

SOCIALCARBON REPORT

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1. Identifying the Project

Basic Information	
Indicators	Version used for the diagnosis and for completing the report: Indicators for the Ceramist Sector Industry - Version 8.2 - June 9 th , 2011
Project Name	<i>Argibem, São Sebastião and Vulcão Ceramics Fuel Switching Project</i> (This report is related to <i>São Sebastião</i> ceramic)
Year-Point of Project	2010/2011 - Point Two
Monitoring period (SOCIALCARBON)	January 1 st , 2010 - June 30 th , 2011
Version + Date of completion of report	Version 4 December 09 th , 2011
Corresponding Monitoring Report (Carbon Accounting Standard)	October 1 st , 2008 to June 30 th , 2011
Location	Municipality of Barra do Piraí - State of Rio de Janeiro, Brazil

Identifying the Researcher	
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2. General description of the reduction of GHG emissions Project activity

2.1. Context and history of the reduction of GHG emissions project

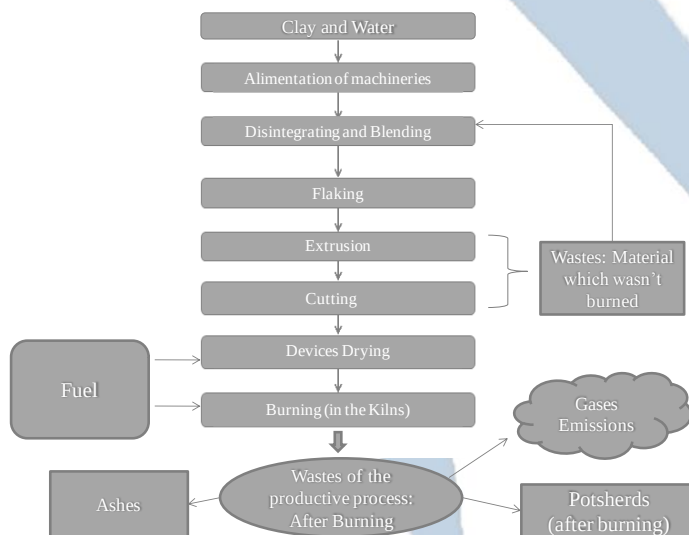
Context Brazilian Ceramic Industry

One of the main branches of the Brazilian civil construction industry is the red ceramic sector. It is comprised primarily of small enterprises, but they play a significant role in the economy- generating and consuming assets and services from other companies, and employing a large workforce of low scholarship manpower¹.

The technological and organizational capacity of the red ceramic sector is not as developed as ceramic industries located in Europe and North America, or as other segments of the Brazilian economy. The majority of red ceramic producers in Brazil are structured as family organizations. They still work with low efficiency equipment- which for the most part is manual- and have difficulties to capacitate and obtain qualified manpower². These facts greatly impact the working conditions in most of the ceramic producers. In most cases, the low efficiency of the productive process exposes factory employees to arduous working conditions, especially to conduct the manual work in the ceramics. These include:

- Feeding the kilns with wood or other fuels
- Being exposed to high noise levels from old equipment in the productive process
- Carrying the bricks and tiles from the extrusive machine to the drying location (in handcarts)
- Carrying the bricks and tiles into and out of the kilns
- Being exposed to high temperatures of the kilns, especially when the company does not monitor automatically the temperature of the fire.

Figure 1: Simplified flowchart of the productive process of the ceramic industry³



¹ Adapted from the dissertation: *Modelo para introdução de Novas Tecnologias em Agrupamentos de Micro e Pequenas Empresas: Estudo de caso das indústrias da cerâmica vermelha do Vale dos Tijuas*.

² Adapted from the study *"Diagnóstico Empresarial do Setor Cerâmico da Região Central do Estado do Tocantins"*, performed by the Brazilian Support Service for Micro and Small Companies from Tocantins State.

³ Adapted from the study *"Diagnóstico Empresarial do Setor Cerâmico da Região Central do Estado do Tocantins"*, carried out by the Brazilian Service of Support for Micro and Small Enterprises of the state of Tocantins.

Sul Fluminense Industrial Pole - History of the Region

The Sul Fluminense occupies approximately 7920 km², spanning 18% of the state of Rio de Janeiro. The Sul Fluminense region's population slightly exceeds one million inhabitants- 6,6 % of the state of Rio de Janeiro's population- spread across 14 municipalities, with a population density of 130 inhabitants per km².

The major city of this region is Volta Redonda, with approximately 260 thousand inhabitants, followed by the municipality of Barra Mansa, with 175 thousand.

The Sul Fluminense's economy is based on the metallurgy industry, concrete production, energy generation, and the agriculture industry specifically the cultivation of poultry, milk cattle, and fruit and vegetables for retail commerce.

The region of the Sul Fluminense connects the economic centers of Brazil through highways and railways that cut and couple the main national cities.

Characteristics of the *Olaria São Sebastião* Switching Fuel Project

The emissions reduction project is composed of three ceramics located in the State of Rio de Janeiro. *Olaria São Sebastião*, is located in the municipality of *Barra do Pirai*, in the Southeast of the State.

The municipality is divided into two important regions: Medium-Paraíba and Vale do Café. It is a mid-sized city, which has been growing at a rate of 3,2% since 2000, reaching today 96,282 inhabitants (IBGE 2007 data). Its Human Development Index (HDI) places it 25th in the state.

Paraíba do Sul River is the main river in the state and crosses the municipality of Barra do Pirai. One of the main tributaries of the Paraíba do Sul River is the Pirai River, which beings in Barra do Pirai, and is the source of the municipality's name.

The region's territory extends more than 587 km² and is strategically positioned for development. Barra do Pirai is located 100 km from the Rio de Janeiro International Airport, next to the Sepetiba Harbour, and the railways Dutra and BR393- Latin America's⁴ major railroad junction.



Figure 2: Pictures of the Municipality of Barra do Pirai

Agricultural land occupation in the region led to deforestation which modified the vegetation of the state of Rio de Janeiro. Currently, the forest occupies a tenth of the fluminense territory, concentrating itself mainly in the higher parts of the mountain ranges. The fields were extended to accommodate livestock, and, in the coast and the bottom of the bays, a mangrove⁵ ecosystem is present.

⁴ Available on the Barra do Pirai City Hall's web site.

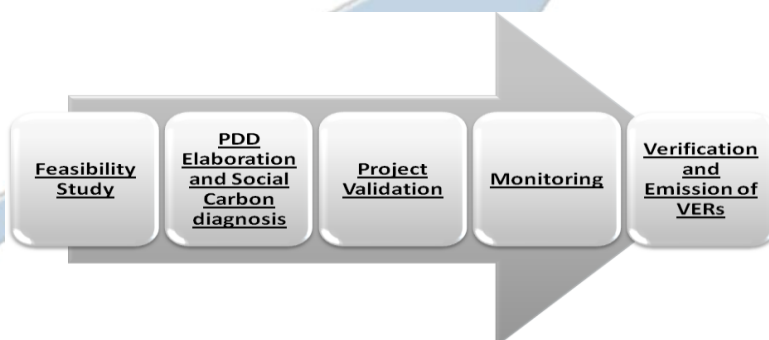
⁵ **Mangrove** is a coastal ecosystem, of transition between the terrestrial and marine environments, a humid zone, characteristic of tropical and subtropical regions.

The climate in Barra do Piraí is tropical (a result of the region's altitude). According to the Köppen-Geiger⁶ climate classification, a tropical (altitude) climate has average temperatures between 16°C and 22°C and an annual thermal amplitude of 5°C to 9°C. The summers are hot and rainy, and winters are cold and dry with high rainfall, totaling annually on average 2,500 mm in some areas.

The *São Sebastião* ceramic supplies the market of Medium-Paraíba with red ceramic blocks, used in the Brazilian civil construction industry.

The project is validated and 2007 and 2008 vintages have been verified and sold. Currently, the 2009 vintages are being verified (second verification period).

The stages for the project implementation are presented below:



2.2. Activities and methodology used for reduction/capture of GHGs

The project activity contributed to the reduction of greenhouse gases by replacing non-renewable fuels with renewable biomass. The *São Sebastião* ceramic project activities consisted of the switch of a non-renewable fuel to renewable biomass.

The project activity is classified by the following category, using simplified modalities and procedures, which is described in Appendix B, for small scale type I CDM project activities.

- **Category AMS-I.C.: Thermal energy for the user with or without electricity** - Version 13 from March 14th 2008.

This category encompasses renewable energy technologies to feed singular houses or thermal energy users, which do not use wood as an energy source.

Within 10-years of project lifetime, it is estimated that a reduction of **208,144** tons of CO₂ equivalent will occur.

⁶ **Köppen-Geiger Climate Classification** is the global classification system of the climate types most used in Geography, Climatology and Ecology.

3. Method of applying SOCIALCARBON Standard

3.1. Elements considered in the application of the SOCIALCARBON Method for the sector

The Social Carbon Methodology (SCM) applies a diagnosis to understand the social and environmental conditions of the project. The analysis is based on the SCM Indicators, and is specific to the activities of ceramic industries.

This ceramic sector is primarily composed of small scale companies. Although industries have extensive experience in the production of red ceramic devices, they typically have low project efficiency, poor production quality control, and no management of the environmental impacts of activities. In addition, the workers' profiles are characterized by social and economic deprivation, a lack of professional capacity, and financial difficulties.

To achieve sustainable development in the ceramic industry would require internal actions to address social and environmental issues including: improved working conditions, improved human and technological resources and reduced environmental impacts. Hence, the SCM gave priority to these actions, and does not evaluate the direct influence of the project on the local communities.

During the evaluation of the enterprise, the boundaries considered for the project analysis are characterized by the red ceramic productive cycle, as it is presented below.

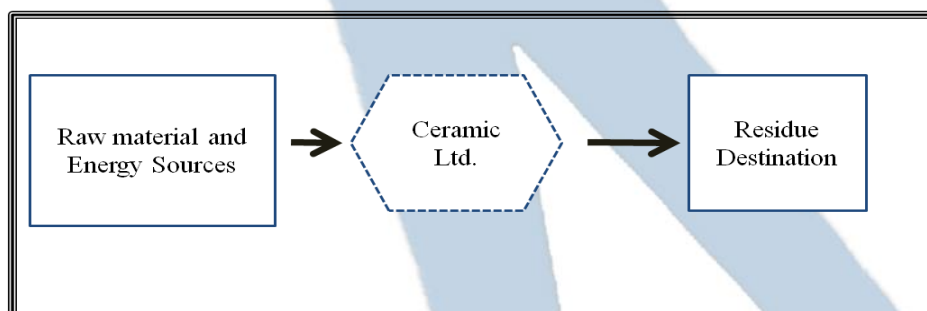


Figure 3: Production Process Boundaries

As indicated by Figure 2 above, the organizational and operational boundaries of the ceramic can extend hundreds of kilometers, depending on the distance between the company and its suppliers, and also the distance to the storage area.

Therefore, the Social Carbon Methodology establishes that, during the evaluation, the company will be responsible only for the activities over which it keeps total or partial control; and for the impacts attributed to the project activity, according to the following framework:

Activities and impacts under the evaluation of the SOCIALCARBON Standard are supposed to accomplish one or more of the criteria described below:

- a) Being controlled totally or partially by the organization responsible for the Project.
- b) Showing evidences of its relation with the Project.
- c) Showing evidences of the project's influence over the activities.
- d) Being attributable directly or indirectly to the project on an obvious or proven form.

The approach of the SOCIALCARBON Standard can be summarized according to the following scheme:

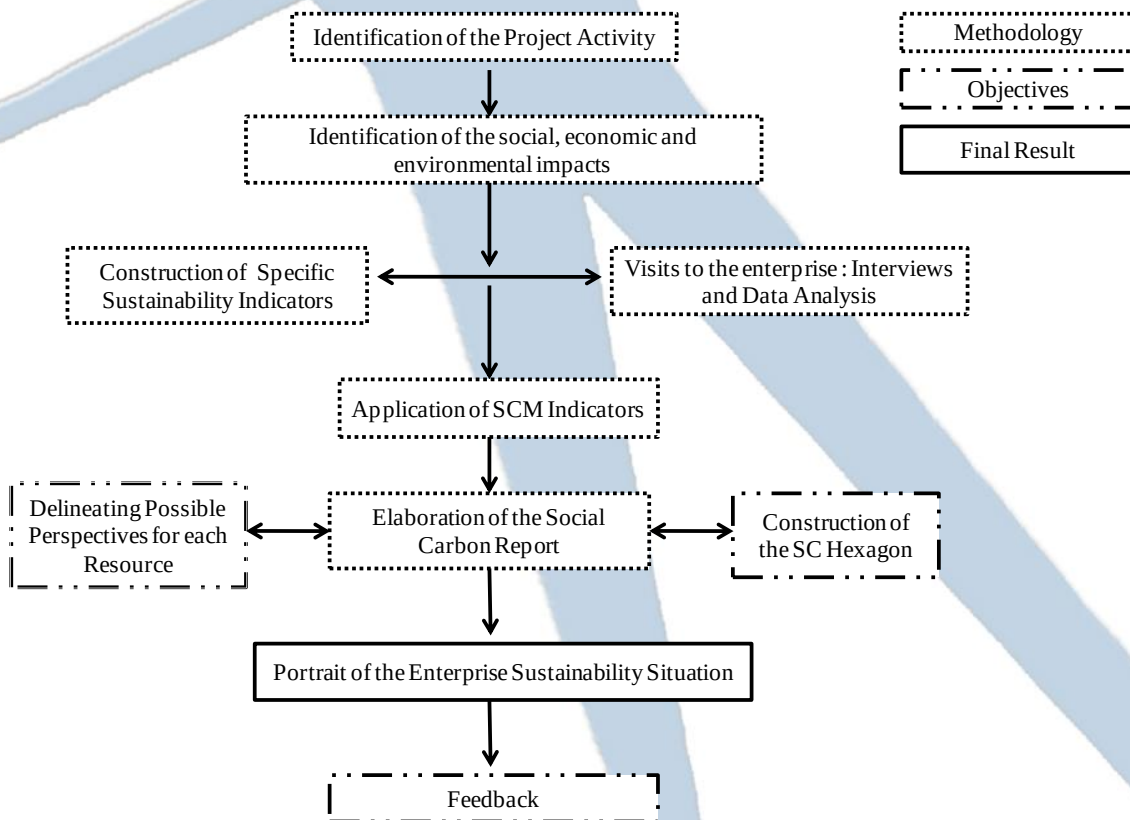


Figure 4: Scheme of the application of the SOCIALCARBON Standard.

Another change to the indicators for the ceramist industries was the introduction of the Technology indicator, considered of extreme importance to the sustainable development of the sector. This, combined with the difficulty in measuring the impact of ceramic industries on biodiversity, resulted in the replacement of the Biodiversity Resource by the Technology Resource, defined as follow:

Technology Resource: evaluates the conditions of access to technological assets and processes with focus on its contribution for the economical, social and environmental development.

3.2. Social, economic and environmental impacts of the emission reductions project

The table below presents the major social, economical, and environmental impacts of the red ceramic industry. The relevant environmental impacts, which are specifically related to the emission reductions, are described at the Project Description, in the section of Environmental Impacts.

Table 1: Main social, economical and environmental impacts of the red ceramic industry

IDENTIFICATION OF SOCIAL-ECONOMIC AND ENVIRONMENTAL ASPECTS AND IMPACTS						Ceramic:	São Sebastião
						Version:	3
						Responsbile:	Sustainable Carbon Company
Item	Atictivity	Aspect	Impact	Effect		Comments/ Observations	
				Benefitital	Adverse		
01	Acquisition of Raw Material	Clay extraction	Silting - Erosion - Changes in Landscapes		X	Monitored through the SOCIALCARBON Indicators	
02	Dosage of clay (preparation of mass)	Water consumption	Depletion of Natural Resources		X	Monitored through the SOCIALCARBON Indicators	
03	Illumination and alimentation of electrical devices	Electrical energy consumption	Depletion of Natural Resources		X	-	
04	Renewable Biomass Storage	Renewable Biomass disposal inside the factory	Local air contamination due to the		X	-	
05	Kilns Feed	Renewable Biomass consumption	Better disposal and use of agroforestry residues	X		Monitored through the SOCIALCARBON Indicators	
06	Firing of Kilns	Smoke emission	Air Pollution		X	Monitored through the SOCIALCARBON Indicators	
07	Baths/ Lavatories/ Sanitariums	Sanitary effluent, baths and lavatories	Water Contamination		X	-	
08	Firing of Kilns	Ashes residues	Soil Contamination		X	Monitored through the SOCIALCARBON Indicators	

09	Production Process	Potsherds	Landfill Occupation		X	Monitored through the SOCIALCARBON Indicators
10	Operation of Machines	Oil and grease consumption	Depletion of Natural Resources		X	-
11	Operation of Machines	Oil and grease disposal	Soil and Water Contamination		X	Monitored through the SOCIALCARBON Indicators
12	Operation of machines, transport of materials and products	Necessity of manpower	Jobs Generation	X		In general, for low skilled manpower
13	Administration and activities management	Necessity of manpower	Jobs Generation	X		In general, with some professional skills
14	Production Process	Particulate material emission	Respiratory Problems		X	-
15	Firing of Kilns	Heat emission	Risks to the health of the employees		X	-
16	Operation of Machines	Equipments in Operation	Noise		X	-

3.3. Method used for obtaining information

The method used in the application of the SOCIALCARBON Standard indicators was carried through as follows:

Stage 01: Elaboration of a questionnaire.

Stage 02: Visit *in loco* at the ceramic industry.

Stage 03: During the visit *in loco*, the questionnaire was conducted by the people responsible for carrying out the SOCIALCARBON Methodology. It was completed by conducting semi-structured interviews with the participants listed below. The questionnaires aimed to obtain, in an indirect way, information about the six resources of the SOCIALCARBON Standard.

Stage 04: Obtainment of evidence during the visit, such as pictures and documents.

3.4. Actors involved

The following key representatives were identified and selected for participating in the diagnosis:

Table 2: Participants List

Relation of Participants	
Name	Function/Job
Cedenir Fernando Barbosa Lima	Owner of the enterprise
Marcelo de Oliveira do Vale	Administrative Manager

4. Results

4.1. Social Resources

1. **Turnover:** The turnover can be obtained by the fraction of the average dismissal numbers, and the employees working at the project developer in a given moment. $TR = (\text{dismissed workers} + \text{hired workers}) / (\text{number of workers employed in the project develop} \times 2)$.

Comments:

The benefits that employees receive when dismissed are usually identified as the main cause of labour turnover in Brazil. This turnover leaves little motivation for businesses to invest in human resources, and as a result employees accumulate low human capital during their active work life⁷.

According to the data collected, related to the period of January 2010 to June 2011:

Total number of workers	88
Hired workers during one year	17
Dismissed workers during one year	22

Turnover index = $[(22 + 17) / (88 \times 2)] = 0,2215 = 22,15\%$

The enterprise Turnover index was 22,15%.

The turnover is up to 80%.	The turnover is between 60 and 79%.	The turnover is between 40 and 59%.	The turnover is between 20 a 39%.	The turnover is between 10 a 19%.	The turnover is less than 10%.
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Index: 4 (four)

Perspective: There are no improvement forecasts at the moment.

2. Syndical Relations: Evaluates the involvement of the entrepreneur and workers in the syndicate.

There were no strikes recorded over the last twelve months. The entrepreneur is involved with the Trade Union Of Ceramists, but his participation is limited to collective agreement meetings with ANICER⁸.

Occurrence of strike in the last 12 months	Insignificant participation in the syndicate and/or indifference shown by the workers.	Significant participation in the syndicate yet centralized in the management staff.	Significant participation in the syndicate, including workers	Besides the participation in syndicates, provides information about working conditions and has periodical meetings with the syndicates to listen to suggestions and negotiate	Obtains a solid communication channel with the syndicate, keeping them informed, as well as divulging information from the syndicate to the workers frequently.
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⁷ Fonte: IPEA- Instituto de Pesquisa Econômica Aplicada, 1997

⁸ National Association of Red Ceramics.

				vindications.	
Index: 2 (two)					
Perspective: There are no improvement forecasts at the moment.					

3. Benefits: Evaluates the additional benefits offered by the entrepreneur to the workers, in addition to the obligatory benefits. Note: Additional benefits for the workers will be consider that one which is not foreseen in law, working rules or collective agreement with organization that represents the workers (Syndicate), for example: more than the salary of the syndicate, bonus, Meal Voucher, Basic Alimentary Provision, Education and Capacitating Programs (including financial help), Medical, Hospital or health assurance, life assurance, private welfare, among others. The additional benefits did not include Transportation Ticket.

The benefits given to employees beyond a fixed wage improve the company's image and strengthen the relationship between the employee and employer.

In addition to the fixed salary, the ceramic company provides:

- Company parties to all the employees;
- Meals in the workplace, limited to the Administration staff;
(The vegetables used to make the food are planted in the ceramic garden)
- Breakfast for all the workers that arrive early at the company;
- Doctor visits twice a week to give medical assistance to all the workers;
- Housing, limited to the Administration staff.

The project developer does not offer any additional benefits to the employees.	Less than a half of the employees receive some additional benefit.	More than half of the employees receive some additional benefit.	All the employees receive some additional benefit.	All the employees receive more than one additional benefit.	All the employees receive more than two additional benefits.
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Index: 5 (five)

Perspective: There are no improvement forecasts at the moment.

4. Social Inclusion: Evaluates the existence of effective programs giving priorities for hiring local manpower and social inclusion, without any prejudice against gender, handicaps, or other minority groups.

Comments:

In general, due to the type of work carried out in red ceramic industries, enterprises can only employ workers capable of performing heavy duties. For this reason, the inclusion of women and handicap bearers is difficult. However, the majority of administrative jobs can be performed by women.

There are 3 women working in *São Sebastião's* Ceramic administration, one woman working at the cuisine, 3 women working in the production line, and one handicapped worker, who is deaf, also working in the production line.

The enterprise intends to enhance its diversity, by integrating different ways of thinking to increase the productivity of discussions.

Entrepreneur avoids the hiring of women	Among the works hired: There are not	Among the works hired: Less than 20%	Among the works hired: Less than 20%	Among the works hired: More than	In addition to the last item, the
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and handicaps.	women; There are not handicaps.	of the workers are women; There are not handicaps.	of the workers are women; There are handicaps	20% of the workers are women; There are specific shares destined for handicaps.	entrepreneur has policy or action to stimulate the diversity and social inclusion.
Index: 4 (Four)					
Perspective: There are no improvement forecasts at the moment.					

5. Satisfaction: Intends to identify the satisfaction of the employees, as well as the demands related to the improvement of working conditions.

Comments:

Mechanisms to evaluate worker satisfaction and perception of the company are of extreme importance, as they enable the organization to perform continuous improvement of its services and strengthen the relationship between the individual and his profession as well as between the employee and the organization.

Despite the good relationship between the ceramic owner and the collaborators, *São Sebastião Ceramic* has a suggestion box where the employees can put their suggestions and complaints and the entrepreneur can work in it and improve some issues in the company.

Significant levels of workers dissatisfaction or absence of a system to evaluate and consult.	System to evaluate and consult with unsatisfactory results or large opposition by the workers.	System to evaluate and consult with little satisfactory results or moderate oppositions by the workers.	System to evaluate and consult with satisfactory results or little significant opposition by the workers.	System to evaluate and consult with positive results in general or minimal opposition by the workers.	System to evaluate and consult with very positive results or any opposition by the workers.
Index: 4 (four)					
Perspective: There are no improvement forecasts at the moment.					

6. Relationship with the community: Evaluates the relationship among the entrepreneur and the community, as well as his contribution in social events and activities.

Comments:

The *São Sebastião Ceramic* makes donations of milk to an institution, called “*Grupo Solidariedade*”, which supports people living with the HIV virus. The ceramic also donated bricks to a local association.

All the company’s donations are recorded by the entrepreneur.

The project developer has no relations with the local community.	The project developer only sponsors in a random way sports and cultural events, or some philanthropic causes of the local community.	The project developer only sponsors in a random way sports and cultural events, or some philanthropic causes of the local community, and he has control about it.	In addition to the last item, the entrepreneur promotes its own actions to benefit the local community (events, seminar, parties, and projects).	The entrepreneur has plan and goal for the social contribution.	The entrepreneur does, in the last 3 years, researches with the local community to know possible problems and how he can improve his actuation.
Index: 3 (Three)					
Perspective: There are no improvement forecasts at the moment.					

7. Social Benefits: Evaluates the benefits reverted to the stakeholders, when they are

measurable or evidenced.					
Note: The definition about reached benefit (limited, satisfactory or unsatisfactory) should consider the project and involved organization charge.					
Comments:					
The entrepreneur took interest in social actions putting into practice projects which benefit employees, for instance the water supplying to same workers that live near the ceramic and the fraternization parties. A television, a bicycle and a radio were purchased to raffle off to the workers. Also the ceramic has a bicycle park where the employees can keep their bicycles.					
The project didn't provide any social benefits, in the last 12 month.	The social return is not evident or measurable, in the last 12 month.	The social return is evident, but not measurable, in the last 12 month.	The social return is evident and measurable, but the benefit is limited in the scope (few people benefited, little changes, etc., in the last 12 month.	The social return is evident and measurable, with a satisfactory scope (reasonable amount of people benefited, significant changes, etc.), in the last 12 months.	The social return is evident and measurable, with a very satisfactory scope (lot of people benefited, significant changes, etc.), in the last 12 month.
Index: 4 (Four)					
Perspective: There are no improvement forecasts at the moment.					

4.2. Human Resource

8. Scholarship: Evaluates the scholarship level of the employees, and the contribution of the entrepreneur for the promotion of education among the workers.																	
Comments:																	
In the period of January 2010 to June 2011, the education level of the workers was:																	
<table><tr><td>Illiterate</td><td>0</td></tr><tr><td>Up to Grade 5</td><td>57</td></tr><tr><td>Up to Grade 9</td><td>27</td></tr><tr><td>Unfinished Senior Year</td><td>1</td></tr><tr><td>Finished Senior Year</td><td>3</td></tr><tr><td>Technical/ Third Grade</td><td>0</td></tr></table>						Illiterate	0	Up to Grade 5	57	Up to Grade 9	27	Unfinished Senior Year	1	Finished Senior Year	3	Technical/ Third Grade	0
Illiterate	0																
Up to Grade 5	57																
Up to Grade 9	27																
Unfinished Senior Year	1																
Finished Senior Year	3																
Technical/ Third Grade	0																
According to the data analyzed, the <i>São Sebastião</i> Ceramic has one worker with post-secondary education, Fátima. Fátima completed her studies in business administration.																	
More than 50% of the employees are illiterate. OR Insufficient registers about the employees' scholarship.	High illiteracy (above 13%) among the employees.	Less than 13% of the employees are illiterate. The scholarship level is low, however more than 50% have less than eight year of study.	Less than 13% of the employees are illiterate. More than 50% of the employees have more than eight year of study.	Less than 13% of the employees are illiterate. More than a half of the employees completed the high Scholl.	The entrepreneur develops actions to incentive the formal education among the employees.												
Index: 3 (Three)																	
Perspective: There are no improvement forecasts at the moment.																	

9. Professional Qualification: Evaluates the level of Professional qualification of the workers. Note: Professional qualification will be considered as any course which was concluded in educational institutions, which give specific abilities for the employees, promoting the earnings generation and their inclusion in the job market.					
Comments: An employee's qualification encompasses theoretical, technical, and operational knowledge. In the current globalized working world, the need for comprehensive professional qualification is increasing and worker specialization greatly impacts the development of activities in companies. Most of the employees at <i>São Sebastião</i> ceramic have developed empiric skills during their working life. The entrepreneur is investing in training of one of the workers, so that, in the future, she will be able to give lectures to the staff.					
Employees with no technical knowledge or professional qualification. OR Lack of information about the employee's professional qualification.	Incompletes information about build capacity of the employees.	Less than 10% of the employees have some professional qualification	Less than 50% of the employees have some professional qualification	More than 50% of the employees have some and professional qualification in them actuation area.	In addition to the last item, some workers have courses of specialization(graduation/post graduation/ technological course)
Index: 1 (one)					
Perspective: There are no improvement forecasts at the moment.					

10. Building Capacity Plan: Evaluates the initiatives of the project developer in regards to capacitating plans and programs, including, if they exist, their approach, strategies, frequency and the satisfaction of the employees.					
Comments: The <i>São Sebastião</i> Ceramic offers the "CIPA" course along with SESI to its collaborators, however, in the period analyzed no course regarding the improvement of worker performance.					
The project developer does not invest in the building capacity of its employees.	Just the administrative staffs participate of sporadic building capacity courses.	The project developer stimulates the participation of the employees in sporadic building capacity courses, without a specific plan.	The project developer regularly invests in the building capacity of the employees linked to their professional functions (ceramic sector/ industrial sector), without a specific plan.	The project developer has a structured plan geared towards the building capacity of the employees.	The project developer has a structured building capacity plan for the employees, including diverse themes as citizenship and environment, among others.
Index: 1 (one)					
Perspective: There are no improvement forecasts at the moment.					

11. Working Conditions: Evaluates the improvements in relation to environmental work conditions to which the employees submitted, considering salubrious, sanitary and ergonomic situations.

Comments:

Since the project implementation, the entrepreneur has modified the factory layout. This means that project activities are positively impacting working conditions. For example, last year, mechanical burners were employed to inject the renewable biomass into the kilns, reducing employee exposure to high temperatures, and diminishing insalubrious working conditions.

In the period analyzed the entrepreneur implemented the following actions to improve working conditions:

- Renovation of the bathrooms;
- Renovation of the dryer, decreasing the noise;
- Creation of a recreation room to the workers with a television;
- Pest control testing;
- Water tank cleaning.

No action taken to improve the sanitary, salubrious and ergonomic conditions in the last 12 months.	Low significant changes in the sanitary, salubrious and ergonomic conditions in the last 12 months.	The entrepreneur did actions to improve the salubrious and ergonomic conditions, indirectly, through changes in the productive process, in the last 12 years.	Entrepreneur did actions to improve the salubrious, sanitary OR ergonomic conditions in the last 12 months.	The entrepreneur made improvements in the sanitary and salubrious conditions in the last 12 month.	In addition to the last item, the company has specific goals and planning to improve the sanitary, salubrious and ergonomic conditions.
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Index: 4 (Four)

Perspective: The entrepreneur intends to pave the factory backyard to reduce the dust from the truck traffic.

12. IPE use: Evaluates the workers and the entrepreneur conduct regarding equipment use and the security procedures.

Comments:

The main risks resulting from working in red ceramics are:

Injury or illness caused by noise, heat, and dust; accidents caused by exposed electrical wiring, distribution boxes and open and unprotected circuit breakers; accidents from machinery and equipment with unprotected belts and pulleys (extrusive, compressors, etc); injuries in buildings with stairs, ramps and walkways without railings; and ergonomic risks from the excessive effort needed to transport materials.

To avoid employee exposure to these inherent risks the enterprise provides Personal Protective Equipment (PPEs) to the employees according to their respective functions. The ceramic controls the use of this equipment, using a control delivery document that must be signed by each employee.

Despite the constant encouragement of adequate safety, practices, the employees still resist using PPEs because of their associated discomfort; specifically, workers neglect to use earplugs.

Inadequate management of the IPEs, such as difficulties in maintaining the stock organized and/or monitoring absence for the	The IPE is available for the employee, but some workers don't use it in a correct way.	The IPE are available for the employees and there is internal control of the IPE use and retreat, but some workers don't use in a correct	The entrepreneur encourages the IPEs use.	The workers use IPE in a correct way. The entrepreneur encourages the IPEs use. Systematic monitoring of the IPE use.	In addition to the last item, there is an efficient program to reduce and prevent accident.
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retreat and delivery		way.			
Index: 3 (Three)					
Perspective: There are no improvement forecasts at the moment.					

13. Actions of Health and Security: Evaluates the existence and performance of campaigns, leisure and goal and plans regarding equipment use and the security procedures.

Comments:

The improvement of working conditions reduces harmful physical and mental health conditions for workers, bettering not only the working environment, but also contributing to continuous improvements to production methods. Nowadays, health and safety is used in the workforce as a strategy to increase company competitiveness in the market⁹.

The Company applies the Environmental Risks Prevention Program (PPRA), a program established by the Regularmentary Norm NR-9 of the Secretariat of Labor Health and Safety of the Minister of Labor.

The Environmental Risks Prevention Program should include the following steps:

Anticipation and acknowledgment of risks, establishment of priorities and targets for evaluation and control, risk assessment and exposure of workers; control measures and evaluation of their effectiveness Implementation; monitoring of the risk exposure, and registration and dissemination of the dates.

The entrepreneur realized infrequent training about safety and health practices and no serious accidents occurred in recent months.

The accidents prevention issues related to health and safety are addressed in the Plan for the Prevention of Environmental Risk - PPRA.

The Company has Medical Control Program in Occupational Health - PCMSO, the NR-7.

Activities planned for the PCMSO :

Medical admission assessment; periodic medical assessment; medical evaluation by Function Change; Medical Evaluation for Returning to Work; Medical Evaluation; issue of Occupational Health Certificates (ASO); Statistical reports; Archives of Exams.

The company also has an Internal Commission for Accident Prevention (CIPA) and holds frequent meetings to inform workers about health and safety practices. Most lectures are performed by qualified professionals and the themes covered include: prevention of drug use, and safety and ergonomics, among others.

Occurrence of serious accidents in the last 12 months.	There were no serious accidents, but no campaign, lecture or training was done in the last 12 months.	Only occasional campaigns or lectures of awareness regarding the occupational health and security in the last 12 months AND/OR Security internal communication in	The company develops regular campaigns, meetings, training regarding occupational health and security in the last 12 months.	In addition to the left item, the company has goals and planning regarding the occupational health and security with difficulties to execute.	Goals and planning regarding the occupational health and security, with satisfactory execution.
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⁹ Duque CM. Sistema de produção no mundo globalizado. In: Congresso Brasileiro de Segurança e Medicina do Trabalho, IX, 2000, São Paulo. Anais IX COBRASEMT. São Paulo: ABRAPHISET, 2000. p.113-119

		specific places (ex: posters, warnings, etc).			
Index: 4 (four)					
Perspective: There are no improvement forecasts at the moment.					

4.3. Financial Resource

14. Financing: Evaluates the project developer's ability to obtain credit from financial institutions and the accomplishment of the commitments/deadlines assumed.					
Comments: The Company withdrew financial assistance in the period analyzed supported by FINAME/BNDS to reform the extruder machine and to purchase equipment to construct a new kiln. The entrepreneur states that the company does not have difficulty in complying with the corresponding payment deadlines.					
Lack of information about financings.	Aware of the existence of financings, but does not have access to obtain credits.	The company has already initiated financings, but it has difficulties to accomplish the deadlines assumed.	The company has already initiated financings, and has no difficulties to accomplish the deadlines assumed.	The company has already finished the financing period and it is looking forward to new opportunities.	There is no necessity of financing.
Index: 4 (Four)					
Perspective: There are no improvement forecasts at the moment.					

15. Production: Evaluates the evolution of the production's capacity in the last year and the relation between this rise and the diversification of the products or significant events that can affect the production.					
Comments: When compared with the period of the SOCIALCARBON® Point One, the production increased in a very significant way due to the raise of orders made by the construction market.					
The production declined significantly in the last year, causing big losses for the entrepreneur.	The production declined in the last year, even though the losses were considerate negligible for the entrepreneur.	The production remained stable in the last year.	The production increase in a little expressive way in the last year.	The production increase in a very significant way in the last year.	In addition to the last item, the production increase is associated with the diversification of the products and/or to expansion to others markets.
Index: 5 (Five)					
Perspective: There are no improvement forecasts at the moment.					

16. Expectative: Evaluates the existence of the entrepreneur's expectations concerning the business in the next few years.					
Comments: The entrepreneur expects the ceramic to grow as a result of a Government Housing Program ¹⁰ , which will provide more than a million houses for low-income people in the next years, as well as due to the Accelerate Growth Program ¹¹ , a new concept of infrastructure investment and economic measures created to stimulate the productive sectors and, at the same time, benefit					

the country ¹² . In addition, the entrepreneur estimates that the business will expand in the next years due to the continuous investments to improve the productive process.					
Business retraction.	There are not expectative.	Business stability.	Business expansion, but without established plans and marks.	Business expansion, with established plans and marks.	Business expansion, with realization of viability studies of technical, financial and environmental aspects
Index: 4 (Four)					
Perspective: There are no improvement forecasts at the moment.					

17. Renewable Biomass Supply: Evaluates the availability and diversity of biomasses and suppliers, considering the guarantee of fuel supply.

Comments: To fuel their kilns, the <i>São Sebastião</i> Ceramic uses wood from afforestation areas, wood residues from industries, pallets, residues from city gardens, and construction residues, among others. In case these biomasses are not available, the project can be fueled with elephant grass. There is more than one biomass supplier, and the ceramic has no difficulty in proving the origin of the biomass used.					
Only 1 type of renewable biomass is used, making it difficult to prove its origin or raising its cost.	Only 2 types of renewable biomass are used, but one of them is proportionally less used.	Only 2 types of renewable biomass used regularly.	Uses 3 types of renewable biomass, increasing options when demanded, improving the cost for the project developer. OR Has its own renewable biomass furnishing, supplying part of the project developer's demand.	Uses 4 types or more of renewable biomass, providing a great variety of suppliers, enabling cost researches, making the purchases more productive OR Has its own renewable biomass furnishing, supplying most of the project developer's demand.	Besides the previous item, the entrepreneur makes tests with new types of biomass OR Has its own renewable biomass furnishing, supplying all of the project developer's demand.
Index: 4 (Four)					
Perspective: There are no improvement forecasts at the moment.					

18. Carbon Market: Evaluates the situation of commercialization of the carbon credits' of the period, considering its chronological valorization.

Comments: In São Sebastião ceramic all the carbon credits related from the last period verified, April/2006 to September/2008, were commercialized. For additional information about the carbon market please access the Markit website: http://www.markit.com .					
Credits of the period are not yet commercialized.	Credits of the period in negotiation.	Part of the credits of the period was commercialized.	Credits of the period were commercialized, but with prices lower than the	Credits of the period were commercialized.	Credits of the period were commercialized, but with prices higher than the

			period before.		period before.
Index: 5 (Five)					
Perspective: There are no improvement forecasts at the moment.					

19. Financial Planning of the emission reduction Project: Evaluates the existence of financial controlling for the project activity's implantation and operation.					
Comments: The entrepreneur is aware of the investments required for the project and controls the expenses for its implementation. (All evidence is based on invoices for internal control). The ceramic however lacks a formalized planning for better control its expenses.					
The entrepreneur doesn't have control: of the expenses to implement the project; of the financial return of the credits' commercialization	The entrepreneur has a partial control: of the expenses to implement the project; Of the financial return of the credits' commercialization. But he doesn't plan his spending with the project implantation.	The entrepreneur has a partial control: of the expenses to implement the project; Of the financial return of the credits' commercialization The planning to implant the project was incomplete or unsatisfactory.	The entrepreneur has a partial control: of the expenses to implement the project; Of the financial return of the credits' commercialization. The planning to implant the project was satisfactory with some deficiency.	The entrepreneur has control: of the expenses to implement the project; Of the financial return of the credits' commercialization The planning to implant the project was satisfactory, with monitoring of cash flow.	In addition to the last item, the entrepreneur presented studies of technical and financial viability of the project, with monitoring of the performance.
Index: 3 (Three)					
Perspective: There are no improvement forecasts at the moment.					

4.4. Natural Resource

20. Sustainability Principles: Evaluates the existence of specific policies and programs geared towards the project developer sustainability and the applicability of the principles, values and objectives regarding sustainability.
Comments: <i>"É compromisso da Olaria São Sebastião Ltda, a fabricação de artefatos de barro cozido para uso na construção civil, sem colocar em risco o Meio Ambiente e a qualidade de vida das Comunidades próximas, buscando a melhoria ambiental continua e o cumprimento da Legislação, normas e requisitos aplicáveis".</i> "São Sebastian Ceramic is committed to manufacturing clay products to be used in building construction without putting at risk the environment or the quality of life of surrounding communities. The ceramic seeks continuous improvement and compliance with legislation, standards and applicable requirements." To comply with this Policy it is necessary for the ceramic to: - Rationalize the use of natural resources; - Reduce and properly treat residues; - Eliminate wastes; - Reduce pollution;

- Protect people, the environment and heritage from imminent risks; - Keep an open dialogue with responsible authorities and communities; Currently, <i>São Sebastião</i> Ceramic has been incorporating environmental responsibilities into its business operations. The ceramic's scrap metal is sold, and incomes are invested to benefit workers and to improve the factory. Also, the structure of the sheds are made with recycled metal.					
There are no commitments to the sustainability.	Limited incorporation of the sustainability in the values, strategies and principles of the entrepreneur.	Unsatisfactory incorporation of sustainability in the values, strategies and principles of the entrepreneur.	Adequate incorporation of sustainability in the values, strategies and principles of the entrepreneur.	Significant incorporation of sustainability in the values, strategies and principles of the entrepreneur.	Sustainability goals and objectives inserted in the values, strategies or principles of the entrepreneur.
Index: 4 (Four)					
Perspective: There are no improvement forecasts at the moment.					

21. Environmental Management: Evaluates the environmental management procedures adopted by the entrepreneur, including the organization and coordination of actions and documentation, such as impacts identification, monitoring, and emissions of periodic report, as well as the existence of a regular certification.					
Comments: The principal goal of an environmental management system should be to constantly improve the environmental quality of the services, products and work of an organization. The enterprise has some punctual approaches regarding environmental matters like the reuse of the ashes from the productive process to seal the kilns door and the monitoring of the atmospheric emissions.					
There is no systemic approach involving the environmental aspects or disorganized structure, or there are no emissions of periodic reports.	Punctual approaches of environmental matters and there is no periodical report regarding these matters.	Gaps in the environmental management system or difficulties to implant and emit periodic reports.	Efficient Environmental Management System, with periodic emissions of reports, but with some difficulties.	Efficient Environmental Management System, not necessarily with certifications, with periodic emissions of reports and evaluation, including studies of risk evaluation and environmental impacts.	Certified Environmental System, with efficient structure and periodic reports and evaluations.
Index: 2 (two)					
Perspective: There are no improvement forecasts at the moment.					

22. Environmental Legislation: Evaluates the accordance of the project developer with environmental laws and norms, including agreements with public authorities, such as environmental licenses and requested authorizations for installation and occupation of your project developer.					
Comments: The project is in accordance with the CONAMA 11 Resolution, n°. 237/97 which establishes that clay extraction activities and ceramic production must be supported by specific licenses, such as an operational license and a clay extraction license.					

The Operation License (LO) is the license that authorizes the start of the enterprise's operation. It is granted after a ceramic meets the conditions of the License Installation.

The ceramic industry has an operational license - number: FE010616; valid until March 31st, 2011 - and understands its corresponding environmental obligations. Renewal was requested on November 19th, 2010.

There is no knowledge about the environmental legislation and norms.	The entrepreneur knows the legal obligations, but has no environmental license, or it was suspended for not accomplishing the constraints.	The entrepreneur has environmental license, but he has difficulties to keep in date with environmental requires. He may present some temporary inconformity.	The entrepreneur has environmental license, but with difficulties to accomplish the constraints.	The entrepreneur has environmental license according to the constraints and deadline sets.	Besides the previous item, the entrepreneur has a systematic control of the licensing process and/or control of the environmental legislation of its main suppliers.
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Index: 4 (Four)

Perspective: There are no improvement forecasts at the moment.

23. Lawsuit procedures: Evaluates if the entrepreneur was involved with any lawsuit or administrative sanctions executed by public organs, person or people, aiming the environment and human health protection or repair.

Comments:

The entrepreneur did not suffer from civil or public lawsuits, or warnings regarding potential risks or effective damages to human health or the environment in the last year.

The entrepreneur: Has suffered in the last year public civil action due potential risk or effective damage for human healthy or for environmental; He was convicted in the final instance.	The entrepreneur: Has suffered in the last year judicial action by public agencies due potential risk or effective damage for human healthy or for environmental; He was convicted in the final instance	The entrepreneur: Had suffered in the last year warning by public agencies due potential risk or effective damage for human healthy or for environmental.	The entrepreneur: Has suffered in the last year warning by monitoring agency due potential risk or effective damage for human healthy or for environmental; He has already regularized his situation.	The entrepreneur: Has suffered in the last year public civil action, judicial action or warning due potential risk or effective damage for human healthy or for environmental. ; He was not convicted.	The entrepreneur: Didn't suffer in the last year public civil action, judicial action or warning due potential risk or effective damage for human healthy or for environmental
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Index: 6 (Six)

Perspective: There are no improvement forecasts at the moment.

24. Energy: Evaluates the fuel applied to fire the ceramic devices, just as the origin and control of the biomass.

Comments:

The substitution of the fuel is complete. Currently all kilns are fed with wood from afforestation areas and wood residues from industries, pallets, residues from city gardens, and construction residues, among others to both dry the ceramic product, used in the kilns.

The entrepreneur has no difficulty in proving the biomass' origin.

The company use native wood.	Partial substitution: The company use native wood and renewable biomass.	Total substitution: The company use renewable biomass, but it has difficulties to obtain, to prove the	Total substitution: The company use renewable biomass, but it has difficulties to obtain, to prove the	Total substitution: The company use renewable biomass without difficulties to obtain, to prove the origin, the	In addition to the last item, the entrepreneur has systematic procedures of renewable biomass
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		origin, the legality or the quantity of the biomass.	origin, the legality or the quantity of part of the biomass.	legality or the quantity of the biomass.	control, with basis register in an electronic way and emission of periodic reports.
Index: 5 (Five)					
Perspective: No improvement forecasts at the moment.					

25. Clay: Evaluates the conformity with the environmental laws for the exploitation of mineral clay and the existence of Environmental Control Plan concerning the clay extraction.

Comments:

The project is in accordance with the CONAMA 11 Resolution, n°. 237/97 which establishes that clay extraction activities and ceramic production must be supported by specific licenses, such as operational license and clay extraction license.

The project is also in accordance to the Federal Constitution, Article 20, which establishes the payment of a Financial Compensation by the Mineral Resources Exploitation. This financial compensation is annually performed to DNPM¹⁰ due to the clay exploitation.

The ceramic industry has a Clay Extraction License - number: FE0011229; valid until June 28th, 2011 - and understands its corresponding environmental obligations.

The entrepreneur does not know the environmental concessions and licenses needed to the clay extraction. OR Entrepreneur does not know if the supplier has the environmental concessions and licenses	The entrepreneur/supplier has all licenses, but their validation is expired or they were suspended due to the not accomplish of the constraints.	The entrepreneur/supplier obtained the environmental licenses and concession to the clay extraction, but he has difficulties to keep up with the environmental requirements, and he may present temporary irregularities in a short period.	The entrepreneur/supplier possess the environmental licenses and concession to the clay extraction	In addition to the last item, the entrepreneur/supplier has an effective Plan of Control of the environmental impacts and/or of the recuperation of degraded area.	In addition to the last item, the entrepreneur/supplier has a systematic procedure to monitor the implementation of the plan.
Index: 5 (Five)					
Perspective: There are no improvement forecasts at the moment.					

26. Water: Evaluates the origin of the water used in the productive process, besides the legal and sustainable aspects of its exploitation.

Comments:

The *São Sebastião* Ceramic has cooling towers. The cooling towers economize the water used to cool the vacuum meter pump during clay extrusion. However, the ceramic does not monitor the water consumption.

The water used in the ceramic comes from an artesian well, as the public supply networks are far from the ceramic. The entrepreneur monitors its quality through bi-weekly inspections and also adds chlorine to make it drinkable.

Consumption of water in the productive process	Register of the water consumption in the productive	Monitoring of water consumption in the	The company presented system, process or	In addition to the last item, the reduction of the	The management of water consumption is efficient, with
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¹⁰National Department of Mineral Production

without specific control.	process.	productive process.	equipments to reduce the water consumption in the productive process.	water consumption is significant and measurable.	emission of periodic reports.
Index: 1 (one)					
Perspective: There are no improvement forecasts at the moment.					

27. Emissions to the atmosphere: Evaluates the control over the atmospheric emissions involving the gases emitted during the productive process, except the greenhouse gases.					
Comments: The entrepreneur uses the Ringelmann scale method to monitor the emissions generated. The entrepreneur records the emissions from chimneys in a spreadsheet three to four times per day. The installation of particle filters on kilns chimneys is not a legal requirement and it demands financial resources beyond the entrepreneur's investment possibilities.					
There is not monitoring of the emissions. There are not actions to control and reduce the emission.	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.	There is not monitoring of the emissions. There are actions to control and reduce the emission with evident results, even though not measurable.	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.	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.	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.
Index: 3 (Three)					
Perspective: There are no improvement forecasts at the moment.					

28. Residues from the Productive Process: Evaluates the treatment and destination dispended to the industrial residues generated in the productive process, as well as the incorporation of external industries residues and existence of a residues management plan.					
Comments: Although there is no formal management system, there is control of the productive process' residues. The residues not burned are returned into the clay mixture and are reused in the production process. The discarded ceramic products are donated or used to repair roads.					
Residues of the productive process are discarded without any environmental control.	Part of the residues is destined to landfills or donations. The rest is kept inside the limits of the industry.	Residues of productive process are used to grounding, donations or reused in the process, but without specific control.	Besides the previous item, there are external industrial residues incorporated in the process OR Show activities that reduce the quantity of residues, but without a specific plan.	There is a plan to reduce the production of residues.	There is a management system of residues.

Index: 3 (three)

Perspective: There are no improvement forecasts at the moment.

29. Ashes: Evaluates the procedures adopted by the entrepreneur in order to control the ashes and its destination.

Comments:

The ashes generated by *São Sebastião Ceramic's* productive process are used to seal the kilns' doors.

Ashes deriving from the biomass burning in the kilns are discarded without any environmental control.	Part of the ashes is designed in an inadequate way and the other part is reused/donates without specific control.	Ashes are totally reused or donated, but without specific control.	Ashes are totally reused or donated, with control of the quantity and destination of the material.	In addition to the last item, part of them is commercialized.	The company presented management system that includes procedures to store, to monitor, to reduce the generation, and others.
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Index: 3 (Three)

Perspective: There are no improvement forecasts at the moment.

4.5. Technology Resource

30. Kilns Burning Efficiency: Evaluates the efficiency level and the kind of kilns used to fire the devices in the ceramic productive process.

Comments:

Currently, the ceramic uses one continuous firing cycle kiln, a *Hoffman* kiln, which is rated as a high efficiency kiln for fuel consumption.

Kilns with very low efficiency, as "caieras" kilns.	Mixed Composition of the kilns: <i>Caieiras</i> (low efficiency); <i>Paulistinha</i> or Round (medium efficiency).	Medium Efficiency kilns as <i>Paulistinha</i> and Round kilns.	Mixed Composition of the kiln: <i>Paulistinha</i> or Round (medium Efficiency); <i>Hoffman</i> (high efficiency).	Mixed composition of the kilns: <i>Tunel</i> (very high efficiency); <i>Hoffman</i> (high efficiency); <i>Paulistinha</i> or Round (medium efficiency).	<i>Tunel</i> kilns or other very with high efficiency kilns.
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Index: 5 (Five)

Perspective: The entrepreneur is constructing a *Tunel* kiln- a very high efficiency kiln.

31. Devices Drying (before the fire): Evaluates the efficiency of the methods executed to dry the devices, stage before the fire and after the extrusion, the existence of artificial dryers (avoiding fissures in the final product) and also considers the employment of a system able transfer the heat provided by the kiln to the devices drying.

Comments:

Some products are dried in covered outdoor areas and some are dried in a dryer, which reuses the heat from the kilns.

With the *Tunel* type-kiln, the ceramic will reuse all the heat from the kiln to dry the ceramic

products.					
Drying in open place.	Natural drying in covered area.	Presents drying system with help of: ventilators AND/OR; canvas stove AND/OR; reuse of heat from the kilns AND/OR; Temperature and humidity control (<i>termopares</i>).	Part of the devices pass through semi continuous or continuous artificial drying and part is used in other drying methods.	Presents semi continuous artificial drying system OR Presents continuous artificial drying system.	Besides the previous item, obtains automatic system to control the temperature and humidity (self-regulating drying system).
Index: 3 (Three)					
Perspective: The entrepreneur intends to build a dryer which reutilizes the heat from the kilns.					

32. Devices Firing: Evaluates the existence and the automation of the fire monitoring system as well as the construction of the fire curve graphics.					
Comments: The kiln's temperature is measured using thermocouples (automatic sensors that are installed in the kilns). However, because of the frequent use of the equipment, it has deteriorated. The ceramic has not replaced it, because he is currently building a new kiln. As such, there is no reason to invest in the Hoffman because it will be disabled and replaced with the Tunel kiln.					
Burning process without any control.	Manual making control of the burning curve, presenting some difficulties (i.e. fails in monitoring, absence of registers, among others)	Manual making and control of the burning curve.	Semi automatic control of the burning temperature.	Automatic making and control (self-regulating system) of the burning curve, with registration of the data in digital format.	Automatic making and control of the burning curve, achievement of the basis in a digital way, report emissions.
Index: 2 (Two)					
Perspective: There are no improvement forecasts at the moment.					

33. Kilns Alimentation: Evaluates the existence and the automation of the procedures used for the kilns alimentation.					
Comments: The kilns are fed manually. The employees feed the kilns by inserting the fuel from the top of the kiln.					
Manual feeds of the kilns.	Mixed Process: The alimentation of some Kilns is manual, while the alimentation of other kilns is realized semi automatically or automatically	Semi-automatic feeds of the kilns.	The alimentation of the kilns is semi automatic, presenting some enhancements (i.e. in addition to the last item, there are other automatic processes as the use of trackers, automatic controllers for the biomass injection, and others).	Mixed Process: The alimentation of some kilns is semi automatic, and the alimentation of other kilns is completely automatic.	Automatic feeds of the kilns.

Index: 1 (One)
Perspective: There are no improvement forecasts at the moment.

34. Machinery: Evaluates the existence and conservation of machinery that helps the workers, seeking the reduction of risks and improvement of productive process. The factors considered as in bad conditions of conservation are: leakage, excessive noise, loose or lack of components, among others.					
Comments: The ceramic's machinery is listed below: - Fans - Exhausters -Electric power generator - Bulldozer - Tractor with a bucket loader In general, these machines are in good condition. The ceramic has a fully equipped workshop with workbench, welding machines, various keys, and sandpipers, among others to maintain equipment.					
Doesn't have machineries beyond those present in the production line.	Have machineries with bad conditions of conservation AND in small quantity.	Have machineries with bad conditions of conservation OR in small quantity.	Have machineries with good conditions of conservation and in reasonable quantity.	Besides the previous item, has a machine shop for repairing, improvement of machines and maintenance.	Has maintenance and calibration control, equipments in good conditions of conservation and good quantity.
Index: 5 (Five)					
Perspective: There are no improvement forecasts at the moment.					

35. Products Variety: Evaluates the product variety, the kind of products, including the existence of personalized products or with high value in the consumer market.					
Comments: The red ceramic sector is considered one of the most traditional of the ceramic industry and still employs rudimentary processes. In the last years, technological innovations have resulted in product diversification which creates opportunities in new external and internal markets. São Sebastião Ceramic manufactures, in general, three types of tiles and four types of blocks, including: - structural ceramic blocks; - and finishing materials, such as slabs, among others.					
Only one kind of product is produced.	Two kinds of products are produced.	Three kinds of products are produced.	Four or more kinds of products are produced.	Sporadic production of personalized items that have high market value.	Continuous production of personalized items that have high market value.
Index: 4 (Four)					
Perspective: There are no improvement forecasts at the moment.					

36. Quality Control: Evaluates the procedures adopted by the entrepreneur, during the productive process, aiming to ensure the quality of the devices. It also verifies the existence of a quality certification.					
Comments: The production chain in the civil construction sector relies on a number of actors. The number of actors affects the consistency of production and in turn, the quality of the final product.¹¹ Quality control in the production process results in products with: • Standardized and uniform dimensions; • Resistance to flexing; • Reduced absorption; • Uniform coloring. The Ceramic carries out quality evaluations for their devices including tests for the raw material and final product. All the stages are systematically monitored. The tests are carried out by the PSQ, which assures that the ceramic products are of high quality standards. All the steps in the production process are quality inspected by the PSQ certification, from the raw material to the final end product.					
Absence of labs and analysis of quality control.	Limited and sporadic evaluations of quality control of the products.	Periodic evaluations of the quality control, but not approaching all production circle and/or all the products.	Periodic evaluations of quality control, which approach all the production circle and products.	The company has certification in part of the products.	All the products are certified.
Index: 5 (five)					
Perspective: There are no improvement forecasts at the moment.					

4.6. Carbon Resource

37. Additionality: Evaluates if the reduced greenhouse gases emissions that were additional; this means, without the project, the reductions wouldn't happen. This item evaluates the tools used to confirm the additionally according to national and international standards.					
Comments: The additionality of the project is established according to section 2.5 of VCS PD which contains specifications for the quantification, monitoring and project report, as well as the validation and verification of the greenhouse gases emission. In order to demonstrate that this project is additional, the test 1 of the Section 5.8 - Additionality of the VCS Standard 2007.1 document was used: The Project Test					
It is not considered additional.	It has the additionally limited to the project portions.	There are uncertainties about the additionally, partial or total.	It is considered additional, but it doesn't use international and national recognized standards.	It is considered additional and it uses international and national recognized standard.	It is considered additional according to the criteria stated in a monitoring methodology approved by the CDM Executive Board.
Index: 5 (Five)					
Perspective: There are no improvement forecasts at the moment.					

¹¹ ANDRADE, L. A. S. UMA PROPOSTA METODOLÓGICA PARA A INSPEÇÃO DA QUALIDADE EM BLOCOS CERÂMICOS PARA ALVENARIA EM CANTEIROS DE OBRAS, Master's Dissertation, Universidade Federal de Santa Catarina, Florianópolis, 2002

38. Emission Reductions Calculations & Monitoring: Evaluates the methodologies used to calculate the emission reductions, the monitoring and if it is suitable to the national and international standard.					
Comments: The project uses the simplified procedures and modalities category described in Appendix B for small-scale project activities in the Clean Development Mechanism - CDM - type I, as follows: Category AMS-I.C: Thermal energy for the user with or without electricity - Version 13 from March 14th 2008. This methodology is applicable for all project activities which avoid greenhouse emissions through the use of renewable biomass instead of fossil fuels, in order to generate thermal energy. Moreover, the project activity will generate less than 45 MW of thermal energy annually. More information regarding the calculations of the emissions reductions project activity is specified in the PD (Project Description) and in the Verification Report of the DOE (Designated Operational Entity).					
Absence of a specific methodology to calculate the emission reductions. AND/OR It does not have a monitoring plan, nor has only a partial or insufficient monitoring.	It has an emission reductions calculation methodology limited to the project portions.	There are some doubts about the methodology consistence for calculation of the base line and monitoring plan.	It possesses a consistent methodology to calculate the emission reduction. AND It possesses a consistent monitoring plan, approaching all the dimensions of the project.	In addition to the last item, the methodology of the base line and the monitoring plans are based in international recognized standards.	It possesses a methodology to calculate the emission reductions, and a monitoring plan based in a methodology approved by the CDM Executive Board.
Index: 6 (Six)					
Perspective: There are no improvement forecasts at the moment.					

39. Validation & Verification: Evaluates the existence of partial or total validation/verification of the project by a third part, and if it is the credited by UNFCCC, and if the validation and verification procedures are according to national and international standards.					
Comments: The Validation and Verification Final Report, based on VCS 2007.01, was made and the respective reports were elaborated. For more information, please see: http://www.v-c-s.org/					
There is not validation or verification done by a third part.	Validation and verification of a third part is limited to parts of the project.	Validation/verification of the project is done by an independent third party, which is not registered by the UNFCCC (DOE ¹²) or other GHG program.	Validation/verification of the project is done by an independent third party, registered by the or other GHG program than UNFCCC (DOE ¹³)	Validation/Verification is done by a DOE.	Validation/ Verification are done by a Designated Operational Entity, based in international recognized procedures.
Index: 6 (Six)					
Perspective: There are no improvement forecasts at the moment.					

¹² Designated Operational Entity.

¹³ Designated Operational Entity.

40. Project Performance: Evaluates the project performance in comparison to the emission reductions estimated in the Project Design Document - PPD.					
Comments: The <i>São Sebastião</i> ceramic had an excellent performance when compared with the emissions reduction estimated in the Project Description.					
Not successful. 0% of the carbon credits predicted in the period were effectively generated.	Very Low. From 01% to 25% of the carbon credits predicted by the period were effectively generated.	Low. From 26% to 50% of the carbon credits predicted by the period were effectively generated.	Reasonable: From 51% to 75% of the carbon credits predicted by the period were effectively generated.	Good: From 76% and 95% of the carbon credits predicted by the period were effectively generated.	Excellent: More than 95% of the carbon credits predicted by the period were effectively generated.
Index: 6 (six)					
Perspective: There are no improvement forecasts at the moment.					

41. Involvement of the Employees in the Project: Evaluates the internal communication related to the emissions reduction project.					
Comments: The employees are aware of the alterations in the production process, especially those resulting from the fuel switching. However, the entrepreneur never held lectures to inform workers about the project.					
Workers were not informed or were insufficiently informed about the project and they are not involved.	The employees are aware of the project, even though they are reluctant about its implantation.	The employees are aware of the project, but they are not involved to it (indifference to the implantation of the project).	The employees are really aware about the project; they are involved and motivated to contribute to its implantation.	The employees really aware about the project, and also they are capacitated to the implementation of the activities and to readapt their activities.	Besides the involvement and capacitating of the employees, the project is developed in a participatory way and accomplishes the interests of the entrepreneur.
Index: 1 (One)					
Perspective: There are no improvement forecasts at the moment.					

42. Involvement of the Stakeholders: Evaluates the communication and acceptance of the project by communities, environmental agency and public authorities, among other social actors.					
Comments: Stakeholders are individuals who are involved in a project or may be affected by the activities or result of a project. The project was not divulged to stakeholders.					
The project does not contemplate the participation of the stakeholders. OR Groups/Organizations showed great opposition to implement the project.	The project contemplates the publication of the project activities to the stakeholders, but not in a formal and structured character OR Groups/organizations showed opposition to implement the	The project contemplates the participation of the stakeholders through invitation letter to do the consult. Was not demonstrated any formal opposition to implement the	The project was developed in a group of organizations of the same sector in an interactive and cooperative way, with great divulgation for other sectors, institutions, organizations, etc. Was not	The divulgation contemplates other kind of approach (seminar, meetings, publication in the mass communication, etc.) Was not demonstrated any formal opposition to implement the	In addition to the last item, some expressions of support to the project were received.

	project.	project.	demonstrated any formal opposition to the implementation of the project.	project	
Index: 1 (One)					
Perspective: The entrepreneur intends to divulge the project in newspapers and magazines.					

5. Analysis of results

To analyze the situation of the project, it is important to consider what is represented by the score obtained for each of the resources. The indicators are established to express the following relationship between the scores obtained and the situation of the project:

Scores 1 and 2:

Situation: Critical.

Characteristics: existence of irregularities; high socio-environmental risk; significant levels of social and environmental degradation; or situation of extreme hardship, which significantly compromises the quality of life of the population.

Scores 3 and 4:

Situation: Satisfactory

Characteristics: meets all the legal requirements relating to its activities; surpass them through the adoption of good practices and voluntary actions in some cases; or a quality of life that reaches the minimum acceptable standard, but which requires improvement.

Scores 5 and 6:

Situation: Sustainable.

Characteristics: exceeds its legal obligations and/or common practice in the market, in many cases adopting the best-possible practices for the sector; or communities have reached a sustainable livelihood, with adequate access to material and social goods, are capable of recovering independently from situations of stress, and are not causing the deterioration of basic environmental resources through their activities.

In order to obtain an analysis of the Resources average, an equal distribution is adopted between the decimal intervals from 1 to 6, expressing the following relationship amongst the indexes obtained and the project performance.

Average index obtained for the Resource	Decimal interval	Situation
Interval from 1 to 2,6	1,7	Critical
Interval from 2,7 to 4,3	1,7	Satisfactory
Interval from 4,4 to 6	1,7	Sustainable

5.1. General performance

The general performance of *São Sebastião* ceramic is considered satisfactory, with a general score of 3.6 based on the resource indicators above (refer to Annex I for statistical results).

As highlighted by Table 3 (below) 47% of the indicators were within the satisfactory interval, showing that the practices in the ceramic are average for the industry. However, 31% of the indicators fell within the 'sustainable' interval, suggesting that the ceramic has industry setting practices.

Most notably, *São Sebastião's* Natural resource indicates an industry leading performance because of the ceramic's commitment to environmental actions to improve the quality of life of surrounding communities and also because of its compliance with Environmental Legislation.

However, there are still areas in the ceramic that are 'critical' in their performance. Such critical areas include, for example, the low participation of employees in the trade union of workers.

The ceramic has made the following commitments for improvement, such as:

- To pave the factory backyard to reduce the dust from the truck traffic;
- To build a dryer which reutilizes the heat from the kilns;
- To divulge the project in newspapers and magazines.

Table 2- Sustainability Performance of *São Sebastião* Ceramic - Point 02 (2010)

Resource	Critical	Satisfactory	Sustainable	Average	Performance
Social	14.3%	71.4%	14.3%	3.7	Satisfactory
Human	33.3%	66.7%	0.0%	2.7	Satisfactory
Financial	0.0%	66.7%	33.3%	4.2	Satisfactory
Natural	20.0%	50.0%	30.0%	3.6	Satisfactory
Technology	28.6%	28.6%	42.9%	3.6	Satisfactory
Carbon	33.3%	0.0%	66.7%	4.2	Satisfactory
General Performance	22%	47%	31%	3.6	Satisfactory

5.2. Performance by resource

Social Resource: The *São Sebastião* Ceramic donates milk to an institution, called "*Grupo Solidariedade*", which supports people living with the HIV virus. There are three women working in *São Sebastião's* Ceramic administration and one handicapped worker, who is deaf, working in the production line. In addition to the fixed salary the entrepreneur offers workers meals in the workplace, housing (limited to the administration staff), breakfast for all the workers and medical twice a week. A television, a bicycle, and a radio were purchased to raffle off to the workers. This, alongside the benefits provided to workers improved the company's Social Resource performance.

Human Resource: The *São Sebastião* Ceramic keeps records of its employees' education levels. In the period analyzed the company offered a "CIPA" course to some of its collaborators. The entrepreneur renovated the bathrooms and the dryer, performed pest control and cleaned the water tank. In addition, the company constructed a recreation room for the workers with a television. The company provides PPEs to all employees who work in the production process or in areas of risk, monitoring their withdrawal and handover. The company also performs frequent meetings to inform workers about health and safety. Most

lectures are performed by qualified professionals and the themes approached are: drug prevention, safety, and ergonomics, among others.

Financial Resource: The ceramic facility withdrew financial assistance in the period analyzed supported by FINAME/BNDS. A portion of the funds were used to reform the extruder machine and to purchase equipment to construct a new kiln. The company uses wood from afforestation areas, wood residues from industries, pallets, residues from city gardens, and construction residues, among others. In case of a lack of these types of biomasses, elephant grass can be used. The *São Sebastião* Ceramic has no difficulties in proving the origin of the biomass used. The entrepreneur estimates that the business will expand in the next years due to the continuous investments to improve the productive process, and an increase in production. The entrepreneur does not have specific plans for these projects, but holds contracts to undertake the investments.

Natural Resource: *São Sebastião* Ceramic has been incorporating environmental responsibilities into its business operations, for example, selling scrap metal (with income invested to benefit the workers and to improvements in the factory). The ceramic did not suffer any judiciary action as it had all necessary authorizations and licenses. The ceramic does not have a systematic management plan for the environmental aspects of its operational activities because of worker resistance, the difficulties associated with explaining environment issues to workers, and the high costs associated with making the changes. The water used in the ceramic comes from an artesian well, as the public supply networks are far from the ceramic. The entrepreneur monitors the water quality through biweekly inspections and adds chlorine to make the water drinkable. There is limited control of emissions in the ceramic; controlled only by visually monitoring the emissions generated. The residues not burned are returned into the clay mixture and are reused in the process. The ceramic goods that are discarded are donated or used to repair roads.

Technology Resource: The ceramic uses a high energy efficiency 'Hoffman' kiln to heat and produce its ceramic products. Products are either dried in covered outdoor areas or in a dryer, which operates like a furnace and reuses heat from the kilns. With the Tunel type-kiln, the ceramic will reuse all the heat from the kiln to dry the ceramic products. The kiln's temperatures are measured with thermocouples. The kiln alimentation is performed manually. The ceramic produces three types of tiles and four types of blocks, and has a quality management system in place, certified by a third party, the Sectorial Quality Program (PSQ).

Carbon Resource: All calculations and estimations have been made using conservative methodologies; a practice which will be maintained during all project development stages, guaranteeing quality to buyers and project proponents. The entrepreneur did not give lectures to inform workers about the activities and the project was not divulged to stakeholders.

5.3. Historic performance and comparative analysis

An analysis of the project's performance at Point two of the project life is complete. The analysis compares the information collected during all of the project stages, i.e. Point Zero, Point One and Point Two, to monitor the project's sustainability evolution.

São Sebastião Ceramic's performance at Point Two demonstrated improvements to the Social Resource, due to a lower rate of turnover and control over the donations given by the company. Besides the benefits given in the last period of SOCIALCARBON® Point One, the ceramic hired a doctor who visits the ceramic twice a week to give medical assistance to employees and also the ceramic offers housing, which is limited to the administration staff.

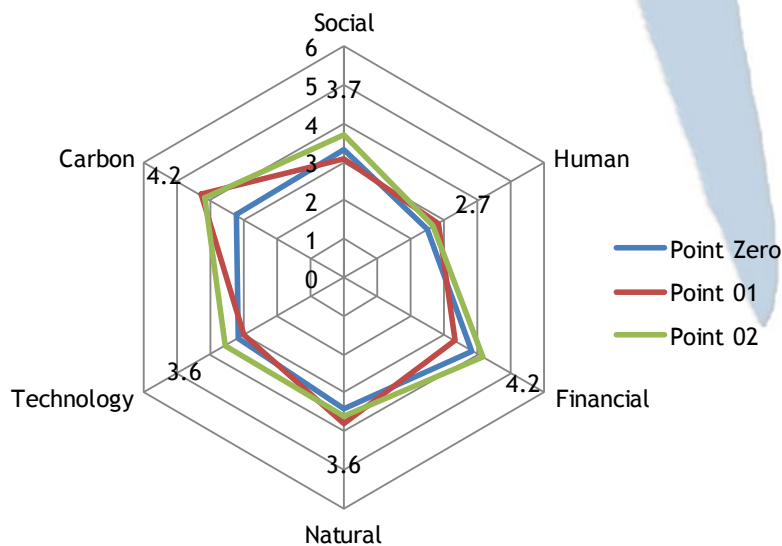
The Human Resource had a little decrease due to the lack of information about employee's professional qualification.

The Technology Resource indicator also improved because of the ceramic's workshop, which is used to maintain and repair the equipment and machineries. The PSQ certification also contributed to the improvement of this indicator, ensuring the quality of *São Sebastião*'s products.

The Financial Resource had a significant increase because all the carbon credits related to the last period verified, were commercialized.

The Carbon Resources decreased due to the entrepreneur did not divulge the project activity to stakeholders.

Figure 5: Sustainability Analysis of *São Sebastião* Ceramic- Points Zero to Point 02



6. Perspectives

Actions to be made after some planning or obtainment of better information

Action related to indicator (s)	Carbon Resource: Involvement of the Stakeholders
Action description	The entrepreneur intends to divulge the project in newspapers and magazines.
Responsible for implementation	Ceramic Owner
Deadline	The end of 2012.

Actions to be made after some planning or obtainment of better information

Action related to indicator (s)	Human Resource: Working Conditions
Action description	The entrepreneur intends to pave the factory backyard to reduce the dust from the truck traffic.
Responsible for implementation	Ceramic Owner.
Deadline	The end of 2012.

Actions to be made after some planning or obtainment of better information

Action related to indicator (s)	Technology Resource: Devices Drying
Action description	The entrepreneur intends to build a dryer which reutilizes the heat from the kilns.
Responsible for implementation	Ceramic Owner.
Deadline	The end of 2012.

Actions to be made after some planning or obtainment of better information

Action related to indicator (s)	Technology Resource: Kilns Burning Efficiency
Action description	The entrepreneur intends to finish the construction of the Tunnel kiln.
Responsible for implementation	Ceramic Owner.
Deadline	The end of 2012.

Annex 1- Results Sheet related to the period of Point 02 (2010/2011).

Social Resource			Financial Resource			Natural Resource		
Score	Analysis		Score	Analysis		Score	Analysis	
1 Turn over	!	4 SA	14 Financing	!	4 SA	20 Sustainability principles	!	4 SA
2 Syndical Relations	✗	2 C	15 Production	✓	5 SU	21 Environmental management	✗	2 C
3 Benefits	✓	5 SU	16 Expectative	!	4 SA	22 Environmental legislation	!	4 SA
4 Social inclusion	!	4 SA	17 Renewable biomass supply	!	4 SA	23 Lawsuit procedures	✓	6 SU
5 Satisfaction	!	4 SA	18 Carbon market	✓	5 SU	24 Energy	✓	5 SU
6 Relation with the community	!	3 SA	19 Financial planning	!	3 SA	25 Clay	✓	5 SU
7 Social Benefits	!	4 SA	Average	!	4.2 SA	26 Water	✗	1 C
Average	!	3.7 SA				27 Emission to the atmosphere	!	3 SA
						28 Residues	!	3 SA
						29 Ashes	!	3 SA
						Average	!	3.6 SA
Indicators evaluated	7		Indicators evaluated	6		Indicators evaluated	10	
C Critical	1	14.3% C	Critical	0	0.0% C	Critical	2	20.0%
SA Satisfactory	5	71.4% SA	Satisfactory	4	66.7% SA	Satisfactory	5	50.0%
SU Sustainable	1	14.3% SU	Sustainable	2	33.3% SU	Sustainable	3	30.0%

Human Resource			Carbon Resource			Technology Resource		
Score	Analysis		Score	Analysis		Score	Analysis	
8 Scholarship	!	3 SA	37 Additionality	✓	5 SU	30 Kilns burning efficiency	✓	5 SU
9 Professional qualification	✗	1 C	38 Calculations & monitoring	✓	6 SU	31 Devices drying	!	3 SA
10 Building capacity	✗	1 C	39 Validation & verification	✓	6 SU	32 Devices firing	✗	2 C
11 Working Conditions	!	4 SA	40 Project performance	✓	6 SU	33 Kilns alimentation	✗	1 C
12 IPE use	!	3 SA	41 Involvement of employees	✗	1 C	34 Machinery	✓	5 SU
13 Actions of health & security	!	4 SA	42 Involvement of stakeholders	✗	1 C	35 Products Variety	!	4 SA
Average	!	2.7 SA	Average	!	4.2 SA	36 Quality Control	✓	5 SU
						Average	!	3.6 SA
Indicators evaluated	6		Indicators evaluated	6		Indicators evaluated	7	
C Critical	2	33.3% C	Critical	2	33.3% C	Critical	2	28.6%
SA Satisfactory	4	66.7% SA	Satisfactory	0	0.0% SA	Satisfactory	2	28.6%
SU Sustainable	0	0.0% SU	Sustainable	4	66.7% SU	Sustainable	3	42.9%

ANEXX 2. Ceramic Pictures



Picture 1. Vegetable garden



Picture 2. Gifts sorted to employees in the celebration party offered by the ceramic.



Picture 3 - Lunchroom