact on the quality of employment, the project will apply the following indicator from Social Carbon Standard®[18]: Social Carbon indicators for Ceramic Industry[19]: **Actions of Health and Security** – evaluates the existence and performance of campaigns, leisure and goal and plans regarding to health and security. This indicator is used in over 40 ceramic industries in Brazil, through a more practical method based on participatory interviews and meetings with stakeholders. The project situation is analyzed on a periodical basis and is scored from 1 to 6, where 1 represents a critical situation and 6 represents a sustainable scenario. For the Actions of Heatlh and Security indicator, the following scenarios are defined: 1. Occurrence of serious accidents in the last 12 months. 2. There were no serious accidents, but no campaign, lecture	+

[18] The SOCIALCARBON Standard is a certification adept at bringing demonstrable social, environmental and economic benefits to the stakeholders of carbon offset projects. More information at: <http://www.socialcarbon.org/ >.

[19] Available at: <http://www.socialcarbon.org/uploadDocs/Documents/Indicators_for_Industries_of_the_Ceramic_Sector_v8_English.pdf >. Last visit on 14/01/2011.

Indicator	Mitigation measure	Relevance to achieving MDG	Choosing parameter and explanation	Preliminary score
			or training was done in the last 12 months. 3. Only occasional campaigns or lectures of awareness regarding the occupational health and security in the last 12 months AND/OR Security internal communication in specific places (ex: posters, warnings, etc). 4. The company develops regular campaigns, meetings, training regarding occupational health and security in the last 12 months. 5. In addition to the left item, the company has goals and planning regarding the occupational health and security with difficulties to execute. 6. Goals and planning regarding the occupational health and security, with satisfactory execution. Therefore, the project proponent will rely in site visits and interviews to assess the project situation regarding health and security measures. In addition, ceramic managers will regularly monitor the use of safety equipments of employees working with biomass and around the kiln. More information is described in Section G of this document. A positive impact is achieved in case the identified score (from 1 to 6, as above) increases in the long term and does not decrease to below the identified baseline during any year of the crediting period and in case the use of safety equipments improves, meaning a higher rate of safety equipment usage is demonstrated during the project duration.	
Livelihood of the poor	No.	None.	None. The project is not expected to affect the living conditions of the poor.	0

Indicator	Mitigation measure	Relevance to achieving MDG	Choosing parameter and explanation	Preliminary score
Access to affordable and clean energy services	No.	Relevant to Goal seven: Ensure Environmental Sustainability. The project will produce energy from renewable sources. Brazilian Millennium Development Goals include measures to reduce GHG emissions and to promote alternative energy sources and the rational use of energy[20].	The project is expected to positively impact the access to affordable and clean energy services. The measures applied by the project activity will result in renewable energy generation by utilizing renewable biomasses, thus providing alternative and clean energy sources that were not utilized in the baseline situation. To monitor the project impact on this indicator, the following parameters will be used: 1. Total energy produced from renewable sources: the amount of renewable biomass used by each ceramic will be monitored during the crediting period. By using default values of energy content, the project proponents will be able to determine the amount of renewable energy produced during each year of the crediting period. Hence, this parameter relies in the monitoring of the amount of renewable biomass (in tonnes or m^3), while monitoring the amount of renewable energy in Terajoules. The project aims to increase the level of energy from renewable sources. A positive impact will be achieved in case these parameters are better than the baseline situation.	+
Human and institutional capacity	No.	None.	The project is not expected to affect human and institutional capacity. The project includes the introduction of new technologies and processes that demanded additional training from some of the ceramics employees. However, as this is not considered to be very significant in scale, a neutral	0

[20] Information on Brazilians MDG are available at: <http://www.pnud.org.br/odm/index.php?lay=odmi&id=odmi#>. Last visited on 24/03/2011.

Indicator	Mitigation measure	Relevance to achieving MDG	Choosing parameter and explanation	Preliminary score
			impact is conservatively considered.	
Quantitative employment and income generation	No.	Low relevance.	Quantitative employment and income generation is positively affected by the project. The ownership of the carbon credits is considered an important income for the ceramic owners, as these resources allowed them to invest in the fuel switching measures applied by the project. In the baseline scenario, the ceramics had no incentive to reduce their GHG emissions and consequently did not invest in reducing their emissions. To monitor the project impact on this indicator, the amount of Voluntary Emission Reductions (or similar assets from the carbon market) issued will be monitored. A positive impact is assured in case the project is able to generate and issue carbon credits. Project proponents will also monitor the additional revenues made available by the project to biomass suppliers. Biomass suppliers are mostly individuals and companies located in the project region. In the baseline, revenues were being destined to individuals who explored the Caatinga biome to obtain firewood, which cause deforestation. During the project, revenues will be directed to renewable biomass suppliers. A positive impact is assured in case the project provides additional revenues to biomass suppliers. More information is described in Section G of this document.	+
Balance of payments and investment	None	None.	This indicator will not be affected by the project.	0

Indicator	Mitigation measure	Relevance to achieving MDG	Choosing parameter and explanation	Preliminary score
Technology transfer and technological self-reliance	None	None.	The project is not expected to significantly affect technology transfer and technological self-reliance. The project includes the utilization of renewable biomasses in a sector where this is not a common practice. However, the project proponents consider the use of renewable biomass has a more significant impact on the "Access to affordable and clean energy services" indicator" and conservatively consider a neutral impact on the present indicator.	0

Justification choice	
Air quality	Air quality is considered to be an important indicator to this project. The project measures directly affect emissions of GHG and may positively affect emissions of other atmospheric pollutants. The importance of air quality and the control of atmospheric pollution to ceramic industries can be evidenced by the following publications: <http://www.sebrae.com.br/setor/ceramica-vermelha/integra_bia?ident_unico=7390> <http://www.bancodonordeste.com.br/content/aplicacao/etene/etene/docs/ano4_n21_informe_setorial_ceramica_vermelha.pdf>. Information on Page 18. Detailed analysis of atmospheric pollution of ceramic industries is found on the following study: http://www.ucbcba.edu.bo/Publicaciones/revistas/actanova/documentos/v3n2/v3.n2.gallegos.pdf. All references were accessed and proved to be available on 07/04/2011. Margins of error are not applicable to this parameter, since no quantification on the chosen indicator (Emissions to the atmosphere) was made. This indicator will be assessed in a predominantly qualitative manner during the crediting period.
Water quality and quantity	Not applicable. The fuel switching project is not expected to generate any impact or risk for water resources.

Soil condition	The project will apply the following indicator from Social Carbon Standard®[21]: Social Carbon indicators for Ceramic Industry[22]: **Ashes.** This indicator is used to guaranty that appropriated measures is taken on the control and displacement of ashes in over 40 ceramic industries in Brazil, through a more practical method based on participatory interviews and meetings with stakeholders. The SOCIALCARBON Standard is a certification adept at bringing demonstrable social, environmental and economic benefits to the stakeholders of carbon offset projects. More information at: <http://www.socialcarbon.org/>. The indicators for ceramics are available at: <http://www.socialcarbon.org/uploadDocs/Documents/Indicators_for_Industries_of_the_Ceramic_Sector_v8_English.pdf>. The environmental impact of ashes production in Brazilian ceramic industries is mentioned on the following study: <http://www.bancodonordeste.com.br/content/aplicacao/etene/etene/docs/ano4_n21_informe_setorial_ceramica_vermelha.pdf>. Information available on Page 18. Margins of error are not applicable to this parameter, since no quantification on the chosen indicator (Ashes) was made. This indicator will be assessed in a predominantly qualitative manner during the crediting period,
Other pollutants	Not applicable. The project is not expected to generate any impact related to other pollutants. Brazilian legislation does not establish emission standards for other parameters to ceramic industries, which indicates that these impacts are not expected to occur.
Biodiversity	Not applicable. The project is not expected to generate any impact or risk for biodiversity, since utilizes biomass residues. The origin of the biomasses shall be monitored during the crediting period.
Quality of employment	The project will apply the following indicator from Social Carbon Standard®: Social Carbon indicators for Ceramic Industry: **Actions of Health and Security** – evaluates the existence and performance of campaigns, leisure and goal and plans regarding to health and security. The SOCIALCARBON Standard is a certification adept at bringing demonstrable social, environmental and economic benefits to the stakeholders of carbon offset projects. More information at: <http://www.socialcarbon.org/>. The indicators for ceramics are available at: <http://www.socialcarbon.org/uploadDocs/Documents/Indicators_for_Industries_of_the_Ceramic_Sector_v8_English.pdf>.

[21] The SOCIALCARBON Standard is a certification adept at bringing demonstrable social, environmental and economic benefits to the stakeholders of carbon offset projects. More information at: <http://www.socialcarbon.org/ >.

[22] Available at: <http://www.socialcarbon.org/uploadDocs/Documents/Indicators_for_Industries_of_the_Ceramic_Sector_v8_English.pdf >. Last visit on 14/01/2011.

	Detailed analysis of atmospheric pollution of ceramic industries is found on the following study: http://www.ucbcba.edu.bo/Publicaciones/revistas/actanova/documentos/v3n2/v3.n2.gallegos.pdf. This study indicates that atmospheric pollution of ceramic industries results in health complications for the surrounding population. The employees are likely exposed to such impacts. As detailed under the Air Quality indicator, the project will have a positive impact in atmospheric pollution. This benefit, associated to the automation measures included in the production process might result in improved health and security conditions for the employees. Margins of error are not applicable to this parameter, since no quantification on the chosen indicator (Actions of Health and Security) was made. This indicator will be assessed in a predominantly qualitative manner during the crediting period.
Livelihood of the poor	None. The project is not expected to affect the living conditions of the poor.
Access to affordable and clean energy services	The common practice in Brazilian red ceramic industries is the use of native firewood (non-renewable woody biomass) as fuels. Information on fuels commonly used by the ceramic sector in Brazil are available at: <https://ben.epe.gov.br/BENSeriesCompletas.aspx>. The contribution of the project to this indicator includes the generation of energy from renewable sources. More information on the expected levels of renewable energy generation are found in the Project Design Document. Margins of error are not yet determined for this parameter, since no quantification on the chosen indicator (Total energy produced from renewable sources) was made at this point. This parameter is based on the monitoring of purchase invoices, delivery notes or other documents concerning the acquisition of biomass and by applying default values of energy content for the type of renewable biomass used as fuels. Margins of error are likely to be small (<10%) since the monitoring will be based on information used for commercial purposes measured by third parties (measurements of the amount of biomass purchased, which is used to determine due financial compensations) and on default values published on peer reviewed articles.
Human and institutional capacity	Not applicable. The project is not expected to affect human and institutional capacity.
Quantitative employment and income generation	The project will positively affect income generation, since the ownership of the carbon credits is considered an important income for the ceramic owners, as these resources allowed them to invest in the fuel switching measures applied by the project. More information on the project´s expected generation of emission reductions is available in the Project Design Document. Legal arrangements between the project participants indicate that the ceramic owners will have ownership of a

	portion of the carbon credits generated by the project. Documents on such legal arrangement are available for the Designated Operational Entity responsible for the validation of the project. Margins of error are not yet determined for this parameter, since no quantification on the chosen indicator (Voluntary Emission Reductions issued) was made at this point. Margins of error are likely to be very small (<5%) since the monitoring will be based on the amount of VERs issued, a data which is subject to third party verification and which will be published in the Gold Standard Registry.
Balance of payments and investment	Not applicable. This indicator will not be affected by the project.
Technology transfer and technological self-reliance	Not applicable. The project is not expected to significantly affect technology transfer and technological self-reliance.

SECTION G. Sustainability Monitoring Plan

No		01
Indicator		**Air quality**
Mitigation measure		None.
Chosen parameter		**Emissions to the atmosphere**
Current situation of parameter		The project developers are preparing procedures to control and monitor atmospheric emissions.
Estimation of baseline situation of parameter		In the baseline situation, the ceramics lack specific procedures to control and monitor atmospheric emissions. A quantification of these emissions in the baseline is not possible, since information is not available.
Future target for parameter		Increased control over atmospheric emissions, including regular monitoring. The project proponents will control atmospheric emissions by improving the use of fuels in the kilns. Automatic feeders avoid irregular feeding that result in excessive smoke. The ceramic owners will also monitor atmospheric emissions with the use of Ringelmann smoke charts as recommended by the environmental authority of Ceará. The project will apply the following indicator from Social Carbon Standard®[23]: Social Carbon indicators for Ceramic Industry[24]: Emissions to the atmosphere. The target is to obtain a higher score than the estimated for the baseline situation. The scoring system of the Social Carbon Standard is described in Section F.2.
Way of monitoring	How	Evaluations by applying Ringelmann smoke charts as recommended by SEMACE (Environmental Superintendence of the State of Ceará), the environmental authority. Results shall be stored to assess the intensity of atmospheric emissions.
	When	On an bi-weekly basis
	By who	Ceramics employees.

No	02
Indicator	**Soil condition**
Mitigation measure	Monitoring the procedures related to the control and disposal of ashes
Chosen parameter	**Procedures related to the control and disposal of ashes.**

[23] The SOCIALCARBON Standard is a certification adept at bringing demonstrable social, environmental and economic benefits to the stakeholders of carbon offset projects. More information at: <http://www.socialcarbon.org/>.
[24] Available at:
<http://www.socialcarbon.org/uploadDocs/Documents/Indicators_for_Industries_of_the_Ceramic_Sector_v8_English.pdf >. Last visit on 14/01/2011.

Current situation of parameter		The ceramics minimize the environmental impacts of the ashes. Major incidents or impacts were not observed due to the disposal of ashes.
Estimation of baseline situation of parameter		In the baseline situation, the ceramics try to minimize the environmental impact of the ashes by recycling it or selling it to third parties and raw material. However, proper procedures are not always observed and the potential for environmental impacts exists.
Future target for parameter		The aim of the project is to assure environmental impacts are avoided and a sustainable use and disposal of ashes is obtained. The project will apply the following indicator from Social Carbon Standard®[25]: Social Carbon indicators for Ceramic Industry[26]: Ashes. The target is to obtain a higher score than the estimated for the baseline situation. The scoring system of the Social Carbon Standard is described in Section F.2.
Way of monitoring	How	Ashes shall be quantified by using standard storage bags with a known weight. Employees on the ceramic shall use spreadsheets to control the amount of storage bags leaving the ceramic each time ashes are collected for final destination. Such spreadsheet shall also include information on the destination of ashes, such as the person/entity responsible for collecting the ashes and the place of destination. Photographs shall be used as evidence of the final destination whenever feasible. Interviews and meetings with stakeholders and ceramic personnel on each ceramic shall also be applied to identify the relevant score under the Social Carbon indicator.
	When	Ashes shall be quantified and have their destination monitored whenever they are collected for final destination. The assessment on the relevant score of the Social Carbon indicator will be performed once every monitoring period.
	By who	Project participants[27]

No	03
Indicator	**Quality of employment**

[25] The SOCIALCARBON Standard is a certification adept at bringing demonstrable social, environmental and economic benefits to the stakeholders of carbon offset projects. More information at: <http://www.socialcarbon.org/>.

[26] Available at: <http://www.socialcarbon.org/uploadDocs/Documents/Indicators_for_Industries_of_the_Ceramic_Sector_v8_English.pdf >. Last visit on 14/01/2011.

[27] Ceramic owners shall assign personnel to quantify and monitor the final destination of ashes. Sustainable Carbon will help the ceramic owners identify the corresponding scoring of the Project scenario, following the requirements of Social Carbon Standard.

Mitigation measure		Monitoring actions of Health and Security on each ceramic.
Chosen parameter		**Actions of health and security**
Current situation of parameter		Following the project measures, a certain level of automation in the logistics and feeding of fuels in the kilns is installed, improving the working conditions of employees responsible for feeding the kilns with bricks and fuels.
Estimation of baseline situation of parameter		The baseline situation includes the manual transportation and feeding of the kilns, which could expose workers to unsafe conditions and cause excessive smoke due to inefficient burning of woody biomass.
Future target for parameter		The aim of the project is to apply the following indicator from Social Carbon Standard®: Social Carbon indicators for Ceramic Industry: Actions of Health and Security. The target is to obtain a higher score than the estimated for the baseline situation. The scoring system of the Social Carbon Standard is described in Section F.2.
Way of monitoring	How	Site visits and interviews with employees and Managers of each ceramic.
	When	Once every monitoring period
	By who	Project participants[28]

No		04
Indicator		**Quality of employment**
Mitigation measure		Monitoring the use of safety equipments by employees working with biomass and around the kilns.
Chosen parameter		**Use of safety equipments**
Current situation of parameter		The project developers are about to start implementing procedures to control and monitor the use of safety equipments
Estimation of baseline situation of parameter		In the baseline situation, employees were resistant to use safety equipments, since they feel these equipments are uncomfortable to use due to high local temperatures. Also, no specific monitoring on the use of safety equipments exists.
Future target for parameter		The aim of the project is to reduce resistance and obtain higher usage rates of safety equipments by employees working with biomass and around the kilns.
Way of monitoring	How	Ceramic managers shall use spreadsheets to control the use of safety equipments by employees. Employees shall provide their signatures on such spreadsheet each time they receive safety equipment.

[28] Sustainable Carbon will help the ceramic owners identify the corresponding scoring of the Project scenario, following the requirements of Social Carbon Standard.

	When	On a weekly basis. Data will be consolidated for every monitoring period.
	By who	Project participants[29]

No		05
Indicator		**Access to affordable and clean energy services**
Mitigation measure		None.
Chosen parameter		**Total energy produced from renewable sources**
Current situation of parameter		Following the project measures, 100% of the energy used for the productive process of the ceramics comes from renewable sources[30].
Estimation of baseline situation of parameter		Lower than 30%. In the baseline situation, all ceramics used fractions of renewable biomass (woody biomass from areas with sustainable forest management) for thermal energy generation. However, the predominant fuel was non-renewable woody biomass.
Future target for parameter		The aim of the project is to allow the complete substitution of non-renewable biomass with renewable biomasses. The target is to generate all the energy demand of the ceramics from renewable sources.
Way of monitoring	How	The amount of renewable biomass used by each ceramic will be monitored during the crediting period (through purchase invoice, delivery notes or other documents concerning the acquisition of biomass). By using default values of energy content, the project proponents will be able to determine the amount of renewable energy produced during each year of the crediting period.
	When	On a monthly basis. Data will be consolidated on an annual basis
	By who	Project Participants. Staff from each ceramic shall store information on biomass purchase and acquisition. Sustainable Carbon shall determine the amount of renewable energy generated during the crediting period.

No	06
Indicator	**Quantitative employment and income generation**
Mitigation measure	None.
Chosen parameter	**Voluntary Emission Reductions issued.**
Current situation of parameter	The project has not issued Voluntary Emission Reductions (or other forms of carbon credits) so far.
Estimation of baseline situation of parameter	In the baseline scenario, the ceramics had no incentive to reduce their GHG emissions and consequently did not

[29] Ceramic owners shall assign managers to monitor the use of satefty equipments. Sustainable Carbon will help the ceramic owners quantifying the usage rate of such equipments.
[30] More information is available in the Project Design Document.

		invest in reducing their emissions.
Future target for parameter		The project is expected to reduce 361,730 tCO_2e during the crediting period. However, the actual emission reductions will depend on the production and the related amount of renewable biomass used. Hence, a positive impact for this indicator is achieved in case the project is able to generate and issue carbon credits.
Way of monitoring	How	The issuance of Voluntary Emission Reductions (or similar assets from the carbon market) will be monitored.
	When	Once every monitoring period
	By who	Project Participants. Staff from each ceramic shall store information regarding the project operation, including fuel usage and production output. Sustainable Carbon shall determine the emission reductions resulting from the project.

No		07
Indicator		**Quantitative employment and income generation**
Mitigation measure		None.
Chosen parameter		**Additional revenues for biomass suppliers**
Current situation of parameter		Currently, ceramic owners control the payments to each of their biomass suppliers. Only renewable biomass is used.
Estimation of baseline situation of parameter		In the baseline, revenues were being destined to individuals who explored the Caatinga biome to obtain firewood, which cause deforestation. Revenues were rather low, since this type of fuel was inexpensive
Future target for parameter		The project is allowing the ceramics to use exclusively renewable biomass as fuel. Since these types of fuels are more expensive than native firewood, it is likely that total revenues to biomass suppliers will increase. Furthermore, these revenues are now being destined to suppliers of renewable biomass, which do not cause deforestation.
Way of monitoring	How	Total revenues will be monitored by storing purchase invoices, receipts of sale and other documents concerning biomass acquisition. Total revenues shall be compared to the baseline fuel cost for the ceramics which were destined to native firewood suppliers. This parameter is defined ex-ante using data from 2009 (the most recent year prior to the project start date)[31]. A conservative correction factor of 15% will be applied

31 The same data was used for the assessment of additionality. Hence, this approach provides consistency. Furthermore, it is not feasible to monitor the cost of non-renewable biomass ex-post, since this biomass is no longer used by the project.

		annually, to account for general price increase due to inflation[32].
	When	Once every monitoring period
	By who	Project Participants. Staff from each ceramic shall store information biomass acquisition and costs. Sustainable Carbon shall determine the additional revenues by comparing monitored values with figures estimated for the baseline situation.

No		08
Indicator		**Origin of renewable biomass**
Mitigation measure		Monitoring the origin of biomass
Chosen parameter		**Origin of renewable biomass**
Current situation of parameter		Following the project measures, the ceramics have begun utilizing renewable biomass as fuel. Currently, the ceramics use exclusively renewable biomasses as fuels.
Estimation of baseline situation of parameter		Lower than 10%. In the baseline situation, all ceramics used small fractions of renewable biomass (woody biomass from areas with sustainable forest management) for thermal energy generation.
Future target for parameter		The aim of the project is to allow the complete substitution of non-renewable biomass with renewable biomasses. The target is to generate all the energy demand of the ceramics from renewable sources.
Way of monitoring	How	The origin of the renewable biomass will be assessed storing documents (receipts, invoices) from the biomasses providers, thus allowing determining its origin. The biomasses shall be considered renewable as fulfilling definitions of renewable biomass approved by the CDM Executive Board[33].
	When	Once every monitoring period
	By who	Project Participants. Staff from each ceramic shall store information regarding the biomass purchase and acquisition. Sustainable Carbon shall assess the source of biomass and confirm they comply with CDM EB definitions of renewable biomass.

No	09
Indicator	**Competing uses of biomass**
Mitigation measure	Monitoring the origin of biomass.

[32] No methodology was found to correct the price of non-renewable biomass in Brazil, since this is mostly an informal market. A 15% correction factor is considered conservative since it is above current inflation levels in Brazil.
[33] EB 23, Annex 18 – Definition of renewable biomass. Available at: <http://cdm.unfccc.int/EB/Meetings/023/eb23_repan18.pdf>.

Chosen parameter		Biomass surplus
Current situation of parameter		Following the project measures, the ceramics have begun utilizing renewable biomass as fuel. Currently, 100% of the energy used for the productive process of the ceramics comes from renewable sources.
Estimation of baseline situation of parameter		Undetermined. In the baseline situation, all ceramics used predominantly non-renewable woody biomass for thermal energy generation. Although it is not feasible to determine the amount of native firewood available, this type of fuel has been an important source of energy for the ceramic sector[34].
Future target for parameter		The project aims to allow the complete switch from non-renewable biomass to renewable biomasses. The target is to generate all the energy demand of the ceramics from renewable sources.
Way of monitoring	How	National and international articles and databases will be assessed to determine the availability of each type of biomass used during the project operation.
	When	Once every monitoring period
	By who	Project Participants. Staff from each ceramic shall store information regarding the project operation, including biomass usage. Sustainable Carbon shall assess the availability of biomass and determine the occurrence of leakage.

Additional remarks monitoring

Following Gold Standard Requirements, all non-neutral indicators of the Sustainable Development Matrix are included in the monitoring plan as well as all indicators to which mitigation measures are determined. As required by the additional specific eligibility criteria detailed in Annex C of GS Toolkit v2.1, the Sustainability Monitoring Plan also includes the monitoring of parameters related to the usage of renewable biomass. Monitoring parameters are included in order to assure all biomass used in from renewable origin and to allow the assessment of leakage from the use of such biomass. These parameters are described in the above tables.

[34] *Brazilian Energy Balance, Chapter 3. Available at: https://ben.epe.gov.br/BENSeriesCompletas.aspx*.

SECTION H. Additionality and conservativeness

This section is only applicable if the section on additionality and/or your choice of baseline does not follow Gold Standard guidance

H.1. Additionality

Not applicable. The project has followed Gold Standard requirements of additionality. The project as applied the T*ool for the demonstration and assessment of additionality* (version 05.2) to demonstrate additionality.

H.2. Conservativeness

Conservativeness is assured by applying approved methodologies and methodological tools. The project applies the following methodology that is approved under the Gold Standard: "**AMS-I.E: Switch from Non-Renewable Biomass for Thermal Applications by the User**", version 04". The demonstration of additionality is done by applying the "*Tool for the demonstration and assessment of additionality*", version 05.2. The most recent version at the time of first submission are applied.

Conservativeness is also achieved by utilizing historical data from each project site for the ex-ante calculation of baseline and project emissions. Internal data is partially used to determine baseline emissions (such as the production of bricks in the baseline period), but are considered to be of a reliable nature since they are used to assess the productivity of each factory by the General Manager.

The consumption of non-renewable fuels during the baseline period was taken from receipts or Forest Origin Documents signed by fuel suppliers, a third party information which is used for commercial purposes (to determine financial compensations between the ceramic owners and the suppliers). Hence, this information is also considered to be reliable. During the project monitoring, the consumption of fuels (renewable biomasses) will also be taken from receipts or purchase invoices from third party fuel suppliers. This set of data was chosen based on the prerogative of conservativeness and is considered to be the most reliable data available to determine baseline emissions and emission reductions.

Data from the most recent year before the project initiation was used. Data used to calculate baseline emissions were doubled checked by Sustainable Carbon in order to minimize the likelihood of data errors. The baseline scenario is identified considering published data on the red ceramic sector in the project region (Brasil). More information is available in the Project Design Document.

Project proponents have also assessed similar projects listed in the **Gold Standard Registry** to check the similarity between the identified baselines. No project was identified. However, the baseline for this project is very similar to the baseline in several voluntary carbon projects developed by Sustainable Carbon under the Voluntary Carbon Standard[35].and the baselines are similar, i.e. the consumption of non-renewable biomass for thermal energy generation.

[35] Information on such projects available at: <http://www.markit.com/en/products/registry/markit-environmental-registry-public-view-reports.page#registered_projects>. Access this site and type Sustainable Carbon in the search field. Last visit on 23/03/2011.

ANNEX 1 ODA declaration

There is no public funding involved in this project activity. The project does not receive Official Development Assistance. As per Section 1.2.5 of the Gold Standard v2.1 Toolkit, a written declaration of the project's Non-use of ODA was uploaded to the Gold Standard registry on 13/07/2011.