

Efficient Cookstoves in Bahia II

Project Design Document
Submitted to The Gold Standard

Prepared by:

Ambiental PV Ltd.
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SECTION A. General description of micro-scale project activity

A.1 Title of the micro-scale project activity:

Efficient Cookstoves in Bahia II - GS1028

Version 3. April 2015

Template Version: GS 2.2

A.2 Project participants:

Instituto Perene

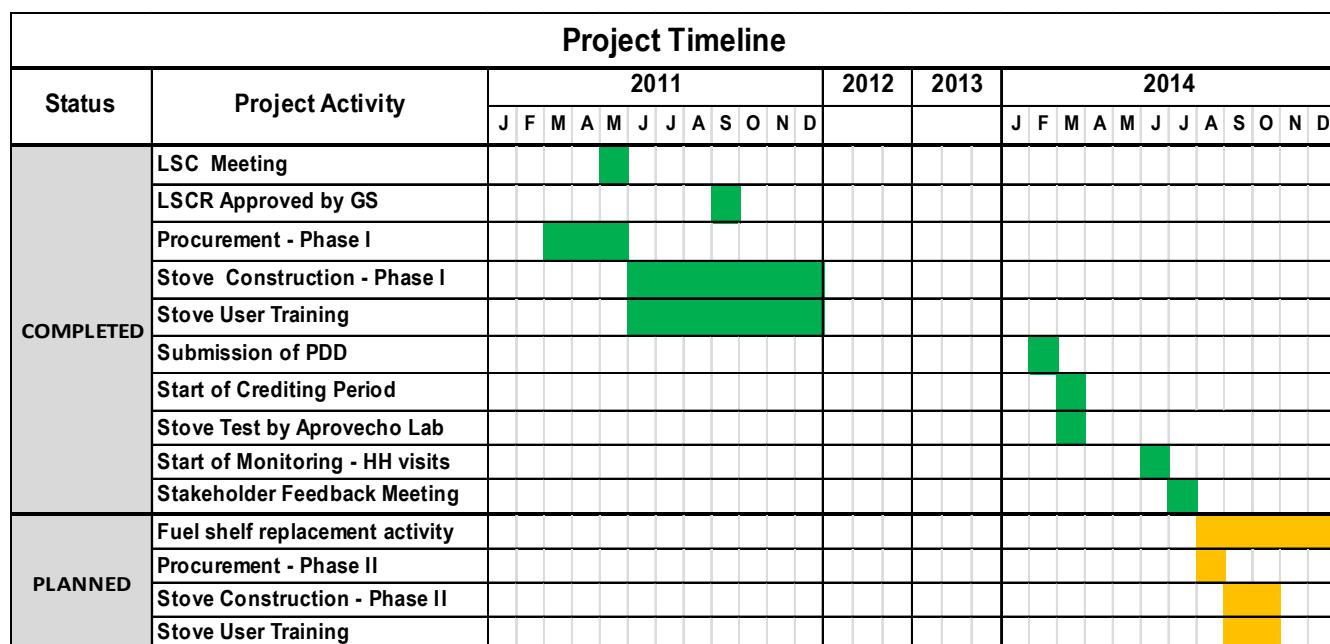
Instituto Perene, the developer and executor of this initiative, is a non-governmental organization (NGO) founded in 2006 in Salvador, Brazil. Instituto Perene's mission is to develop mechanisms for conservation and sustainable use of natural resources, generating long-term environmental, economic, and social benefits. Instituto Perene projects seek to reconcile the restoration and conservation of Bahia state's threatened biomes with the economic and social needs of their local communities.

Instituto Perene currently has funding secured for the implementation of 1,000 stoves of the 3,300 total units included in the scope of this PDD. The contract between Perene and the buyer of the carbon credits, the Brazilian company Natura, is included in ANNEX 3 (CONFIDENTIAL). This contract details the terms and conditions, including the funds paid for the carbon credits, which covers 100% of the cost of implementing the first 1,000 stove units.

Funding for the 2,300 additional stoves is currently being sought.

The 1,000 stoves for which funding has already been secured are being constructed in two phases. Phase I occurred between March and December 2011, with a total of 724 stoves built in the municipality of Santo Amaro. Construction in the area was stopped in the period January 2012 to July 2014. The reason is that Instituto Perene was going forward with construction of PDD GS 832, building approximately 5,000 stoves in the municipalities of Maragogipe and São Felipe during those two years. With the conclusion of that project, Instituto Perene can now turn back to the current project. The remaining 276 stoves will be completed by October 2014.

Construction Timeline		
Year	Cookstoves Built	Status
2011	724	Built
2012	0	
2013	0	
2014	276	Scheduled-funding secured
2015	0	
2016	1,300	Projected
2017	1,000	Projected
TOTAL	3,300	



Phase II of stove construction entails the remaining 276 stoves to be built under the contract with Natura, which includes full funding for the construction of a total of 1,000 stoves, financed entirely through the sale of carbon credits. The construction of the remaining 2,300 stoves included in the scope of this PDD is contingent upon new sales.

A.3 Description of the micro-scale project activity:

A.3.1. Location of the micro-scale project activity:

A.3.1.1.

Host Country:

BRAZIL

A.3.1.2.

Region/State/Province etc.:

BAHIA

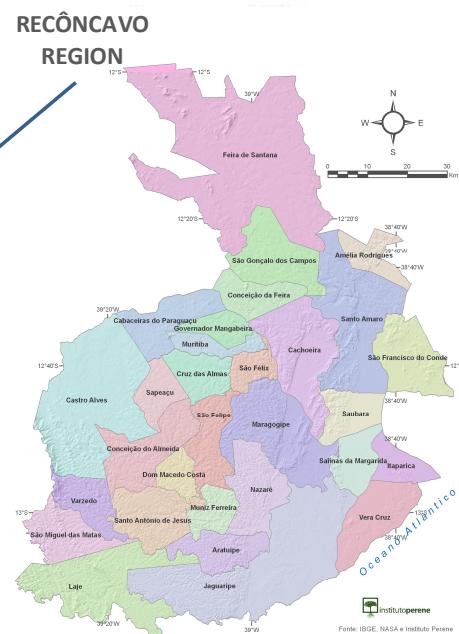
A.3.1.3.

City/Town/Community etc.:

RECÔNCAVO REGION, specifically the municipalities [IP1] of Santo Amaro, Sapeaçú, Conceição do Almeida, Dom Macedo Costa and Muniz Ferreira

A.3.1.4.

Details of physical location, including information allowing the unique identification of this micro-scale project activity:



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A.3.2. Description including technology and/or

ity:

The Efficient Cookstoves Project is an initiative developed and executed by the Brazilian NGO Instituto Perene that reduces greenhouse gas emissions by substituting rudimentary stoves with efficient cookstoves for domestic use. Six thousand low-income rural families in Bahia state in northeastern Brazil will directly benefit from this project, with especially positive impacts for women and children. Instituto Perene's first cookstove project, *Efficient Cookstoves in the Bahian Reconcavo Region (GS 832)*, is located in the municipalities of Maragogipe and São Felipe, and was validated by Gold Standard in May 2013. Instituto Perene is now expanding this successful cookstove initiative to additional municipalities in Bahia through this project, *Efficient Cookstoves in Bahia II*.

The type of project activity proposed is an End-use Energy Efficiency Improvement, reducing the amount of energy required for domestic cooking in rural households, by substituting inefficient, rudimentary cookstoves with improved, efficient cookstoves.

This project is eligible under the Gold Standard classification of "Improved distributed heating and cooking devices (e.g. cookstoves), and distributed micro-scale electricity generation units."

Rudimentary wood-burning fires are still the most common means of cooking in Northeastern Brazil's impoverished rural areas, where over 14 million people live (Census 2010¹). The characteristics of the households involved in the project region are:

- rural
- low-income
- population of African descent
- gather firewood from local forest fragments
- cook primarily with wood
- prior to the project – cooked on open-air fires.

The typical cookstoves used by the local population cause several problems:

- Indoor air pollution, which is especially damaging to the health of women and children who suffer from daily exposure to smoke and particulates
- Deforestation, resulting from the high consumption of wood
- Global warming, due to the emission of unnecessary amounts of greenhouse gases

The efficient stove design is based on principles originally laid out by Dr. Larry Winiarski and Aprovecho Research Center (Bryden, Still, Scott, & Hoffa, 2002). The cookstove model used in this project was further developed with the participation of local masons, cooks and community leaders.

The result is an efficient, durable stove that is well-suited to the needs and customs of its users. Homes become cleaner and safer environments, and fuelwood use is reduced by nearly half.

With the implementation of improved cookstoves (ICS), the project aims to:

- Reduce emissions of greenhouse gases;
- Improve the health conditions within homes.
- Contribute to the protection of the local ecosystem, the Atlantic Rainforest



Efficient cookstoves mean cleaner and safer homes for thousands of women and their children.

This project activity is expected to reduce _____ tons of CO₂-eq over 10 years, averaging 8,716 tons of CO₂-eq per year. Since the annual emissions reduction is less than 10,000 tons of CO₂-eq per year, this project is classified as a “micro” scale Voluntary Emissions Reduction (VER) project. A contract with the stove-users

¹ Official census by IBGE – Brazilian Institute of Geography and Statistics.

transfers the carbon credit rights to Instituto Perene. In any given year, should the emissions reductions surpass the limit of small-scale project ER of 10,000 tons, the tons in excess of 10,000/year will not be credited.

The project activities include:

1. Community engagement and identification of participating homes;
2. Training of women to be Community Agents;
3. Stove testing by Aprovecho Research Center to determine efficiency
4. Calculation of baseline and project fuel consumption and emissions
5. Capacity building for users;
6. Installation of efficient stoves
7. Monitoring

Prior to this project, efficient wood-burning cookstoves were not been available in the project area because of cost limitations, technology limitations and the predominance of traditional cookstove practices.

The technology to be employed uses locally available materials and labor. It is constructed using regular and refractory bricks, regular and refractory mortar, a metal plate with 2 openings, a rocket-elbow combustion chamber, autoclaved aerated concrete for insulation, and a ceramic chimney. This model was designed with the technical assistance of Aprovecho Research Center.

A.3.3 Estimated amount of emission reductions over the chosen crediting period:

Vintage	Annual estimation of emission reductions (Tons CO2e)
2014	3824
2015	3666
2016	8366
2017	11698
2018	11190
2019	10688
2020	10192
2021	9703
2022	9221
2023	8609
Total emission reductions (tons CO2e)	87,157
Total number of crediting years	10
Average annual reductions over the crediting period (tons of CO2e)	8,716

The transfer of credits ownership throughout the investment chain is transparent through written contracts. Each project beneficiary signs a contract, the *Authorization and Carbon Credits Rights Transfer*, transferring the ownership rights to the carbon credits to Instituto Perene.

Project Efficient Cookstoves in the Bahian Reconcavo

I, (name), carrier of national identification document no. (number), resident of (district), agree to participate in the Efficient Cookstoves in the Bahian Recôncavo Project. I authorize the technicians from Instituto Perene to install one efficient wood-burning cookstove in my home. In return for this installation, I transfer all rights to the carbon credits resulting from the reduction of greenhouse gases generated by using this stove during the project lifetime of 8 years to Instituto Perene.

Upon previous request, I agree to allow access to the stove installed in my home to the technicians from Instituto Perene so that they may collect data about the generation of carbon credits. I agree to follow the instructions received for correct use of the stove and to communicate any problems with the stove to Instituto Perene so that they may fix the problem free of charge.

Two sample contract are copied below:

Número de inscrição no Projeto	
Localização da residência por escrito e / ou coordenadas	
Termo de Autorização e Cessão Projeto Fogões Eficientes II	
Eu, <u>MARINA LAZARO DE ALMEIDA COSTA</u> , portador(a) do documento RG n. <u>03814178 75</u> , morador(a) de <u>Teixeira</u> , aceito participar do Projeto Fogões Eficientes II. Autorizo aos técnicos do Instituto Perene a instalar um fogão a lenha eficiente em minha residência. Em contrapartida a essa instalação cedo ao Instituto Perene todos os créditos de carbono que resultam da redução de gases de efeito estufa gerada pelo uso desse fogão durante o período desse projeto, de 8 anos.	
Por meio de solicitação prévia, concordo em permitir acesso ao fogão instalado em minha residência aos técnicos do Instituto Perene para verificar as condições do fogão e colher dados sobre à geração de créditos de carbono. Concordo em seguir as instruções recebidas para o uso correto do fogão, em não modificar a estrutura do fogão, e em comunicar qualquer problema no fogão ao Instituto Perene para que seja consertado.	
<u>Sig. <u>Marina Lazaro de Almeida Costa</u> 08 de Agosto de 2011</u>	
<u>Marina Lazaro de Almeida Costa</u>	

Número de inscrição no Projeto	
Localização da residência por escrito e / ou coordenadas	
Termo de Autorização e Cessão Projeto Fogões Eficientes II	
Eu, <u>Maria Nilza Pinto Lourenço</u> , portador(a) do documento RG n. <u>0310516899</u> , morador(a) de <u>Feliz</u> , aceito participar do Projeto Fogões Eficientes II. Autorizo aos técnicos do Instituto Perene a instalar um fogão a lenha eficiente em minha residência. Em contrapartida a essa instalação cedo ao Instituto Perene todos os créditos de carbono que resultam da redução de gases de efeito estufa gerada pelo uso desse fogão durante o período desse projeto, de 8 anos.	
Por meio de solicitação prévia, concordo em permitir acesso ao fogão instalado em minha residência aos técnicos do Instituto Perene para verificar as condições do fogão e colher dados sobre à geração de créditos de carbono. Concordo em seguir as instruções recebidas para o uso correto do fogão, em não modificar a estrutura do fogão, e em comunicar qualquer problema no fogão ao Instituto Perene para que seja consertado.	
<u>Sig. <u>Maria Nilza Pinto Lourenço</u> 15 de 10 de 2011</u>	
<u>Maria Nilza Pinto Lourenço</u>	

The term of the contract is 8 years because the original crediting period of the project was to be 7 years. The crediting period has since been modified to 10 years. Therefore, for those stoves operating beyond 8 years, an additional 2-year agreement will be signed.

A.3.4. Public funding of the micro-scale project activity:

Please see ODA declaration form attached.

SECTION B. Application of an existing baseline and monitoring methodology or of a new methodology submitted as part of this project activity

B.1. Title and reference of the existing or new baseline and monitoring methodology applied to the micro-scale project activity:

This project applies the **Gold Standard Simplified Methodology for Efficient Cookstoves**, effective February 2013, which includes both the baseline and monitoring methodologies.

B.2 Justification of the choice of the methodology and applicability:

This methodology is applicable because the proposed project is a micro-scale activity that introduces new wood burning cookstoves to reduce the use of non-renewable firewood to meet thermal energy requirements for household cooking.

The project proponent, Instituto Perene, is implementing the activity; the individual households do not act as project proponents.

The conditions are stated and met as follows:

1. If:

- I. the baseline fuel is only firewood.

In the current project, 100% of the project households use firewood as their main cooking fuel. In fact, this is one of the requirements for households to be eligible to receive the stove, and it is included in the individual agreements signed by each stove user. In addition to firewood, it is the wide-spread cultural practice to have a gas stove in the home, with intermittent use of LPG cooking fuel. Instituto Perene believes that this methodology is still appropriate because the LPG is a case of “subsumed fuel”. This approach was applied in the Efficient Cookstoves in the Bahian Recôncavo Region project, validated and verified in 2013. The Gold Standard describes a “subsumed fuel KPT” and when it is the best approach for a project:

A subsumed fuel KT is one which ensures the sampled households follow their usual pattern of use of secondary fuels (for example gas cooking for very light and quick meals such as breakfasts) while measuring only primary fuel consumption for the old and new stove. Its results reflect the effect of secondary fuel consumption without the need for quantification of secondary fuels. In cases where the KS assesses secondary or alternative fuels as contributing less than 50% of total cooking energy, [this approach] is legitimate (Methodology for Improved Cook-stoves and Kitchen Regimes (V 2) p. 8).

In order to test whether the subsumed fuel situation continues throughout the project lifetime, a question is included in the Monitoring Survey (ANNEX 4). The relevant questions have been included below, translated from Portuguese to English.

EXCERPT FROM MONITORING SURVEY SECTION III. FUEL USE IN THE HOME			
LPG	YES or NO	How long does a gas tank last?	
Frequency of Use	Every day	3-4 times/week	1 time/week
	Rarely		
For cooking what	Everything	Rice Beans Shellfish	Reheating Coffee Pasta

- II. The baseline stove is a three stone fire, or a conventional device without a grate or a chimney i.e. with no improved combustion air supply or flue gas ventilation.

This is exactly the case in rural NE Brazil, where cooking is performed over open fires, most often built on the dirt floor of the kitchen or on the ground outside. Stones or bricks are used to support the pot. Chimneys are non-existent.



Rudimentary stoves burn excessive wood and create unhealthful homes.

- III. the project stove is a single pot or multi pot portable or an insitu cookstove with a specified efficiency of at least 20%.

The project stove is a robust 2-burner stove equipped with combustion chamber, insulation, chimney and fuel shelf designed in partnership with Aprovecho Research Center. Efficiency tests were carried out by Aprovecho in March 2014. The result was a thermal efficiency of 20.1%. The full report is included as ANNEX 5.

2. The project boundary is clearly defined to be the municipalities of Santo Amaro, Sapeaçú, Conceição do Almeida, Dom Macedo Costa and Muniz Ferreira of the Recôncavo Region. The stoves are not included in any other project, as shown by their GPS location, together with unique ID number and document number of the stove user.
3. The transfer of ownership of credits is made transparent through written contracts. Each project beneficiary signs a contract, the terms of the *Authorization and Transfer of Carbon Credits Rights*, transferring the ownership rights to the carbon credits to Instituto Perene. The cookstove end-users are fully aware of and willing to give up their rights on emission reductions, and this has been documented through video footage of the stakeholder meetings.

The terms of the contract with each stove-owner are as follows (translated from the Portuguese):

*Terms of Authorization and Transfer
Efficient Cookstoves in Bahia Project*

I, (name), carrier of national identification document no. (number), resident of (district), use wood to cook and agree to participate in the Efficient Cookstoves in Bahia Project. I authorize the installation of one efficient wood-burning cookstove in my home to substitute my existing wood-burning stove. In return for this installation, I transfer all rights to the carbon credits resulting from the reduction of greenhouse gases generated by using this stove for 8 years to Instituto Perene.

Upon previous request, I agree to allow access to the stove installed in my home to the technicians from Instituto Perene so that they may verify the condition of the stove and collect data about the generation of carbon credits. I agree to follow the instructions received for correct use of the stove, not to modify the stove structure and to communicate any problems with the stove to Instituto Perene for repair.

4. The baseline cookstove is NOT used in parallel to the new cookstove. In most cases, the new cookstove is constructed on the same spot as the old stove, destroying whatever rudimentary structure was present. It is important to point out that the old cooking technology is entirely undesirable to the women, because of the smoke and soot produced, as well as the danger the open fire poses to their children and themselves. House visits during monitoring show clear evidence that old wood stoves are no longer in use once the new stove has been installed, and this question will be included in the monitoring surveys.

B.3. Description of the project boundary:

Project boundary: the municipalities of Santo Amaro, Sapeaçú, Conceição do Almeida, Dom Macedo Costa and Muniz Ferreira in the Recôncavo region of Bahia, Brazil.

The *Target Area* is Northeastern Brazil, where use of the baseline cookstove described above is prevalent across the political borders of the states of this region: Bahia, Sergipe, Alagoas, Pernambuco, Paraíba, Rio Grande do Norte, Ceará, Piauí and Maranhão.

B.4. Description of the baseline and its development as per the chosen methodology:

The baseline is the use of inefficient, rudimentary cookstoves that burn non-renewable biomass for fuel. No changes to the baseline are expected in the project region for the next 10 years. The region has been economically stagnant for decades and no major changes have occurred over the past decades to the cooking practices of local residents. Therefore, the baseline is fixed.

The earlier version of the PDD applied Option (c). Minimum service level of the Simplified Methodology for Efficient Cookstoves (p.6). However, Instituto Perene subsequently requested a change to the baseline, instead using Option (a). On 04/20/2015, Gold Standard approved this change and the baseline was set as follows.

Baseline fuel consumption was determined according to “Option a: Historical data” of the Simplified Methodology for Efficient Cookstove, p. 5. The methodology states that: “for option (a), the project proponents need to make sure that historical data is relevant to the target population and appropriately justified.”

In its revised version (April 2015), this PDD applies the Gold Standard Simplified Methodology for Efficient Cookstove, option a: Historical data method for determining baseline fuel consumption. Historical annual fuelwood consumption was determined to be:

4.2 tons of wood/HH

Historical data was obtained from Bahia state Energy report, published by the government of Bahia, as well as a study prepared by Winrock International and the Shell Foundation.

The 2007 Winrock/Shell report, entitled *Brazil Market Analysis for Improved Stoves*, submitted as supporting document to the GS 1028_Request to Revise Baseline Fuelwood Consumption, is not accessible online and was finally obtained by Perene by personally contacting Rogerio Carneiro de Miranda, Project Coordinator of the work. The document is very pertinent as it contains wood-burning household data specific to Bahia, the project home state. As it is the most thorough and relevant document on the subject, Perene used it as the source for the quantity of domestic wood-burning households in the baseline study. The excerpted table is presented below:

Table 16 - Brazilian Households Estimated to Use Fuel Wood Exclusively or in Combination with LPG &/or Charcoal - 2005

State Code	STATE NAME	EXCLUSIVE FUELWOOD USERS			ALL FUELWOOD USERS		
		TOTAL URBAN	TOTAL RURAL	TOTAL COUNTRY	TOTAL URBAN	TOTAL RURAL	TOTAL COUNTRY
11	Rondônia	3.753	23.724	27.477	25.310	82.571	107.882
12	Acre	2.389	13.879	16.267	4.961	22.809	27.770
13	Amazonas	1.929	18.722	20.651	4.455	36.739	41.194
14	Roraima	0	727	727	0	800	800
15	Pará	4.584	43.939	48.523	37.319	162.134	199.453
16	Amapá	477	507	984	917	699	1.616
17	Tocantins	1.920	12.032	13.952	24.280	31.044	55.324
21	Maranhão	4.407	18.320	22.727	13.573	74.306	87.879
22	Piauí	31.252	115.735	146.986	106.942	254.634	361.577
23	Ceará	6.126	56.149	62.275	13.581	109.065	122.646
24	Rio Grande do Norte	7.630	30.685	38.315	25.905	72.108	98.013
25	Paraíba	18.162	46.268	64.430	61.647	119.492	181.139
26	Pernambuco	44.489	124.327	168.816	156.326	300.150	456.477
27	Alagoas	11.161	46.035	57.196	32.290	114.110	146.400
28	Sergipe	12.289	28.684	40.973	41.661	53.715	95.377
29	Bahia	67.984	330.347	398.331	314.742	740.834	1.055.575
31	Minas Gerais	102.972	225.676	328.648	422.177	545.890	968.067
32	Espírito Santo	4.900	9.790	14.690	68.854	66.384	135.238
33	Rio de Janeiro	3.362	5.832	9.194	7.237	14.459	21.697
35	São Paulo	8.098	8.556	16.654	21.315	63.940	85.255
41	Paraná	24.792	18.417	43.209	196.873	200.560	397.433
42	Santa Catarina	17.433	41.469	58.901	137.812	151.546	289.358
43	Rio Grande do Sul	56.820	116.788	173.608	300.612	406.676	707.288
50	Mato Grosso do Sul	4.241	15.229	19.470	31.060	82.065	113.126
51	Mato Grosso	4.584	4.703	9.287	26.376	37.527	63.902
52	Goiás	4.935	12.470	17.405	46.866	72.309	119.175
53	Distrito Federal	0	560	560	1.735	2.448	4.183
	Brazil	450.689	1.369.567	1.820.257	2.124.828	3.819.013	5.943.841

Figure 1. Source: Winrock-Shell Study, 2007

From the table above, Bahia state had 1,055,575 households using fuelwood as a domestic fuel. This includes both households that use wood exclusively, as well as households that use wood in combination with LPG or charcoal.

Having the above household information pertaining to Bahia, Perene sought to locate consumption data also specific to the state and the same year. Contact was made by telephone with Aldo de Freitas Pinheiro, Energy Development Coordinator of the Secretariat of Infrastructure of the state of Bahia, responsible for coordinating the *Balanço Energetico da Bahia*, or Bahia Energy Report. From Mr. Pinheiro, Perene learned that residential fuelwood use for the state was reported in the *Balanço Energetico da Bahia*, a state-level version of the national report *Balanço Energetico Nacional*. Perene was able to obtain the latest version (2014) and discuss the information with Mr. Pinheiro.

The table below, from Bahia's *Balanco Energetico 2014* (SEINFRA BA, 2014), shows domestic household fuelwood consumption of $1,383 \times 10^3$ TOE (ton of oil equivalent 6 tep in portuguese) for the same year as the household data of the Winrock-Shell study.

Tabela 3.2.1.1

Setor Residencial – Consumo Final Energético segundo as Fontes

	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	10^3 tep
Gás Natural	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	2	
%	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,1	0,1	
Lenha	1.840	1.915	1.779	1.584	1.426	1.485	1.437	1.427	1.383	1.339	1.295	1.251	1.207	1.163	1.120	1.076	1.032	
%	73,6	73,7	71,5	68,0	66,6	68,5	68,1	67,2	65,7	64,2	62,2	60,1	58,1	55,7	54,1	52,6	50,1	
GLP	389	387	404	426	445	418	386	398	405	417	429	444	445	454	465	471	477	
%	15,6	14,9	16,3	18,3	20,8	19,3	18,3	18,8	19,2	20,0	20,6	21,3	21,4	21,7	22,5	23,1	23,1	
Querosene	4	3	2	2	2	2	1	1	1	1	1	0	0	0	0	0	0	
%	0,2	0,1	0,1	0,1	0,1	0,1	0,1	0,1	0,1	0,1	0,0	0,0	0,0	0,0	0,0	0,0	0,0	
Energia Elétrica	233	260	268	286	243	236	259	271	289	303	331	360	400	448	462	473	528	
%	9,3	10,0	10,8	12,4	11,3	10,9	12,3	12,7	13,7	14,5	15,9	17,3	19,3	21,4	22,3	23,2	25,6	
Carvão Vegetal	33	35	32	29	26	28	28	27	26	26	25	24	24	23	23	22	21	
%	1,3	1,3	1,3	1,2	1,2	1,3	1,3	1,3	1,3	1,2	1,2	1,2	1,1	1,1	1,1	1,1	1,0	

Figure 2. Source: SEINFRA 2014

Converting $1,383,000$ TOE to tons of fuelwood by the conversion rate² of 0.31 TOE/ton wood, results in 4,461,290 tons of fuelwood. Dividing the amount of residential firewood used in Bahia by the number of households using firewood in the same state and year yields:

$$4,461,290 \text{ tons of wood} / 1,055,575 \text{ HH} = \underline{\text{4.2 tons of wood/HH}}$$

This value is conservative when compared to values obtained from using other sources, as summarized in the table below. The exception is source number 3, International Energy Agency, which was initially proposed by Perene but considered by the Gold Standard review team to be too broad in scope to be relevant.

Baseline Annual Fuelwood Use for Households in Brazil – Comparison of Values of Historical Usage		
	Source	Tons wood/HH
Adopted Baseline	SEINFRA/Winrock-Shell 2005	4.2
Alternative 1	GACC 2011 / CEMIG	5.7
Alternative 2	MME 2010 / IBGE	8.5
Alternative 3	IEA 2006 / IBGE	3.9
Alternative 4	KPT 2012	4.8
Alternative 5	SEINFRA/Winrock-Shell Extrapolated to 2012	5.8

² Conversion rate from Table VIII.8 of BEN (Ministry of Mines and Energy of Brazil, 2010, p. 209)

B.5. Description of how the anthropogenic emissions of GHG by sources are reduced below those that would have occurred in the absence of the registered micro-scale project activity:

The improved cookstove developed for this project is the product of a participative process that included Instituto Perene, Aprovecho Research Center, local masons and stove-users in the project region. Mike Hatfield, a consultant from Aprovecho Research Center with over 10 years of experience in stove design and construction brought his international expertise in stove-building to the project.

Wood-burning stoves release CO₂, CO, CH₄ and other greenhouse gases and products of incomplete combustion into people's homes and into the atmosphere (Smith, 2006). The improved cookstoves designed for this project have dramatically higher efficiency, therefore delivering the same amount of cooking energy to the pot with a lower amount of fuel. The reduction in fuelwood burned in turn reduces the amount of anthropogenic GHG emissions generated. In the absence of this project, the baseline scenario would be the continued use of larger quantities of wood for cooking. Therefore, the emission reductions are calculated based on the annual savings of non-renewable biomass multiplied by an emission factor for wood-based cookstoves.

Participation in the proposed project is completely voluntary. No national laws, policies, or requirements exist in Brazil that mandate the adoption of improved cookstoves by households. This project is a voluntary action of the coordinating entity, Instituto Perene.

There is no authorization required at any government level, federal, state or local, to install a cookstove in one's home. Because of the small-scale, pulverized nature of the project, with domestic stoves being installed in individual homes, there is no need for government consent or licenses, nor is an Environmental Impact Assessment (EIA) necessary. Resolution 001³ of the National Environmental Council of the Ministry of the Environment, dated January 23, 1986, in Article 2 describes the activities which require an EIA. None of these activities, which include roads, dams, landfills, industries and other large-scale undertakings, are applicable. The only mention of activity at all related is found in Article 2, item XVI: "Any activity that uses charcoal, derivatives or similar products in quantity above 10 tons/day." Since the project uses wood, not charcoal, this item is not directly applicable. However, even if the interpretation were made that the 6,000 homes, spread over 1,095 km², should be considered one single fuel consumer, and furthermore, that the fuel wood is similar to charcoal, the project's scale would not be large enough to require an EIA. The ratio of wood to charcoal in charcoal production is approximately 7:1 (FAO, 1987), therefore, the EIA minimum limit of 10 tons/day is equivalent to **70 tons/day of fuelwood**.

The baseline fuel consumption calculation included in section B.3 above shows the individual fuelwood consumption is 4.2 tons/year, or 11.05 kg/day. The project stove reduces the wood consumption by half, therefore the project individual stove consumption is 5.75 kg/day. For the total of 3,300 stoves, the fuelwood consumption would therefore be

$$5.75 \text{ kg/day/stove} \times 3,300 \text{ stoves} = 19 \text{ tons/day of fuelwood}$$

This is less than half the minimum threshold established by law, considering the equivalent amount of charcoal, for projects requiring an EIA.

³Document can be found on the CONAMA website at
<http://www.mma.gov.br/port/conama/legiabre.cfm?codlegi=23>

Minimum quantity of charcoal or similar that requires Environmental Impact Assessment	Project fuel use
10 tons/day charcoal, equivalent to 70 tons/day of wood	With revised baseline based on Historical Use: 19 tons/day of wood (5.75 kg/day/stove * 3,300 stoves)

Assessment and Demonstration of Additionality

The information presented here shall constitute the demonstration of additionality of the project activity as a whole.

This project activity will reduce the amount of GHGs emitted by residents of rural areas in the Bahian Recôncavo who use traditional cooking stoves to prepare food. The efficient stoves designed and installed by this project burn half the amount of non-renewable fuel wood as the traditional stoves. According to the approved methodology, in the absence of the project activity, the baseline scenario would be the continued use of inefficient, rudimentary cookstoves that use non-renewable biomass for combustion fuel.

The total emission reductions of this project are estimated to be **87,157 tons CO₂-eq** during the project crediting period of 10 years.

The proposed Project is a Voluntary coordinated action

Brazil has no national law, policies or mandatory requirements regarding the adoption of efficient cookstoves by households. This proposed small-scale project is a voluntary action by Instituto Perene, the project executor.

The proposed voluntary coordinated action would not be implemented in the absence of the Project

Based on Instituto Perene's previous experience in the project region, the barriers were identified and a strategy for the implementation of this Efficient Stoves project was developed. The process involves training local people to become community agents and technicians, supplying stove materials through local manufacturing units and developing awareness through demonstrations and meetings.

Assessment and demonstration of additionality of the proposed project

The Gold Standard methodology for Improved Cookstoves applies the most recent version (version 5.2) of the UNFCCC "Tool for the Demonstration and Assessment of Additionality."

Step 1: Identification of alternatives to the project activity consistent with current laws and regulations

Since no laws or mandatory requirements exist in Brazil for the use of efficient biomass cookstoves, Instituto Perene is implementing this project over and above the national and sectoral requirements. The emission reductions achieved by the project activity are therefore additional to any directed by Brazilian government policies.

Sub-step 1a: Define alternatives to the project activity

- Alternative 1: Implementation of the Project Activities without being registered as a voluntary project: This would only be possible if Instituto Perene were able to raise the necessary funds through either the Brazilian government or private sponsors to implement this voluntary project activity in order to distribute the cookstoves in the same manner as proposed in this project.
- Alternative 2: Implementation of the Project Activities as a commercial project with no carbon revenues. In this case, Instituto Perene would sell the efficient cookstoves to the resident population at a price that would allow reinvestment in expanding the project. Unfortunately, the cost of the stoves is too high for residents of the project area to purchase on their own. The cost of the stove materials is detailed in the table below.

Table 3. Materials Cost of Efficient Stove	
Stove Component	Cost per stove US\$
Stovetop	33
Chimney	28
Refractory brick and mortar for combustion chamber	22
Isolative blocks (AAC)	17.50
Bricks and cement for stove housing	8
Fuel shelf and other	4.50
Total US\$	113

In addition to the materials cost, there are also the costs detailed below, necessary to build the stove and help ensure its correct operation.

Table 4. Labor Cost of Efficient Stove	
Item	Cost per stove US\$
Installation - labor	43
Material transport	7
Community Agent work	3
Maintenance/chimney replacement	23
Total	61

Together, the material and implementation costs of the efficient stoves equal US \$174. Average income in rural Northeast Brazil is reported by the government entity *Institute of Applied Economic Research* to be R\$293, or approximately US\$ 150 (IPEA, 2010). The cost of the stove, therefore, is nearly a full month's income, prohibitively high for the local population.

- **Alternative 3: A switch to alternative fuels:** A switch to liquid petroleum gas (LPG) or electricity would achieve high efficiency results as well, however, residents of the project area already have access to LPG stoves, and they are unable to afford the price to refill their LPG tanks, which currently cost R\$40 each (about US\$20) (Sindigas, 2013). According to the 2010 IPEA report cited in Alternative 2 above,

monthly income in the project area is approximately US\$150, little over half the national minimum wage, so the price of an LPG tank is nearly 15% of a typical monthly salary in the project area. The cost of LPG increases each year, as shown by data from Brazil's Union of LPG Distributors⁴.

- Alternative 4: Continuation of the current situation: Instituto Perene does not implement this project and households continue to use inefficient stoves to prepare food. This is the mostly likely scenario.

Sub-step 1b: Consistency with mandatory laws and regulations

All four alternative scenarios described above are consistent with Brazilian law.

Legal aspects of Alternative 1: There is no law prohibiting the use of domestic wood-burning cookstoves. Proof of this is the publically-funded stove distribution program sponsored by the government of Ceará state, and implemented by The Institute of Sustainable Development and Renewable Energy (Instituto de Desenvolvimento Sustentável e Energias Renováveis ó IDER). In addition, there is no law prohibiting the use of woodfuel for domestic use. Law 11.428⁵, enacted 12/22/2006 and known as the *Atlantic Forest Law*, states:

Art. 9º Exploitation, without direct or indirect commercial purpose, of native flora species, for use on properties or land possessions of traditional populations or small rural producers, dispenses authorization by the relevant authorities .

Legal aspects of Alternative 2: There is no law prohibiting the sale of domestic wood-burning stoves. Selling wood-burning stove is a legal activity, as proven by the existence of a few legally-constituted manufacturers, such as Ecofogão (www.ecofogao.com.br) and Clarice Eletrodomésticos (www.clarice.com.br), which offers a deluxe wood-burning stove model for approximately US\$600. Legal aspects of burning wood from native forests are the same as described in Alternative 1, above.

Legal aspects of Alternative 3. LPG is a legal fuel in Brazil and has been produced/imported and distributed for decades. The distribution of LPG is regulated by the National Petroleum Agency, as laid out in Law [nº 9.847/1999](#).

Legal aspects of Alternative 4. The continued use of inefficient stoves by the target rural population has no legal impediment, as the use of native wood as fuel is allowed for domestic use by traditional populations and small rural producers, according to Law 11.428⁶, described above in Alternative 1.

Step 3: Barrier Analysis

Sub-step 3a: Identify barriers that would prevent the implementation of the proposed project activity

The implementation of the proposed project entails significant investment to overcome the following realistic and credible barriers:

- **Investment barrier:** The cost of the materials and direct labor for the cookstove, around R\$290⁷, is prohibitively expensive for the target population, whose income is on average about *half* the minimum Brazilian monthly salary of R\$510 per month (IPEA, 2010).In addition, the project would not be viable

⁴ <http://www.sindigas.org.br/Estatistica/Default.aspx?ano=2013&cat=5>

^{5,5} The full text of the law can be found at the federal webpage

http://www.planalto.gov.br/ccivil_03/ato2004-2006/2006/lei/l11428.htm

⁷ About US\$145, using current exchange rate of US\$1 = R\$2.

without additional investments that would not be covered by users, including technician training, development costs, marketing, and transport of materials, among other activities.

Although there are real and perceived risks associated with doing business in Brazil, these do not constitute the most significant barrier to raising private capital (domestic or international) for an ICS project. The inability of the target population to purchase the stoves – due to the high cost of the stove in relation to household income – is by far the greatest barrier to direct commercialization as a mechanism of promoting ICS in the region.

Without the revenue generated through the sale of carbon credits, disseminating 6,000 stoves in the project area would be unviable. From the start, public communication regarding project has always explicitly stated that the project is a carbon-financed one. Mention of the project can be found on the websites of Instituto Perene (www.perene.org.br), partner Ambiental PV (www.ambientalpv.com), and Natura (www.natura.net). Funding for the project comes 100% from the sale of the carbon credits, as evidenced by the contract with Natura – see copy of contract in ANNEX 3 (CONFIDENTIAL). To date, this is the only corporate carbon offset program in Brazil that has a selection process to identify offset projects.

Funding from donors and charity sources was pursued prior to adopting the carbon-financed approach, but these efforts were unsuccessful. Among the funders that were approached are: 21st Century Riders (proposal submitted Nov. 2007); UNESCO Criança Esperança (submitted October 2008); and Rotary Club (submitted May 2009).

- **Technological barriers:** The design concepts and principles used to build the efficient stoves are the product of decades of research and improvement by specialists. Without an initiative such as this one, the efficient stove technology would remain out of reach of the people who can most benefit by it, that is low-income residents of rural areas, such as the project area. Proper operation and maintenance are two critical aspects for achieving the desired emission reductions, and these aspects are part of the capacity building of this project. In addition, selected materials are not found within the region. Although all efforts were made to maximize the use of local materials, three components that must be shipped from southern Brazil were chosen for their durability and efficacy. These are the refractory bricks and mortar, which are manufactured in Santa Catarina state, and the isolative blocks of Aerated Autoclaved Concrete – AAC, which are manufactured in São Paulo state. As there are specialized materials used only in certain types of civil construction, they are not available in the project region, hence presenting another technological barrier to the local construction of efficient stoves.

The technological barrier also includes a lack of skilled labor with the know-how to build efficient stoves. Although masonry is commonly used in building houses, and is a common form of livelihood among low-income populations, the specific application to the construction of domestic stoves is unknown, as evidenced by the lack of any other efficient stove project in the region. In order to form a team of skilled workers, it was necessary to train the masons and assistants to build the efficient stoves. Training was imparted with the participation of an ICS expert from Aprovecho Research Center and Instituto Perene's own mechanical and civil engineers. Below is an excerpt from the MOU between Aprovecho and Perene (ANNEX 7)

Collaboration between Aprovecho Research Center and Instituto Perene began in April 2009 on the design of an appropriate stove model for Perene's target population, low-income rural homes in the state of Bahia. A field visit made in May 2009 by Mike Hatfield, Aprovecho Research stove specialist, resulted in:

- *Development of a local stove model*
- *Construction and testing of prototypes*

- *Training of local masons and users in stove construction, operation and maintenance*
- *Transfer of know-how to Perene's team*

The stove model developed in partnership with Aprovecho has been adopted by Instituto Perene in its stove program.

The training consisted of a week-long workshop with 4 local masons, during which 6 demonstration stoves were built. The principles of efficient stove design, developed by Dr. Larry Winiarski and Aprovecho Research Center (Bryden, Still, Scott, & Hoffa, 2002), and cited in section A 4.2, were discussed with the masons, and experience was gained through the hands-on construction. The masons' performance is accompanied by Instituto Perene's team on a weekly basis.

- **Common practice:** In the project region, the Bahian Recôncavo as well as the rest of the state of Bahia, the dissemination of efficient stoves does not exist. The predominant situation is the use of extremely inefficient, rudimentary stoves, and without the systematic introduction of an alternative and the capacity building that must accompany it, the target population would not have any contact with this new practice.



Figure 34: Typical rudimentary stove.

Sub-step 3b: Show that the identified barriers would not prevent the implementation of at least one of the alternatives (except the proposed project activity)

The barriers described above affect Alternatives 1, 2, and 3, but not Alternative 4, the continuation of the current situation.

- **Alternative 1: Implementation of the Project Activities without being registered as a voluntary project:** This would only be possible if Instituto Perene were able to raise the necessary funds through either the Brazilian government or private sponsors to implement this voluntary project activity in order to distribute the cookstoves in the same manner as proposed in this project.
- **Alternative 2: Implementation of the Project Activities as a commercial project with no carbon revenues.** In this case, Instituto Perene would sell the efficient cookstoves to the resident population at a price that would allow reinvestment in expanding the project. Unfortunately, the cost of the stoves is too high for residents of the project area to purchase on their own. Average income in rural Northeast Brazil is reported by the Institute of Applied Economic Research - IPEA, based on the National Research by Sample Households study, to be R\$293, or US\$ 150 (at the current exchange rate of US\$1 = R\$2) (IPEA, 2010).
- **Alternative 3: A switch to alternative fuels:** A switch to liquid petroleum gas (LPG) or electricity would achieve high efficiency results as well, however, residents of the project area already

have access to LPG stoves, and they are unable to afford the continuously rising price to refill their LPG tanks, which currently cost R\$40 each (about US\$20, at the current exchange rate of US\$1 = R\$2) (Sindigas, 2013). According to the 2010 IPEA report cited in Alternative 2 above, monthly income in the project area is approximately US\$150, little over half the national minimum wage, so the price of an LPG tank is nearly 15% of a typical monthly salary in the project area. The cost of LPG increases each year.

- Alternative 4: Continuation of the current situation: None of the barriers prevents this alternative, and it is the mostly likely scenario.

Outcome of Step 3: The only alternative scenario not prevented by any barrier is Alternative 4, the continuation of the current situation. This is the **baseline scenario**.

Step 4: Common Practice Analysis

Sub-step 4a: Analyze other activities similar to the proposed activity

No other projects similar to the one proposed here exist in the project region. The common practice in the project region is the widespread use of rudimentary inefficient stoves.

Other efficient stove projects and models do exist in Brazil. The Institute of Sustainable Development and Renewable Energy (Instituto de Desenvolvimento Sustentável e Energias Renováveis - IDER) developed a different design for their own stove dissemination project in the northern coast of Brazil in the state of Ceará (1,300 km away from the project boundary of this PDD). The IDER model includes a metal frame and brick stove body. This was a publicly-funded program sponsored by the government of the state of Ceará, through which approximately 20,000 stove units were installed in that state.

The company EcoFogão (EcoStove, in English) in the capital of the state of Minas Gerais (about 1,400 km away from the project boundary of this PDD) manufactures wood-burning stoves of various types. Prices range from R\$230 to R\$933 (US \$115 to 470)⁸ EcoStoves offer similar benefits in terms of indoor air pollution, efficiency, and lowering GHG emissions, however the cost is higher (compare to Tables 3 and 4 in Section B.5), and being a portable model it does not have the robustness of Perene's fixed model. The ICS designed by Instituto Perene and Aprovecho Research Center is a local model, designed specifically for the project region, and is highly durable.

In addition, the Instituto Perene project offers important social and economic benefits to the project area: local production of its components and on-site installation generates jobs and revenue, while training of masons and Community Agents transfers technology and builds capacity among the local population.

Sub-step 4b: Discuss any similar options that are occurring

The initiatives described above are occurring in different states of Brazil. Brazil is a very large country and thus the distances between states and regions are very great, making it much more feasible to execute projects at the state or regional level or even smaller. For instance, distributing stoves manufactured in another state such as Minas Gerais would entail very large transportation costs, and the project region would receive no benefits in terms of the use of local materials and labor. Instituto Perene has made a commitment to use as many locally available materials as possible and to contract local labor for the required community agents, masons, and monitoring agents.

The IDER project model was not used for this project because it does not include the õrocketö combustion chamber and insulation as recommended by the Aprovecho Research Center. In addition, it includes a metal

⁸ www.ecofogao.com.br

frame within the masonry structure, and this design practice was not desired by Instituto Perene because it may rust once embedded in the masonry. This is a potential problem specific to this project area, which is near a marine bay and salt in the air causes metal to oxidize quickly. Rusting within masonry could cause cracking in the stove structure.

The Instituto Perene efficient stove is one specially developed for the project area through a participative design process, and it has received positive feedback from members of the project community. Instituto Perene is the only organization with an efficient stove initiative in the project region, and the only carbon-financed stove program in Brazil.

Conclusion

Carbon finance through this proposed voluntary project has been identified as the only realistic and adequate source of finance having the scale and consistency over time necessary to implement and expand the installation of efficient cookstoves in the Bahian Recôncavo. The carbon funding allows installation of the efficient stoves with a relatively low cost to the users: bricks and cement for the stove base. In addition, the carbon funding covers transportation costs, maintenance and monitoring over the lifetime of the stove, and marketing and capacity building activities with the target population.

B.6 Emission reductions:

B.6.1. Explanation of methodological options or description of new proposed approach:

The methodology applied is the [Gold Standard Simplified Methodology for Efficient Cookstoves](#).

B.6.2. Data and parameters that are available at validation:

Data / Parameter:	N _{p,y}
Data unit:	Stoves
Description:	Number of project cookstoves of each age group operational in the year y
Source of data used:	Records of date of each installation kept by Instituto Perene
Value applied:	3,300
Justification of the choice of data or description of measurement methods and procedures actually applied :	Each stove is identified by the head of household name and government-issued identification card number, as well as community name and GPS location. In the database, each stove is identified by a unique Stove ID number automatically assigned by the MS Access database software. Unique stove identification is achieved by recording the GPS location of each home in which a stove installed, together with the name and government-issued personal identification number (<i>Registro Geral – RG</i>) of the head of the household. This data is entered in the project database, created and maintained using MicroSoft Access software. MS Access automatically assigns a unique identification number (denominated ContractID in Perene's database) to each entry. Below is a sample of the stove installation database:

ContractID	RG	Nome	Comunidade	GPS Coordinates	Instalado	Data_Install

	006853	4332951	Ana Maria Costa do Castro	Vitória	1254020S 3875561W	Sim	10/3/2011
	006854	0154783196	Aurelina Jesus de Oliveira	Vitória	1253671S 3875702W	Sim	10/3/2011
	006855	0393452549	Euniria dos Santos Bispo	Vitória	1253726S 3875603W	Sim	10/3/2011
Any comment:							

Data / Parameter:	X _{nrb,bl,y}										
Data unit:	Fraction										
Description:	Non-renewable fraction of the woody biomass harvested in the project collection area in year y in the baseline scenario.										
Source of data used:	<p>The NRB fraction used for this project has been determined from the results of the NRB study conducted in 2012 for the Project Efficient Cookstoves in the Bahian Reconcavo Region (GS 832), validated in May 2013. In order to be conservative, the lower of the NRB values determined by the NRB studies commissioned by Instituto Perene is used in this PDD.</p> <p>The table below shows the source used for each variable in the calculation of the non-renewable biomass fraction.</p> <table border="1" data-bbox="665 1045 1237 1431"> <thead> <tr> <th>Parameter</th> <th>Source</th> </tr> </thead> <tbody> <tr> <td>MAI - Mean Annual Increment (forest growth)</td> <td>Siqueira 2007</td> </tr> <tr> <td>Fuel Collection Areas</td> <td>Falieri 2011</td> </tr> <tr> <td>H – Total Annual Harvest (forest loss)</td> <td>Falieri 2011</td> </tr> <tr> <td>Total Forest Stock</td> <td>Metzker et al 2009</td> </tr> </tbody> </table> <p><i>Collection Areas and Total Annual Harvest</i> values were obtained from the NRB study (Falieri, 2011)</p>	Parameter	Source	MAI - Mean Annual Increment (forest growth)	Siqueira 2007	Fuel Collection Areas	Falieri 2011	H – Total Annual Harvest (forest loss)	Falieri 2011	Total Forest Stock	Metzker et al 2009
Parameter	Source										
MAI - Mean Annual Increment (forest growth)	Siqueira 2007										
Fuel Collection Areas	Falieri 2011										
H – Total Annual Harvest (forest loss)	Falieri 2011										
Total Forest Stock	Metzker et al 2009										
Value applied:	0.81										
Justification of the choice of data or description of measurement methods and procedures actually applied :	<p>The fraction of NRB was determined according to the Gold Standard Methodology,</p> $f_{NRB} = (NRB/H)$ $NRB = H \cdot MAI$ <p>Where:</p> <p>NRB is the non-renewing biomass or excess harvest.</p> <p>H is the total annual harvest of woody biomass from the fuel collection areas;</p> <p>MAI is the sum of mean annual increments of the wood species.</p> <p>The result of applying this analysis is: 0.81</p>										
Any comment:	The NRB fraction used for this project has been determined from the										

	results of the NRB study conducted in 2012 for the Project Efficient Cookstoves in the Bahian Reconcavo Region (GS 832), validated in May 2013. The area of study of both PDDs is the Bahian Recôncavo, in eastern Bahia state, in a radius of 100 km from the city of Salvador. Studies show a territory with similar physical, cultural and historical characteristics. According to Alessandra Oliveira from the Feira de Santana State University in her paper entitled "Territorial Dynamics of the Reconcavo Baiano" this region is one of oldest territorial occupations in Brazil. According to this study, the Recôncavo Baiano was one of the first areas occupied by the Portuguese in Brazil (starting in the 1700s), presenting since the beginning intense and homogeneous spatial modification (Oliveira, 2010)
Data / Parameter:	B _{bly}
Data unit:	Tons/HH/year
Description:	Mass of woody biomass consumed in the baseline in year y (tons/year).
Source of data used:	Option a: Historical data - from GS Simplified Methodology for Efficient Cookstove
Value applied:	4.2
Justification of the choice of data or description of measurement methods and procedures actually applied :	Historical data on HH fuelwood consumption for the state of Bahia, Brazil presented in section B.4, from the sources: Global Alliance for Clean Cookstoves. (2011). <i>Brazil Feasibility Study</i> . Ministry of Mines and Energy of Brazil. (2010). <i>Balanço Energetico Nacional</i> . Pinheiro, A. d. (2015, March 16). Energy Development Coordinator. (R. E. Valladares, Interviewer) Salvador, Bahia, Brazil. SEINFRA BA. (2014). <i>Balanço Energetico da Bahia</i> . State Government of Bahia, Secretariat of Infrastructure. Winrock International - Shell Foundation. (2007). <i>Brazil Market Analysis for Improved Stoves</i> .
Any comment:	On a per stove basis, the baseline is 4.2 tons/year

Data / Parameter:	b
Data unit:	fraction
Description:	Efficiency of the baseline cookstove being replaced (fraction).
Source of data used:	GS Simplified Cookstove Methodology
Value applied:	0.10
Justification of the choice of data or description of measurement methods and	According to the methodology (p 5): "A default value of 10% shall be used if the replaced cookstove is a three stone fire, or a conventional device without a grate or a chimney i.e. with no improved combustion air supply or flue gas ventilation"

procedures actually applied :	
Any comment:	

Data / Parameter:	p.y
Data unit:	fraction
Description:	Efficiency of the project cookstove in year y
Source of data used:	Aprovecho Research Center
Value applied:	0.20
Justification of the choice of data or description of measurement methods and procedures actually applied :	<p>According to the methodology: öThe efficiency of the project cookstove needs to be determined by an independent expert or entity, in the field or laboratory, following the Water Boling Test protocol (available at <http://www.pciaonline.org/node/1048>).ö</p> <p>An independent study was carried out by Aprovecho Research Center in March 2014 to determine the efficiency of the Perene stove model.</p> <p>The stove was constructed at the Aprovecho laboratory and standard laboratory testing was conducted to determine the fuel use performance of the stove. The full report is included in ANNEX 5.</p>
Any comment:	<p>Aprovecho Research Center is one of the most widely-known and respected institutions in the field. For over 30 years this research and development facility has been designing, implementing and testing stoves. It is currently an important partner of the Global Alliance for Clean Cookstoves, through which it is developing regional stove testing centers around the world.</p>

Data / Parameter:	DF
Data unit:	fraction
Description:	Discount factor to account for efficiency loss of project cookstoves per year
Source of data used:	GS Simplified Cookstove Methodology
Value applied:	0.01 loss per year
Justification of the choice of data or description of measurement methods and procedures actually applied :	
Any comment:	

Data / Parameter:	EF _{b,fuel,CO₂}
Data unit:	tCO ₂ /ton of wood
Description:	CO ₂ emission factor of firewood that is substituted or reduced.
Source of data used:	GS Simplified Cookstove Methodology
Value applied:	1.747 tCO ₂ /ton of wood
Justification of the choice of data or description of measurement methods and procedures actually applied :	Default value for wood fuel from GS methodology p 5

applied :	
Any comment:	

Data / Parameter:	EF _{b,fuel,nonCO₂}
Data unit:	tCO ₂ /ton of wood
Description:	Non-CO ₂ emission factor of firewood that is substituted or reduced.
Source of data used:	GS Simplified Cookstove Methodology
Value applied:	0.455 tCO ₂ /ton of wood
Justification of the choice of data or description of measurement methods and procedures actually applied :	Default value for wood fuel from GS methodology p 5
Any comment:	

Data / Parameter:	P _y
Data unit:	Tons of wood/HH in year y
Description:	Quantity of firewood that is saved in the year y
Source of data used:	Calculated
Value applied:	2.1
Justification of the choice of data or description of measurement methods and procedures actually applied :	<p>From Simplified Methodology: Quantity of firewood that is saved (P_y) is estimated as follows: $P_y = B_{b,y} * (1 - b'_{p,y})$</p> <p>Where: $B_{b,y}$ Quantity of firewood consumed in baseline scenario during year y (tonnes per household per year) 4.2 $p_{p,y}$ Efficiency of project cookstove in year y (fraction) 0.20 b Efficiency of the baseline cookstove being replaced (fraction) 0.10</p>
Any comment:	

Data / Parameter:	U _{P,y}
Data unit:	fraction
Description:	Usage rate for project cookstoves in year y, based on adoption rate and drop off rate revealed by usage surveys
Source of data used:	Usage surveys
Value applied:	3 % drop-off per year
Justification of the choice of data or description of measurement methods and procedures actually applied :	This is an ex-ante estimate. The actual adoption/drop-off rate will be determined from annual usage surveys.
Any comment:	

B.6.3 Ex-ante calculation of emission reductions:

From GS Simplified Cookstove Methodology, p. 5:

$$ER_y = \sum N_{P,y} * P_y * U_{P,y} * (f_{NRB,y} * EF_{b,fuel,CO2} + EF_{b,fuel,non_CO2}) * (1 - DF_{b,Stove,y})$$

Where:

$N_{P,y}$ Number of project cookstoves of each age group operational in the year y

P_y Quantity of firewood that is saved in the year y (tonnes per household in year y)

$U_{P,y}$ Usage rate for project cookstoves in year y, based on adoption rate and drop off rate revealed by usage surveys (fraction)

$f_{NRB,b,y}$ Fraction of biomass, used in year y for baseline scenario, which can be established as non-renewable.

$EF_{b,fuel,CO2}$ CO2 emission factor of firewood that is substituted or reduced.

$EF_{b,fuel,non_CO2}$ NonCO2 emission factor of firewood that is substituted or reduced.

$DF_{b,Stove,y}$ Usage of baseline cookstove during the year y (fraction) in project scenario

x y – 1

y Year of the crediting period

B.6.4 Summary of the ex-ante estimation of emission reductions:

To calculate ex-ante ER, Instituto Perene used the spreadsheet tool published on the Gold Standard Methodologies webpage (<http://www.cdmgoldstandard.org/project-certification/gs-methodologies>) (Excel file ER_Calculation_Tool_Cookstove_Meth_final(1)). The revised ER calculation file is uploaded together with the PDD. The resulting ER table is presented below.

Emission reduction - Summary

Year	Emission reduction tCO2/year	Leakage adjustment tCO2/year	Net Emission reduction tCO2/year
2014	3824	0	3824
2015	3666	0	3666
2016	8366	0	8366
2017	11698	0	11698
2018	11190	0	11190
2019	10688	0	10688
2020	10192	0	10192
2021	9703	0	9703
2022	9221	0	9221
2023	8609	0	8609
Total			87157
Annual emission reduction			8716

B.7 Application of a monitoring methodology and description of the monitoring plan as per the existing or new methodology applied to the micro-scale project activity:

B.7.1 Data and parameters monitored:

Data/ Parameter	Up,y
Data Unit	Percentage
Description	Usage rate in project scenario p during year y
Source of data	Annual usage survey/Monitoring survey
Monitoring frequency:	Annual
QA/QC procedures:	Transparent data analysis and reporting
Any comment:	A usage parameter is derived for each age group of project cookstove being credited.

Data/ Parameter	Np,y
Data Unit	Number of project cookstove credited (units)
Description	Cookstove in the project database through year y
Source of data	Total sales record
Monitoring frequency:	Continuous
QA/QC procedures:	Transparent data analysis and reporting
Any comment:	

Data/ Parameter	DFn
Data Unit	Fraction
Description	Discount factor to account for efficiency loss of project
Source of data	Default value: 0.99 i.e., 1% efficiency loss per year
Monitoring frequency:	Annual
QA/QC procedures:	Transparent data analysis and reporting

Data/ Parameter	DFP,stove,y
Data Unit	Fraction
Description	Discount factor to account for the baseline stove use
Source of data	Monitoring surveys
Monitoring frequency:	Annual
QA/QC procedures:	Transparent data analysis and reporting
Any comment:	

:

B.7.2 Description of the monitoring plan

The Monitoring Plan includes some tasks undertaken continuously and some that are undertaken periodically.

A. Continuous Activity: Installation Record and Project Database:

Instituto Perene maintains the total installation record in an electronic project database using the software Microsoft Access. The database is updated continuously to include the new stove installations. The information recorded includes:

1. Date of installation
2. Head of household name
3. Government-issued identification card number
4. Municipality and community name
5. GPS location.
6. Unique Stove ID number automatically assigned by the MS Access database software

B. Continuous Activity: Paper and digital archives of individual *Terms of Authorization and Transfer*

Each participating household signs an individual contract between the head of household and Instituto Perene. These paper contracts are filed at Perene headquarters in Salvador, Brazil, in a dedicated file cabinet, ordered by community and name. Each contract is scanned and archived in digital form as well.

C. Periodic Activity: Annual Usage surveys

Monitoring shall consist of undertaking a usage survey for a representative sample annually to ensure that project cookstoves are still operating by carrying out the

The usage surveys will be conducted to estimate the drop off rates as project cookstove may not be adopted or participants may have relocated (since the stove is built into the house it is not portable). Prior to the verification, a usage survey for each cookstove age-group will be carried out. The minimum project cookstove sample size of each age- group will be according to the GS methodology.

B.8 Date of completion of the application of the existing or new baseline and monitoring methodology and name of the responsible person(s)/entity(ies)

Date of completion: February 14, 2014

Guilherme M. Valladares
Director
Instituto Perene
Rua Belo Horizonte 64 suite 310
Salvador, BA 40140-380
Brazil

SECTION C. Duration of the project activity / crediting period

C.1 Duration of the project activity:

C.1.1. Starting date of the project activity:

May 20, 2011 This is the date that the Stakeholder Meeting took place, kicking off the project activity.

C.1.2. Expected operational lifetime of the project activity:

Operational lifetime of stoves is expected to be 10 years. The operating life of the stove has been defined by Instituto Perene to be 10 years. As explained above, Instituto Perene's stove model, developed together with Aprovecho Research Center, is similar to the Justa stove, with the same robustness that comes from being a fixed model with a brick and mortar stove housing. The Justa stoves have proven in the field to

have a useful life near 10 years (Peter Scott, p. 11) . Furthermore, Perene's estimation is justified by the selection of extremely robust materials used in the stove:

- Combustion chamber made of refractory brick of 2.5 cm thickness, and refractory mortar. The thickness was chosen to avoid the fracture that sometimes occurs when firewood is pushed too far in the stove, hitting the back of the chamber. Refractory brick is made to withstand high temperatures while having low thermal conductivity. According to the manufacturer's specifications, the bricks are 38% Al₂O₃, resistant to 1280° C and can withstand compression of 250 KgF/cm². (Gabriella Refratorios)
- AAC used as isolative material. Autoclaved Aerated Concrete is widely used for its characteristics of thermal isolation, lightweight and long durability, this material is described as follows: "A cement-based material, AAC resists water, rot, mold, mildew, and insects." (Portland Cement Association)
- Brick and mortar housing. Differently from metal structures or other portable models, the fixed model has the proven durability of masonry.
- Ceramic chimney. When the original chimneys, made of galvanized steel, began to corrode, the project replaced all the units with ceramic chimneys, and now uses only ceramic chimneys. According to Aprovecho Research Center, chimneys of this material have a durability of 10+ years (Peter Scott, p. 12)

C.2 Choice of the crediting period and related information:

C.2.1. Renewable crediting period

Not applicable.

C.2.1.1. Starting date of the first crediting period:

>>

C.2.1.2. Length of the first crediting period:

>>

C.2.2. Fixed crediting period:

C.2.2.1. Starting date:

March 1, 2014 The starting date of the crediting period was chosen to coincide with the submission of the PDD. The PDD was submitted in February 2014 and the crediting period set to begin on March 1, 2014. Project activity began in 2011 (see C.1 above), with the LSC meeting, and the first phase of construction (724 stoves). There was a two-year halt to stove construction in this project area as Instituto Perene directed its resources to project GS832, building 5,000 stoves in Maragogipe and Sao Felipe municipalities. As construction of GS832 neared completion in the first semester of 2014, Instituto Perene had resources available to turn once again to the current project GS1028. Instituto Perene understands that emissions reductions caused by the stoves prior to the start of the crediting period will not be eligible for credit issuance.

C.2.2.2. Length:

10 years

SECTION D. Stakeholders' comments

>> Please note that the blind scoring exercise during stakeholder consultation need not be carried out.

D.1. Brief description how comments by local stakeholders have been invited and compiled:

>> Please describe the agenda of physical meeting, Non-technical summary, Invitation tracking table, Text of invitations sent, any other consultation method used

a. Agenda of the physical meeting

Instituto Perene members were present to explain the details of the project, including the responsibilities and gains of each party - stove recipient, Instituto Perene and Natura.

In order to determine the best time and place for meetings, key local people were identified in the community to consult about these details.

The meeting was set for Friday, May 20 at 3 pm and had an excellent turnout, with 68 local participants.

The agenda for the meetings was as follows:

- Opening of the meeting: Representatives from Instituto Perene introduced themselves and the Efficient Cookstoves II initiative.
- Explanation of the project: Instituto Perene described the objectives of the project, the sponsorship of Natura, and the concept of a voluntary carbon credit project. A written, non-technical summary was distributed.
- Discussion of Contract: A volunteer from the audience was called up to read out loud the *Authorization and Transfer of Carbon Credit Rights*. Each point was discussed by the group.
- Questions for clarification about the project: As always, the meetings are quite informal and all participants are encouraged to ask questions as they come up with them. All questions and comments were welcomed and registered by Instituto Perene.
- Blind SD exercise: The indicators were discussed during the meeting, with a notable general understanding and concern about the changing climate, reduction of fresh water, destruction of forests, landfilling of mangrove areas by the local government, and relationship between forests, water and soil. Participants were asked to fill out the SD matrix after the discussion.
- Discussion on monitoring SD: Monitoring was discussed, with an emphasis on KT and KS activities likely to occur during the project lifetime. Suggestions are elicited from the group regarding monitoring the various indicators.
- Evaluation Forms: Participants were asked to fill out the simple, 3-question evaluation form.
- Closure of the meeting: Instituto Perene representative thanked everyone for their participation. Participants were invited to approach any representatives from Instituto Perene for more information after the close of the meeting

b. Non-technical summary

The summary distributed during the stakeholder meetings (translated here from the original Portuguese):

The objective of this project is to substitute rudimentary wood-burning stoves with efficient stoves. In the rural environment, wood is the principal fuel used by the low-income population for domestic cooking. Meanwhile, this type of stove is associated with a series of problems, among which we can highlight the high emissions of GHG and the subsequent degradation of the surrounding forests due to the great consumption of wood. Add to this as well the damage to health, mainly of women and children, who are victims of indoor air pollution, subjected daily to smoke and particulates produced by the stoves commonly used in the rural area.

The rudimentary stoves will be substituted by a more efficient, less harmful technology that involves the reduced consumption of wood. Thus, the impacts due to obtaining and burning of this raw material will be reduced. Due to the project activity, which will offset Natura's emissions, one thousand families in the Bahian Reconcavo region will be benefitted over a period of approximately eight years. The technology substitution will be directed by the following principles: high-energy efficiency, elimination of indoor smoke and long durability of the equipment. The new stoves are easy to maintain, low-cost, and use local expertise and materials for installation. With the implementation of efficient stoves, the project will reduce the GHG emissions of the involved families by up to 50%, contributing to the protection of the remaining fragments of the Atlantic Rainforest and improving the quality of life of the population.

c. Invitation tracking table

Category code	Organisation (if relevant)	Name of invitee	Way of invitation	Date of invitation	Confirmation received? Y/N
A	N.A.	Residents of Santo Amaro	Verbal	May 10-19, 2011	Y
B	No local policy makers or authorities were invited to the informative meetings as this project intends to be independent of government entities, programs or agendas. This precaution cancels any association with a political party and reduces the effects of political changes in the area. In addition, avoiding involvement of the government minimizes the possibility of the project being affected by attempts at corruption.				
C	Interministerial Commission for Global	Jose Domingos Gonzalez Miguez	Email - Letter attached (see)	May 13, 2011	N
D	Association of Shellfish Harvesters and	Residents of Acupe	Verbal	May 10-19 2011	Y
D	CARE Brasil	Markus Brose	Email	May 13, 2011	Y
E	Local Gold Standard expert	Ivan Hernandez	Email	May 13, 2011	Y
F	Fundacion MDL de Honduras	Suyapa Zelaya Amaya	Email	May 13, 2011	Y
F	Fundacion Ecodiversidad	Carlos Kurimoto	Email	May 13, 2011	Y

Local people affected by the project were personally invited to participate in the informative meeting. Instituto Perene's team, the project masons and the community agents were involved in the invitation process, visiting door-to-door. The active participation of local residents is crucial to the success of this project, and so all residents of the project area are considered relevant stakeholders. All residents in the project area, regardless of gender, age, or ethnicity, were invited to the meetings.

The project area does not have a local newspaper, so this was not a possibility for inviting participants and publicizing the project. The local residents also have limited access to radio, so this was also not considered an option for project developers to contact potential participants. Another important factor that led Instituto Perene away from using written invitations is the fact that a large number of the residents of the project area are functionally illiterate. Written communication is not a feasible choice for communicating within this area.

Two local leaders, a married couple who is very well respected locally and have long been active participants in Acupe, were engaged to help lead the informative meetings and invitation process. Since the project area is very rural and homes are widely dispersed with limited telephone access, involvement and leadership by these people was crucial. Residents of the community were invited personally by word of mouth and by telephone (when available). Local contacts had about one week to get the word out to the community before the meeting. This method was successful, gathering almost 70 people from the local community.

No nearby organizations are known to be working on topics directly related to this project.

d. Text of individual invitations

TEXT OF THE INVITATION TO CATEGORY "E and F"

INVITATION to the STAKEHOLDER CONSULTATION MEETING of the
EFFICIENT COOKSTOVES IN BAHIA II PROJECT
ORGANIZED BY: PERENE INSTITUTE
FINANCED BY: NATURA

DATE: May 20, 2011 TIME: 15 hs.

PLACE: Sede da Fliarmônica 25 de Março, Praça Principal do Distrito de Acupe, Santo Amaro, Bahia
44200-000 BRAZIL Contact: admin@perene.org.br +55 (71) 3264-3199

LETTER TO THE DNA OF BRAZIL, CATEGORY "C"

Dr. Jose Domingos Gonzalez Miguez

Coordenador Geral da Comissão Interministerial de Mudança Global do Clima
Ministério de Ciências e Tecnologia
Esplanada dos Ministérios,
Bloco E - 2 andar - sala 242
70.067-900, Brasília DF

Salvador, 13 de maio de 2011

Prezado Coordenador Geral,

Entramos em contato com o senhor para apresentar nossa organização e nosso projeto de redução de emissões de gases de efeito estufa, realizado no âmbito do Mercado Voluntário. O Instituto Perene é uma organização civil sem fins lucrativos com sede em Salvador, Bahia. Promovemos mecanismos de uso sustentável de recursos naturais no bioma Mata Atlântica, desenvolvendo tecnologias úteis e duradouras para comunidades rurais de baixa renda. Nosso principal projeto, Fogões Eficientes no Reconcavo Baiano, e pela segunda vez financiado pela empresa Natura, quem adquiriu 47.000 toneladas de CO₂e de emissões evitadas decorrentes deste projeto de eficiência energética.

O Projeto Fogões Eficientes no Reconcavo Baiano é uma iniciativa de redução de emissões de gases de efeito estufa por meio da substituição de fogões rudimentares por tecnologia eficiente para uso doméstico. Estão sendo diretamente beneficiadas 2.500 famílias rurais de baixa renda. No meio rural, a lenha é o principal combustível usado pela população de baixa renda para a cozedura e o uso dos fogões típicos está associado a uma série de problemas, destacando-se: o aquecimento global, devido à emissão de quantidades indevidas de gases de efeito estufa; a degradação florestal, consequência do alto consumo de lenha; e danos à saúde, principalmente entre crianças e mulheres, sujeitas diariamente à fumaça e partículas produzidas pelos fogões típicos da área rural. O fogão eficiente reduz o consumo de lenha e as emissões associadas, além de melhorar a qualidade de vida nos lares rurais.

O projeto segue a metodologia CDM AMS-II.G. (*Energy Efficiency Measures in Thermal Applications of Non-Renewable Biomass*), como também a metodologia especificamente desenvolvida para fogões a lenha de uso doméstico, aprovada pelo Gold Standard: *Methodology for Improved Cook-Stoves and Kitchen Regimes*. Conforme o procedimento requerido pelo Gold Standard para engajamento de atores-chave, o Instituto Perene organiza reuniões periódicas, convidando os interessados a participarem, conhecendo melhor o projeto e compartilhando suas opiniões.

Será realizada uma reunião na comunidade de Acupe, município de Santo Amaro, BA, no dia 20 de maio de 2011. Convidamos o senhor, ou representante da Comissão Interministerial de Mudança Global do Clima, a participar deste momento. Caso não seja possível comparecer, convidamos o senhor a enviar quaisquer questionamentos ou sugestões que tenha para nosso projeto.

Agradeço a sua atenção.

Cordialmente,

Guilherme M. do Prado Valladares Diretor Executivo [\(71\) 3264-3199](mailto:guilherme@perene.org.br)

e. Description of other consultation methods used

Door-to-door visits are an important activity in consulting and engaging the main stakeholder group in the project - the stove users. Homes are visited on foot by representatives of Instituto Perene and Community Agents to speak personally to neighbourhood residents. Community Agents are local women hired on a per diem basis by the project to divulge the initiative, engage participants and pass on their know-how about stove use. Their familiarity with the location of homes, availability and work schedules of residents, seasonal road access and other local factors in their respective communities has been extremely helpful in the stakeholder engagement and consultation process.

D.2. Summary of the comments received:

>> Please describe the outcome of the meeting, assessment of stakeholders comment, list of participants.

The meeting lasted 1.5 hrs because the community was very participative and there were many comments and discussions. A total of 20 written evaluations were completed by participants. The format of 3 simple

questions was very well accepted, and the results of the evaluations were very good. The questions and results are summarized below.

Question	Response (Frequency)
What did you think of the meeting?	Very good / Excellent (14) Good / I liked it (6)
What do you like about the project?	Good for the environment (6) Everything / Yes / Very good / I like it (12) I liked the discussion questions (1) The stove is great (1)
What do you dislike about the project?	Nothing / Liked everything (16) The stove doesn't have an oven (2) The stove isn't portable (1) Everyone should be able to get the stove, not just those who cook with wood (1)

List of Participants

**FOGÕES EFICIENTES
REUNIÃO COMUNITÁRIA
Santo Amaro, Bahia 20 de maio de 2011**

	NOME COMPLETO	ASSOCIAÇÃO / CONTATO	
1	GRISPINA DOS SANTOS	ASSOCIAÇÃO Z-27 (PESCADORES) 71-96001360 F	
2	Josiane dos Santos	ASSOCIAÇÃO Z-27 96385159	
3	Flávia Fáez Ribeiro	81729955 (71) F	
4	Edilária dos Santos	87705992 (71) F	
5	Sandra Maria Salamão de Oliveira	87344052 (71) F	
6	Maria José Santos de Lima	Associação Z-27 1992-2204 F	
7	José Barbosa da Silva	88351725 (71) M	
8	Aleluia Engundes	ASSOCIAÇÃO Z-27 (PESCADORES) 1 F	
9	Maria Lucia Santos de Jesus		F
10	Carlos Borges de Jesus		M
11	Ismael Machado		M
12	Brispina Maria Costa Soárez		F
13	Maria Iracília Alves Fasundes		F
14	Eline Gomes dos Santos Associação Z-27 TEL: 71 82069176 F		
15	Telma dos Reis Sales		F
16	Somone dos Reis Sales		F
17	Denziana Trindade dos Santos		F
18	Dulcineia Soárez de Jesus dos Santos		F
19	Maria Gorete dos Santos		F
20	Nadja Sales Souza		F
21	Gaciara Bonifim Viana		F
22	Glênia Sales dos Santos		F
23	Kelma Soárez da Conceição		F
24	Patrícia Soárez Celina		F
25	Damuria dos Santos Correia		F
26	Laristina dos Reis Sales		F
27	Valéria de Jesus Pereira		F
28	Mariabatista Ferreira		F
29	Alcina de oliveira da Silva Sales		F
30	Lindapilla Correa de Silva		F

31	Yane de Paula Guimaraes Ferreira	F
32	Julia Delfina Sales Soares	F
33	Ranangeen de Jesus Sena	F
34	Taisiane Graelos de Sena Bezerra	F
35	Edinalva Souza de Jesus	F
36	Rosimary Souza Bispo	F
37	Tatiiane F. dos Santos	F
38	Christiane F. dos Santos	F
39	Hilda Vilariño dos Santos	F
40	Silma S. R.	F
41	Raimundo José S. Jesus	M
42	Edna S.	F
43	Nelma S. R.	F
44	Rita Souza Balada	F
45	Christiane maria Silva dos Santos.	F
46	Christiane Tias Ribeiro	PSS. Fruto do mar - 99377136 F
47	Posilene Souza Santos	727 Colonia
48	Jaciara Goncalves de Jesus da Silva	Mar perca
49	Edvica Tais Ribeiro	727 Colonia 171/81748423 F
50	Queli Teles Ribeiro	Pescadora Colonia 727
51	Dalva Souza Rocha	Acacio Bruto de Jesus
M	ADALTON SOUZA ROCHA DOSSE	Eduane Bruto de Jesus
F	Marina das Lautas	Angela Maria Costa Bruto
F	Romilia de Jesus Sena	
F	Maria Correia Silveira	
F	Edna Rodrigues Germano	
F	Maria Lucia Ferreira	
F	Rosangela Souza Bispo	
F	Berlingola Barreto de França	
F	Rebeca Barreto Santos Salomão	
F	Examina Pink Salomão	
F	Edinalva da Silva de Jesus	
M	Pedro Jorge Glimanovis Souza	
F	Clarisa Jose S. Barbosa	

D.3. Report on how due account was taken of any comments received and on measures taken to address concerns raised:

>> Please discuss how the stakeholder's comments have been addressed and include the changes to the design of the programme based on their feedback.

COMMENTS FROM LSC MEETING IN SANTO AMARO	
COMMENT/QUESTION	RESPONSE/OBSERVATION
When will installation start?	In 2 to 3 weeks' time.



How many burners does stove have?	Participants themselves who have seen the efficient stove elsewhere answered that there are 2 burners. This was deemed adequate, with no complaints. Positive comments were also made that because the iron plate is large, up to 3 pots can be placed at the same time, with 2 cooking and 1 keeping warm.
Can the stove have an oven?	This is a common desire, and the response is unfortunately the budget for the stove doesn't include an oven. However, this elicited from other participants the experience they've seen from family/friends in other communities that the stove CAN bake cakes by placing a circular mould with a hole in the center directly on the burner. The discussion concludes that other foods requiring an oven will continue to be cooked on GLP, and that this represents a small amount of the food cooked in a typical household.
During the collective reading of the contract, there was discussion about the part "yield carbon credits" to Instituto Perene.	One woman mistakenly understood "credits" as currency, thinking that the stove users would have to pay Perene something for the stove. Interestingly it was her own fellow communities members that cleared up this doubt, explaining that the credits were NOT actual money.
Participants asked to repeat what material they had to contribute.	50 bricks, ½ bag cement, 2 wheelbarrows of sand and an empty can of powdered milk (for soot removal), used to build the family's own stove base.
Can anyone get the new stove?	Perene members explained the criteria: <ol style="list-style-type: none">1. Homes using wood as the primary fuel2. Homes located in rural areas3. Providing the required in-kind contribution (see previous question)
Can the stove be portable?	No. The stove model is a fixed model, built with bricks and mortar in the home. Portable models are much less resistant and could not offer durability of this stove. It was agreed that durability was a more important characteristic than portability, since most families live in the same home for more than a decade, and often their whole lives.
WARNING ABOUT POTENTIAL DANGER – HOT SURFACES	Perene members brought up this subject to initiate discussion in the group. The fact that the metal parts (stove top and fuel shelf), as well as the ceramic chimney are extremely HOT to the touch during and after use, and can cause burns, was pointed out and agreed in general that care must be taken. It was observed by a local that nevertheless the danger of an open fire is much greater, and many agreements and personal experiences ensued.
Plastic cups should not be used at meetings because they pollute the environment.	After the close of the meeting, a woman approached Renata of Perene and made the suggestion that each person bring his/her own cup to meetings. The suggestion was welcomed and noted. It remains to be seen how to put it into practice. In the meantime, cups and soda bottles used will be recycled.

D.4. Report on the Continuous input / grievance mechanism:

At the time the Local Stakeholder Consultation meeting was held (2011) the Continuous input / grievance mechanism was not part of the Gold Standard cookstove methodology, and therefore it was not discussed

with the stakeholders. However, at the time of the Feedback Round (July 2014) all three methods were presented and explained to participants.

Discuss the Continuous input / grievance mechanism expression method and details, as discussed with local stakeholders.

	Method Chosen (include all known details e.g. location of book, phone, number, identity of mediator)	Justification
Continuous Input / Grievance Expression Process Book	The Input Process book was presented in the Stakeholder Feedback Meeting and will remain with the Community Agent responsible for the area.	Due to the nature of a cookstove project, project beneficiaries are spread out over large areas. In addition, there is no fixed project center in the field in which to leave the book.
Telephone access	(71) 3264-3199. This is the telephone number of Instituto Perene headquarters, in Salvador, Bahia.	A person is available Monday-Friday 8 am to 5 pm to receive, record and respond to calls. Collect calls ARE accepted.
Internet/email access	contatos@perene.org.br	Although homes are not equipped with internet, most communities have a small commercial center that includes an Internet service shop.
Nominated Independent Mediator (optional)	Not Applicable.	

D.5. Report on stakeholder consultation feedback round:

The feedback round was held in parallel to the Validation process, as allowed by The Gold Standard:

You can perform the stakeholder feedback round in parallel to the validation process but the contracted DOE must be able to take feedback received into account to complete the validation (Gold Standard, 2012, p. 54).

Stakeholder Feedback Round

A physical meeting was chosen for the Stakeholder Feedback Round. The meeting took place on July 20, 2014, in the same location as the initial LSC meeting: Sede da Fliarmonica 25 de Março, Praça Principal do Distrito de Acupe, Santo Amaro, Bahia. All the participants of the initial LSC meeting were invited, as well as members of other communities. Representatives of the official Gold Standard NGO supporters were also invited.

Category code	Organisation (if relevant)	Name of invitee	Way of invitation	Date of invitation	Confirmation received? Y/N
A	N.A.	Residents of Santo Amaro	Verbal	July 10-18, 2014	Y

B	No local policy makers or authorities were invited to the informative meetings as this project is independent of government entities, programs or agendas. This precaution cancels any association with a political party and reduces the effects of political changes in the area. In addition, avoiding involvement of the government minimizes the possibility of the project being affected by attempts at corruption.				
C	Interministerial Commission for Global	Gustavo Luedemann	Email	March 18, 2014	N
D	Association of Shellfish Harvesters and	Residents of Acupe	Verbal	July 10-18, 2014	Y
E	Local Gold Standard expert	Ivan Hernandez	Email	July 13, 2014	N
F	Fundacion MDL de Honduras	Suyapa Zelaya Amaya	Email	July 13, 2014	N
F	Fundacion Ecodiversidad	Carlos Kurimoto	Email	July 13, 2014	Y
F	Helio International	Helene Connor	Email	July 13, 2014	Y
F	Mercy Corps	D McIntosh	Email	July 13, 2014	N
F	WWF	Bella Roscher	Email	July 13, 2014	N
F	REEEP	Marianne Osterkorn	Email	July 13, 2014	N
F	Greenpeace	Supporter Services	Email	July 13, 2014	N

The Stakeholder Feedback Round was held on July 20, 2014. Once again there was an excellent turnout, with 74 local participants, being 67 women and 9 men.



Full house at the Stakeholder Feedback Meeting



Signing in Meeting Participants



Presenting the Continuous Input / Grievance Expression Process Book

The Stakeholder Feedback Meeting agenda was as follows:

i. Agenda

- Opening of the meeting: Guilherme Valladares, Director of Instituto Perene, introduced the Perene team and welcomed all participants.

- Explanation of the project: Overview of the goal of the stove project, the concept of carbon credits, and reaffirm Instituto Perene's commitment to helping maintain the stoves operating.
- Questions from the audience: See table below.
- Explanation of the Continuous Grievance/Feedback Mechanisms:
 1. Book: the book was presented and participants were encouraged to record any comments, questions or complaints in it. After the meeting the book will be kept by the Community Agent in case any project participants wish to record in it.
 2. Telephone: Instituto Perene's headquarter phone was shared (71) 3264-3199 and participants encouraged to call anytime during work hours – collect calls accepted.
 3. Email address: Instituto Perene email address contatos@perene.org.br was shared.
- Evaluation Forms: Participants were asked to fill out and turn in the simple, 3-question evaluation form
- Raffle: 10 food baskets were raffled off among meeting participants. This activity was suggested by the Community Agent as a way to motivate many people to attend the meeting. It was sponsored by Instituto Perene and proved to be a very successful and welcomed gesture.
- Closure of the meeting: Participants were thanked for coming and invited to stay after the meeting to speak with Instituto Perene members and register any comments in the Input Process Book.

Outcome of Stakeholder Feedback Round – Questions and Responses	
Comment/Question	Response
Will more stoves be built in the community?	At this moment there is no funding to return to Acupe community to build more stoves, but Instituto Perene is actively pursuing new funding for this.
Will the people who already signed up for the project in 2011 but did not receive a stove be included in the project?	If Perene is successful in obtaining more funding for stove construction in Acupe, priority will be given to those people who signed up in the past.
Several people noted that their fuel shelf has broken.	Instituto Perene has committed to replacing all fuel shelves. Acupe's Community Agent will distribute the fuel shelves to the project participants.
Lively discussion amongst cooks about the different foods that can be cooked on the stove, including cake, and the use of the stove top as a griddle by closing both burners with the covers provided.	Instituto Perene members facilitated this discussion by encouraging the participants themselves to answer each other's questions regarding specifics on cooking with the stove.

A total of 55 evaluation forms were filled out. The table below summarizes the results, followed by three example evaluations.

Stakeholder Feedback Meeting Evaluations

Question	Response (Frequency)
What did you think of the meeting?	Excellent (10) Very Good/Good (22) Liked it (2)
What do you like about the project?	Benefits our community (7) Everything / Yes / Good (18) Saves LPG (2) Less pollution (1) Innovative (1) Good for scalding shellfish (1) Important project (1)
What do you dislike about the project?	Nothing / Liked everything (25) Left blank (4) Broken brick (1) Infrequent use (1)

Sample Meeting Evaluation Forms

Projeto Fogões Eficientes Instituto Perene Reunião de Avaliação 20/07/2014 Acupe, BA	
Nome	Nadiza Sales Soáza
O que achou da reunião?	Bom e ótimo
O que gosta do projeto?	Mais benefício para aqui
O que não gosta do projeto?	Nada

Projeto Fogões Eficientes Instituto Perene Reunião de Avaliação 20/07/2014 Acupe, BA	
Nome	Rosanaela Barreto de França
O que achou da reunião?	Boa
O que gosta do projeto?	Tudo
O que não gosta do projeto?	Nada

Projeto Fogões Eficientes Instituto Perene Reunião de Avaliação 20/07/2014 Acupe, BA	
Nome	Valdete dos Santos Barreto
O que achou da reunião?	Tá ótimo
O que gosta do projeto?	Já cozinhava com lenha há muito tempo então foi uma novidade. Funcionando bem
O que não gosta do projeto?	— ta completo.



**Edvaldo Ribeiro (stove mason),
Edna Ribeiro (Community Agent) and**



Renata Valladares (Instituto Perene)

Attendance List

REUNIÃO DO PROJETO FOGÕES EFICIENTES - STAKEHOLDER FEEDBACK
LISTA DE PARTICIPANTES
SANTO AMARO, BAHIA

	NOME	TELEFONE / ASSOCIAÇÃO	H / M
1	Nadja Sales Souza	Olho do Mar	M
2	Joanice Souza Jesus	(71) 8383-4962	M
3	Raimundo José Souza de Jesus	(71) 8269-1477 <small>autônoma</small>	H
4	Maria da Conceição Sales Souza	Olho do Mar	M
5	Ana Paula Sales Souza	Pescadores Z.27	M
6	Luciene Sales Souza	Pescadores Z.27	M
7	Isaias Rosário dos Santos	(71) 9941-9453	H
8	Antônia Rosário Jilairinho	(71) 9601-6096	M
9	Josilima Dias Barros	(71) 9601-6096	M
10	Gemilda Dias Barros vang	(71) 9601-6096	M
11	Jessica dos Santos Sacramento	(71) 8312-0080	M
12	Naíara Ramos da Silva	(71) 8307-4235	M
13	Jessivalda dos Santos Sacramento	(71) 8236-3112	M
14	Débora Perena Vimbaz	(71) 0708-3871	M
15	Endene Luis de Oliveira	(71) 8409-0690	M

	NOME	TELEFONE / ASSOCIAÇÃO	H / M
16	Viviane de Jesus Silva	71-8219-4955	H
17	Edileusa de Jesus Silva	75-3201-2791	H
18	Elaine da Silva Bispo Lima	75-3201-2791	H
19	Aldimilia Augusto Dias		M
20	Damiana de Jesus Silva	71- 9981- 4930	H
21	Carlos Ximamola dos Santos		H
22	Nadilza dos Santos Santana	71- 8316- 3499	M
23	Gustiana Santos Ramos	71- 8382- 4786	M
24	Maria de Iátima Perena	71- 8378- 1623	M
25	Elijam Alves	71- 8136- 0907	H
26	Valélica Jesus Perena	71- 8706- 6645	H
27	Marinalva Barbosa dos Santos		M
28	Anderson Conceição dos Santos		H
29	Meirejane Santos Gomes		M
30	Fernanda do Rosário Brito	75- 0124- 2387	M
31	Elisangela do Espírito Santo	71- 9726- 2080	H
32	Rebeca Barreto Santos Salomão	71- 8288- 9331	M

	NOME	TELEFONE / ASSOCIAÇÃO	H / M
33	Rosmilda Crispina Ribeiro		M
34	Eliana Oliveira Fias dos Santos	71-8216-7183	M
35	Rosangela Jesus Senna	71-8216-7183	M
36	Crispina dos Santos	71-9981-7337	M
37	Jocilene dos Santos Cardoso	71-840-1915	M
38	Lucas de de Jesus Souza	71-8274-7530	H
39	William De Jesus		H
40	Matilde De Jesus	71-8174-8867	M
41	Jessica Santos Silva	71-8112-7345	M
42	Hilda Vilarinho Dos Santos		M
43	Vera Lucia dos Santos		M
44	Regina Bispo do Rosário	71-9968-9731	M
45	Valdimir dos Santos Souza	71-9968-9731	M
46	Camila DO Rosário Santos	71-9968-9731	M
47	Francisco Souza	71-9968-9731	H
48	Jorge Conceição Santos	71-9933-3100	M
49	Maria Jose da Silva Santos		M

	NOME	TELEFONE / ASSOCIAÇÃO	H / M
50	Germania Sileunga Ramos da Silva	(71) 8769-7153	M
51	Rosimare da Cruz De Lima	(71) 8293-4189	M
52	Valdetra dos Santos Barreto		M
53	Carla Santos de Jesus		M
54	Maria Jose santos de Lima	(71) 8120-5920	M
55	Dioniria Santos de Jesus		M
56	Taciane Carreira dos Santos		M
57	Renalva de Jesus		M
58	Joanice Souza		M
59	Ama Cintima, santos D. Jesus		M
60	Sandra Maria Salomão D. Oliveira		M
61	Maria Jose dos Santos		M
62	Gildio Salomão D. Oliveira		H
63	Ctia D. Oliveira Roscarinho		M
64	Alvina D. Oliveira da Silva Sales		M
65	Nelsonia Maria Dos Santos		M
66	Rosilda Barreto santos	71- 0713-4463	M

	NOME	TELEFONE / ASSOCIAÇÃO	H / M
67	Ivania dos Santos Ramos	75- 3201- 2538	M
68	Ivanete dos Santos Ramos	75- 3201- 2538	M
69	Maria Idália dos Santos Pinto	71- 9629- 2106	M
70	Cleuzia Pinto dos Santos	75- 9629- 2106	M
71	Zemilde Conceição	75- 3201- 2099	M
72	Sandra Souza Da Conceção		M
73	Edna Ribeiro		M
74	Edvaldo Barreto Ribeiro		H

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Annex 1
CONTACT INFORMATION ON PARTICIPANTS IN THE PROJECT ACTIVITY

Organization:	Instituto Perene
Street/P.O.Box:	Rua Belo Horizonte 64 suite 310
Building:	Edificio Barra Master
City:	Salvador
State/Region:	Bahia
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E-Mail:	guilherme@perene.org.br renata@perene.org.br
URL:	www.perene.org.br
Represented by:	Guilherme M. Valladares
Title:	Director
Salutation:	Mr.
Last Name:	Valladares
Middle Name:	Monteiro
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Annex 2

OFFICIAL DEVELOPMENT ASSISTANCE DECLARATION

Date: February 14, 2014

The Gold Standard Foundation
79 Avenue Louis Casai
Geneva Cointrin, CH-1216
Switzerland

RE: Declaration of Non-Use of Official Development Assistance by Project Owner of [INSERT GS ID Number]
Instituto Perene

As Project Owner of the above-referenced project, and acting on behalf of all Project Participants, I now make the following representations:

Guilherme M. Valladares

I hereby declare that I am duly and fully authorized by the Project Owner of the above-referenced project to act on behalf of all Project Participants and make the following representations:

I. The Gold Standard Documentation

I am familiar with the provisions of The Gold Standard Documentation relevant to Official Development Assistance (ODA). I understand that the above-referenced project is not eligible for Gold Standard registration if the project receives or benefits from Official Development Assistance with the condition that some, or all, of the carbon credits [CERs, ERUs, or VERs] coming out of the project are transferred to the ODA donor country. I hereby expressly declare that no financing provided in connection with the above-referenced project has come from or will come from ODA that has been or will be provided under the condition, whether express or implied, that any or all of the carbon credits issued as a result of the project's operation will be transferred directly or indirectly to the country of origin of the ODA.

II. Duty to Notify Upon Discovery

If I learn or if I am given any reason to believe at any stage of project design or implementation that ODA has been used to support the development or implementation of the project, or that an entity providing ODA to the host country may at some point in the future benefit directly or indirectly from the carbon credits generated from the project as a condition of investment, I will notify The Gold Standard immediately using the Amended ODA Declaration Form provided below.

III. Investigation

The Gold Standard reserves the right to conduct an investigation into any project it reasonably believes may be receiving ODA with the condition that some or all of the carbon credits from the project will be transferred to the ODA donor country.

IV. Sanctions

I am fully aware that the sanctions identified in The Gold Standard Terms and Conditions may be applied to me or the above-referenced project in the event that any of the information provided above is false or I fail to notify The Gold Standard of any changes to ODA in a timely manner.

I swear that all of the statements contained herein are true to the best of my knowledge.



Signed:

Name: **Guilherme M. Valladares**

Title: **Director**

On behalf of: **Instituto Perene**

Place: **Salvador, Brazil**