



# GUATEMALA COUNTRY ACTION PLAN FOR CLEAN COOKSTOVES AND FUELS

## ANNEXES



May 2014

Prepared in collaboration  
with national and international stakeholders  
and with the support of



## Foreword

This document completes the Guatemala Country Action Plan for Clean Cookstoves and Fuels.

We acknowledge the contribution of numerous organizations and individuals in the development of the Guatemala Country Action Plan, including key support from the Global Alliance for Clean Cookstoves, the Ministry of Energy and Mines of Guatemala, the National Competitiveness Program (PRONACOM), the Guatemalan Cluster of Improved Cookstoves and Clean Fuels, and the World Bank, as well as the input of national and international stakeholders, as presented in the main report of the Country Action Plan.

The preparation and writing of the Guatemala Country Action Plan and its annexes and the facilitation of the Country Action Planning Workshop were coordinated by Maryse Labriet of Eneris Environment Energy Consultants and Chloe Shields of the Global Alliance for Clean Cookstoves. Inquiries can be directed to [maryse.labriet@enerisconsultants.com](mailto:maryse.labriet@enerisconsultants.com) or [cshields@cleancookstoves.org](mailto:cshields@cleancookstoves.org).

For any questions regarding the development of the Guatemala Country Action Plan, please contact the Global Alliance for Clean Cookstoves at [info@cleancookstoves.org](mailto:info@cleancookstoves.org).

### Photo Credit

Cover page: Maryse Labriet, Chloe Shields

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## ANNEX 1: Sector Mapping

### Overview of the cookstoves and fuels market assessment

Macro-environment	Fuel usage and trends	Health, social, environment	Consumer	Cookstove industry	Cookstove policy
<ul style="list-style-type: none"> <li>High level of poverty are observed, especially in rural and indigenous areas.</li> <li>Violence and cultural diversity contribute to the social complexity of the country.</li> <li>Challenges include addressing social and gender inequalities, improving citizen security, fostering inclusive growth and ensuring public investments in education, health and infrastructure.</li> <li>Ease of Doing Business is low.</li> <li>Public policies and programs lack systematization and continuity as well as synergies between initiatives.</li> <li>Microfinance activities are increasing rapidly, but still face implementation barriers.</li> <li>Guatemala offers a high potential for economic growth.</li> </ul>	<ul style="list-style-type: none"> <li>Woodfuel represents more than 57% of total final energy use, its share continues increasing while LPG is marginal (3%) and its consumption varies with prices. Most households use traditional cooking methods (open fires).</li> <li>The woodfuel deficit and illicit wood extraction reinforce the need for efficient technologies, the development of other energy sources and the implementation of sustainable energy plantations.</li> <li>LPG is a relevant complementary fuel for fast heating.</li> <li>Increasing prices of woodfuel may raise interest in efficient cookstoves by those who buy woodfuel.</li> <li>There are around 2.13 millions of households that consume woodfuel, and around 1.29 millions households that buy woodfuel.</li> </ul>	<ul style="list-style-type: none"> <li>Environmental and climate vulnerability of Guatemala is high.</li> <li>Collection of fuelwood is carried out by both men and women.</li> <li>Household air pollution accounts for economic losses equivalent to around 1% of Guatemala's GDP. It is one of the most important health problems and must be a priority in health policies.</li> <li>The use of firewood also contributes to outdoor air pollution.</li> <li>Conditions of use and type of wood are crucial drivers of the benefits associated with cookstoves.</li> </ul>	<ul style="list-style-type: none"> <li>The existence of clean cookstoves and their benefits remain unknown by most of the households.</li> <li>Satisfaction of users is indispensable (size of the family, type of cooking, symbolism of fire must be considered).</li> <li>The extreme poverty segment of the population will deserve non-market based strategies, which must be well defined to avoid any distortion of the market based strategies.</li> <li>Willingness-to-pay by households with stable revenues close or over the poverty line and who buy firewood is demonstrated as soon as wood savings are proved, and if guarantee and technical support are provided.</li> <li>The willingness-to-pay of the "non-extreme poverty" segment is uncertain. From 0.7 to 1.4 million households could buy an efficient cookstove, under relevant conditions of payment.</li> <li>Rural or remote areas may present additional constraints (accessibility, insufficient volumes of sales)</li> <li>Consumer financing options are starting, but need much stronger support, supported by communication campaign on financing options</li> <li>LPG is used by households close to and over the poverty line, for specific uses (breakfast, re-heating food), combined with woodfuel. This niche is robust and could be reinforced.</li> </ul>	<ul style="list-style-type: none"> <li>Many efforts were and are held by various actors but systematization and follow-up are missing. The number of installed cookstoves is unknown.</li> <li>A unique cookstove won't satisfy the needs and preferences of all households, nor a unique supplier. A diversified supply is needed.</li> <li>Manufacturers support and guarantee make a difference in the attractiveness of cookstoves.</li> <li>Market-oriented centralized mass-production exists, but demand for clean cookstoves must be enhanced to stimulate the supply.</li> <li>Decentralized in-situ construction remains driven by donation programs and will deserve attention in order to avoid any overlap with market-based targets.</li> <li>Supplier financing will be much easier as soon as the demand-side of the market develops.</li> <li>Stove certification has to be mandatory to secure quality. It plays a role of "trust building mechanism". The availability of spare parts to the buyers is crucial too.</li> </ul>	<ul style="list-style-type: none"> <li>Guatemala has unique experience in ICSs, but without systematization of information.</li> <li>The new National Energy Policy (2013-2027) opens the door for new initiatives and strategies to promote clean cooking practices.</li> <li>Energy strategies must consider the regional level. A cookstove market at the regional level is of high interest.</li> <li>Experience in CDM projects and programs exists in Guatemala, including with cookstoves. However, carbon markets remain complex and uncertain. Other climate finance opportunities such as the Nationally Appropriate Mitigation Actions (NAMAs) and forestry projects deserve more attention.</li> </ul>

Source: Guatemala Cookstoves and Fuels Market Assessment, conducted by Energía sin Fronteras, Fundación Solar, Universidad Politécnica de Madrid, for the Global Alliance in 2013.

[http://www.cleancookstoves.org/resources\\_files/guatemala-market-assessment-1.pdf](http://www.cleancookstoves.org/resources_files/guatemala-market-assessment-1.pdf)

## Size of the market: woodfuel consumers by department

2.1 million households consume woodfuel

(1.3 million in rural areas, 0.8 million in urban areas)

	RURAL				URBAN			
	Consume woodfuel	Do not consume woodfuel	Consume woodfuel	Do not consume woodfuel	Consume woodfuel	Do not consume woodfuel	Consume woodfuel	Do not consume woodfuel
	Households		Share wrt all households		Households		Share wrt all households	
Guatemala	63614	24026	73%	27%	161732	496057	25%	75%
El Progreso	18958	2771	87%	13%	9401	5188	64%	36%
Sacatepéquez	8852	1191	88%	12%	31979	25467	56%	44%
Chimaltenango	51847	191	100%	0%	49169	12427	80%	20%
Escuintla	64396	11006	85%	15%	45897	37282	55%	45%
Santa Rosa	42980	1507	97%	3%	27035	4804	85%	15%
Sololá	35301	564	98%	2%	36761	2810	93%	7%
Totonicapán	44432	1431	97%	3%	39128	3025	93%	7%
Quetzaltenango	58129	3688	94%	6%	67492	33531	67%	33%
Suchitepequez	50263	3159	94%	6%	29748	17570	63%	37%
Retalhuleu	34368	1476	96%	4%	16713	8166	67%	33%
San Marcos	127073	3227	98%	2%	42546	11701	78%	22%
Huehuetenango	136902	2382	98%	2%	47091	18373	72%	28%
Quiché	109511	1307	99%	1%	47404	7739	86%	14%
Baja Verapaz	36725	1351	96%	4%	14809	3717	80%	20%
Alta Verapaz	139885	1577	99%	1%	36676	10015	79%	21%
Petén	78081	2732	97%	3%	28954	12381	70%	30%
Izabal	46527	6328	88%	12%	18809	19555	49%	51%
Zacapa	25014	3571	88%	12%	12148	9557	56%	44%
Chiquimula	51030	1452	97%	3%	9233	11756	44%	56%
Jalapa	39939	1360	97%	3%	11808	9946	54%	46%
Jutiapa	61008	1825	97%	3%	21233	13753	61%	39%
<b>Total</b>	<b>1324835</b>	<b>78122</b>	<b>94%</b>	<b>6%</b>	<b>805766</b>	<b>774820</b>	<b>51%</b>	<b>49%</b>

### Legend

few households consume woodfuel		many households consume woodfuel
low % of woodfuel consumers in total households		high % of woodfuel consumers in total households

Source: Data ENCOVI-2011, in the Guatemala Cookstoves and Fuels Market Assessment, conducted by Energía sin Fronteras, Fundación Solar, Universidad Politécnica de Madrid, for the Global Alliance in 2013:

[http://www.cleancookstoves.org/resources\\_files/guatemala-market-assessment-1.pdf](http://www.cleancookstoves.org/resources_files/guatemala-market-assessment-1.pdf)

### Size of the market: woodfuel purchasers by department

1.3 million households buy at least a part of the woodfuel they consume  
(0.7 million in rural areas, 0.6 million in urban areas)

	RURAL			URBAN		
	Purchase all or part of woodfuel			Purchase all or part of woodfuel		
	Households	Share wrt all households	Share wrt woodfuel consumers	Households	Share wrt all households	Share wrt woodfuel consumers
Guatemala	45076	51%	71%	144103	22%	89%
El Progreso	6225	29%	33%	5190	36%	55%
Sacatepéquez	6441	64%	73%	24803	43%	78%
Chimaltenango	29352	56%	57%	39236	64%	80%
Escuintla	33828	45%	53%	37266	45%	81%
Santa Rosa	21453	48%	50%	18724	59%	69%
Sololá	16882	47%	48%	26747	68%	73%
Totonicapán	26398	58%	59%	30152	72%	77%
Quetzaltenango	41518	67%	71%	54339	54%	81%
Suchitepequez	34088	64%	68%	25497	54%	86%
Retalhuleu	22378	62%	65%	13439	54%	80%
San Marcos	80451	62%	63%	36007	66%	85%
Huehuetenango	82797	59%	60%	27441	42%	58%
Quiché	60906	55%	56%	40186	73%	85%
Baja Verapaz	15138	40%	41%	10925	59%	74%
Alta Verapaz	42366	30%	30%	27911	60%	76%
Petén	22717	28%	29%	19418	47%	67%
Izabal	15765	30%	34%	13126	34%	70%
Zacapa	6736	24%	27%	5473	25%	45%
Chiquimula	13879	26%	27%	6387	30%	69%
Jalapa	15411	37%	39%	6079	28%	51%
Jutiapa	28348	45%	46%	13333	38%	63%
<i>Total</i>	<i>668153</i>	<i>48%</i>	<i>50%</i>	<i>625782</i>	<i>40%</i>	<i>61%</i>

#### Legend



Source: Data ENCOVI-2011, in the Guatemala Cookstoves and Fuels Market Assessment, conducted by Energía sin Fronteras, Fundación Solar, Universidad Politécnica de Madrid, for the Global Alliance in 2013:

[http://www.cleancookstoves.org/resources\\_files/guatemala-market-assessment-1.pdf](http://www.cleancookstoves.org/resources_files/guatemala-market-assessment-1.pdf)

### Size of the market: summary

0.9 million households in the “poverty segment”  
and 0.9 million households in the “no poverty segment”  
consume woodfuel.

Million of households	<b>Rural</b>	0.13	0.34	0.20	0.67	<i>Buy woodfuel</i>
		0.28	0.66	0.38	1.32	<i>Consume woodfuel</i>
		0.30	0.70	0.40	1.40	<i>Total</i>
	<b>Urban</b>	0.04	0.21	0.37	0.63	<i>Buy woodfuel</i>
		0.05	0.28	0.47	0.81	<i>Consume woodfuel</i>
		0.08	0.47	1.03	1.58	<i>Total</i>
	<b>Total</b>	0.17	0.55	0.57	1.30	<i>Buy woodfuel</i>
		0.33	0.94	0.85	2.13	<i>Consume woodfuel</i>
		0.38	1.18	1.43	2.98	<i>Total</i>
		<b>Extreme poverty</b>	<b>Poverty</b>	<b>No poverty</b>	<b>Total</b>	

Source: Data ENCOVI-2011, in the Guatemala Cookstoves and Fuels Market Assessment, conducted by Energía sin Fronteras, Fundación Solar, Universidad Politécnica de Madrid, for the Global Alliance in 2013:

[http://www.cleancookstoves.org/resources\\_files/guatemala-market-assessment-1.pdf](http://www.cleancookstoves.org/resources_files/guatemala-market-assessment-1.pdf)



## Future Demand

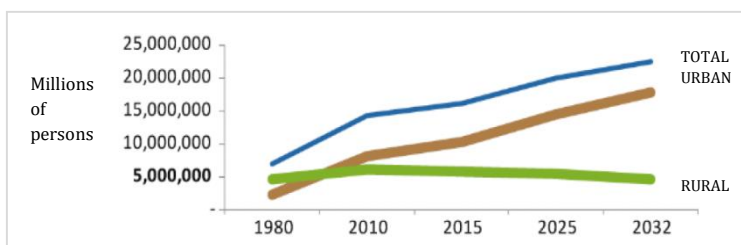
Up to 2.8 million cookstoves in 2030  
(400,000 cookstoves per year) to achieve access for all

In order to evaluate the number of clean cookstoves needed to reach universal access, two scenarios are considered.

- 1) **"Pessimistic" scenario:** No additional action is taken to promote the use of clean cookstoves and fuels. The percentage of households that rely on traditional cooking remains at 2011 levels (94% of rural households and 54% of urban households).
- 2) **"Wood Strategy" scenario:** This scenario includes the goal proposed by the National Strategy for Sustainable Use of Wood (65,000 cookstoves are implemented per year over the next ten years). This does not include any specific target of replacing firewood with other fuels. This scenario aims at assessing the efforts that still have to be made to achieve the goal of universal access.

It is important to distinguish between the quantification of the number of required cookstoves and the study of the conditions for the adoption and use of clean cookstoves and fuels. The central variable of the first analysis (*"How many cookstoves?"*) is the number of households, which in turn depends on demographic factors (population) and sociological trends (number of persons per household). The second type of analysis (*"What are the factors of adoption of cookstoves?"*) rely of several crucial variables: income levels, cooking habits, availability of fuels and technologies, consumer preferences, etc.

The future population is estimated to be 17.5 million inhabitants in 2020 (69% living in urban areas) and 22.5 million in 2030 (79% living in urban areas).



Source: "K'atun: Nuestra Guatemala 2032". SEGEPLAN,  
[http://www.segeplan.gob.gt/2.0/index.php?option=com\\_content&view=article&id=1359&Itemid=372](http://www.segeplan.gob.gt/2.0/index.php?option=com_content&view=article&id=1359&Itemid=372)

In the "Pessimistic" scenario, the total number of clean cookstoves required is 2.3 million in 2020 and 2.8 million in 2030. Demand will be high in urban areas in the future, given the urbanization considered in the K'atun scenario. Considering an average lifespan of 7 years for a cookstove, up to 400,000 cookstoves per year would have to be supplied by 2030.

In the "Wood Strategy" scenario, the total number of clean cookstoves required is 1.9 million in 2020 and 2.4 million in 2030, lower than in the "Pessimistic" scenario thanks to the efforts associated with the Wood Strategy. Considering an average lifespan of 7 years for a cookstove, up to 328,000 cookstoves per year would have to be supplied by 2030.

These ranges should be considered only as a rough estimate.

## ANNEX 2: Non-Governmental Stakeholders

### Manufacturers, importers and implementers

Organization	Type <sup>1</sup>	Contact	Activities	Cookstove(s)	Fuel	Region
<b>DOÑA DORA</b>	Private  M+I	David Evitt (502) 7763 0791 <a href="mailto:info@estufaddora.com">info@estufaddora.com</a>  Web: <a href="http://www.estufaddora.com">http://www.estufaddora.com</a>	Design, Production, Sale, Installation, Training, Tracking/monitoring	Doña Dora	Firewood	West
<b>ECOENERGIA LIMPIA</b>	Private  M	Juan Giordano <a href="mailto:info@ecoenergia.org.gt">info@ecoenergia.org.gt</a>  Web: <a href="http://ecoenergia.org.gt">http://ecoenergia.org.gt</a>	Information not available	Eco Energia Limpia	Firewood	Information not available
<b>ECOCOMAL</b>	Private  M+I	Marco Tulio Guerra Buezo (502) 51849521-50866730 <a href="mailto:macog8@mail.com">mailto:macog8@mail.com</a>  Web: <a href="http://www.ecocomal.com.gt">http://www.ecocomal.com.gt</a>	Design, production and implementation of alternative technology; such as improved cookstoves, biodigesters, water filters.	ECOCINA ECOCOMAL ECOPLANCH II/III	Firewood	National
<b>ENVIROFIT</b>	Private  M+I+Io	Miguel Granados (502) 3001-1694 <a href="mailto:miguel.granados@envirofit.org">miguel.granados@envirofit.org</a>  Web: <a href="http://www.envirofit.org">www.envirofit.org</a>	Manufacturers and implementers of improved cookstoves and solar products, innovative and technological designs that are more pleasant for households and for their adoption. Our products have an impact on health, savings and environment within the household, the efficiencies are supported by laboratories	Different models for different fuels, all "Envirofit" <sup>2</sup> Brand	Firewood Charcoal Gas	All Guatemala

<sup>1</sup> M: Manufacturer / I: Implementer / Io: Importer

<sup>2</sup> Products 99% pre-assembled and ready to use. Packaging finished with instructions for use and precautions, warranties 100% complete and defined by quality problems in manufacturing.

Organization	Type <sup>1</sup>	Contact	Activities	Cookstove(s)	Fuel	Region
			that meet international protocols. Our activities are commercial where we work in the different segments that the market provides, our prices are affordable and it is fully verifiable that the products pay for themselves.			
<b>GENTEGAS</b>	Private I	Cristina Espinoza <a href="mailto:christina@gentegas.com">christina@gentegas.com</a>	We promote LPG cookstoves in full combos (cookstove, cylinder, regulator, hose, and pressure cooker). We provide NIVI Industries products. We train women to be individual entrepreneurs. We train women promoters (entrepreneurs) to give health talks (indoor air pollution), financial education of the household, and the safe use of LPG. We promote LPG to our LPG promoters for their LPG outlets. We work with women's cooperatives to provide micro-financing (GenteGas in the future will offer its own micro-credits). We work in market research (perspectives and perceptions of fuel in the market).	Gas cookstoves Gas cylinders	Gas	Guatemala
<b>GRUPO HASA</b>	Private M	Hussein Hashim (engineer) (502) 31280030 <a href="mailto:hh@grupo-hasa.com">hh@grupo-hasa.com</a> Omar Hashim (502) 31282828 <a href="mailto:oh@grupo-hasa.com">oh@grupo-hasa.com</a> ; Hector Iboy (502) 55530044 <a href="mailto:hiboy@grupo-hasa.com">hiboy@grupo-hasa.com</a>  Web: <a href="http://www.estufasmejoradas.com">www.estufasmejoradas.com</a>	Grupo HASA is a metal smelter. Under the HASA brand we manufacture agroindustrial and industrial products, machine parts, as well as griddles for chicken and improved cookstoves.	HASA	Firewood	All Guatemala Salvador Honduras
<b>GRUPO GERTEK</b>	Private	Alejandro Mejicanos Vila	Entity that specializes in the	Gasifier	Firewood,	Central America

Organization	Type <sup>1</sup>	Contact	Activities	Cookstove(s)	Fuel	Region
<b>S.A</b>	I + Io	(502) 2332 0660 <a href="mailto:amejicanos@emcguatemala.com">amejicanos@emcguatemala.com</a> Web: <a href="http://www.grupogertek.com">www.grupogertek.com</a>	implementation and training of thermal and electrical energy generation through biomass gasification. Exclusive commercial representation in Central America and in the Caribbean by Ankur Scientific, an Indian company specializing in manufacturing gasifiers from 10kw to 2.2Mw, for electrical and thermal energy application. To date, the rural development division has been opened which focuses on energizing isolated rural areas through gasification systems together with the implementation of small-scale energy forests.		coffee husk, cob, coconut shell, general agro-forestry residues	and the Caribbean
<b>HORNOS URREA</b>	Private M	Alejandro Urrea (502) 54143262 <a href="mailto:alex@hornosurrea.com">alex@hornosurrea.com</a> Web: <a href="http://www.hornosurrea.com">www.hornosurrea.com</a>	We are dedicated to producing equipment for cooking with firewood, especially wood fired ovens. The cookstove that we are working on is one unit of brick and concrete with griddle ("plancha") made of cast iron of Fundimetales.	HORNOS URREA	Firewood	Almost all of Guatemala Honduras El Salvador
<b>INDUSTRIAS NIVI</b>	Private M+I	Giovanni Nistal ( 502) 7720-3777 <a href="mailto:giovanni.nistal@gruponivi.com">giovanni.nistal@gruponivi.com</a> Web: <a href="http://www.gruponivi.com">www.gruponivi.com</a>		Gas cookstoves Gas cylinders	Gas	Guatemala
<b>LOLA</b>	Private M	Luis Alberto Sarti (architect) (502) 5897-3145 E-mail: <a href="mailto:elsarti@itelgua.com">elsarti@itelgua.com</a>	Designs, builds and disseminates a model of efficient firewood cookstove directed towards almost 90% of the population in Alta Verapaz who are in poverty or extreme poverty. Replicates the model in all the administrative regions of Guatemala. The LOLA is a utility model of the ONIL griddle cookstove.	LOLA	Firewood	Alta Verapaz
<b>MANUFACTURAS</b>	Private	Eduardo Townson	Manufacturers, importers, marketers and	ECOSTUFA	Firewood	Central America

Organization	Type <sup>1</sup>	Contact	Activities	Cookstove(s)	Fuel	Region
<b>METÁLICAS PARA LA CONSTRUCCIÓN, S.A. OF C.V (MEXICO)</b>	M+I+lo	(502) 5034-7804 cell <a href="mailto:eduardotownson@yahoo.com">eduardotownson@yahoo.com</a>  Web: Not available	distributors of the firewood cookstove "EcoStufa"			
<b>SOLUCIONES APROPRIADAS, S.A</b>	Private M	Malcolm Gribble (502) 3189-4436 <a href="mailto:Malcolm@solucionesapropiadas.com">Malcolm@solucionesapropiadas.com</a>  Web: <a href="http://www.solucionesapropiadas.com">www.solucionesapropiadas.com</a>	Manufactures a griddle cookstove (La Estufa Hiteca) and an institutional cookstove of 100 liters.	HITECA INSTITUTIONAL COOKSTOVE-100	Firewood	Nationwide
<b>SOLUCIONES COMUNITARIAS S.A. (SOLCOM)</b>	Private M	Miguel Brito (502) 57497450 <a href="mailto:miguelbrito@solucionescomunitarias.com">miguelbrito@solucionescomunitarias.com</a>  Web: <a href="http://www.solucionescomunitarias.com">http://www.solucionescomunitarias.com</a>	Social enterprise that creates access to products and services in the rural area by empowering local women and converting them into educators and promoters. The products are chosen/created for confronting problems of health, finances, and environment and the sale is direct to the villager/user. Women receive consignment products which are used to prepare campaigns in the communities (model: Micro Consignment).	POYO ESTRELLA MOVIBLE NIXTAMALERA	Firewood	Quiche Huehuetenango Sololá Jutiapa
<b>SUPER COCINAS</b>	Private M	Ingris Luna de Cruz (502) 2260-7501 (502) 5306-4342 <a href="mailto:ingrislunadc@hotmail.com">ingrislunadc@hotmail.com</a>  Web: <a href="http://www.supercocinasguatemala.com">http://www.supercocinasguatemala.com</a>	Design, manufacture, sale, export of industrial equipment for cookstoves in general.	Cookstoves Griddles Bread baking ovens	Gas	Guatemala and international
<b>TAY MANUAL</b>	Private M	Manuel Tay <a href="mailto:Jmto90@hotmail.com">Jmto90@hotmail.com</a>	Design and production of mobile cookstoves.	NOYA	Firewood	Information not available

Organization	Type <sup>1</sup>	Contact	Activities	Cookstove(s)	Fuel	Region
<b>ALTERNA</b>	NGO  M+I	<p>Daniel Buchbinder (Executive Director) (502) 40435098. <a href="mailto:dbuchbinder@alterna-la.org">dbuchbinder@alterna-la.org</a></p> <p>Sebastián Paneque Navarro (Business Developer). (502) 49551783 <a href="mailto:spaneque@alterna-la.org">spaneque@alterna-la.org</a></p> <p>Company (502) 77654225. <a href="mailto:info@alterna-la.org">info@alterna-la.org</a></p> <p>Web: <a href="http://www.alternaimpact.org">www.alternaimpact.org</a></p>	<p>First center of social and environmental entrepreneurship in Guatemala<sup>3</sup>. We develop sustainable solutions promoting entrepreneurship from a systemic approach. Since 2010 we have been running a program of incorporation and dissemination of biodigesters in the country. We are currently promoting the initiative Pro-Biodigesteres Guatemala (PRO-BIOGT)<sup>4</sup> to:</p> <ol style="list-style-type: none"> <li>1. Incorporate, promote and disseminate technology in an operational manner.</li> <li>2. Pave the way for a biodigesters market.</li> <li>3. Promote good practices for evaluating resources and productive uses.</li> <li>4. Explore innovative sources of financing.</li> <li>5. Promote genuine and tangible Sustainable Development based on the family unit.</li> </ol>	Biodigesters	Biogas	National level

<sup>3</sup> Alterna has incubated socially, environmentally and economically successful ventures such as ESTUFA DOÑA DORA. The PRO-BIOGT initiative will generate new micro-enterprises in the country. At the date of January 2014, two resident entrepreneurs are collaborating with Alterna in the development of PRO-BIOGT. This initiative aims to deploy 1,000 biodigestion systems in Guatemala over the next two and a half years (from 2014). Alterna is also a member of the Executive Board of the Network for Biodigesters in Latin America and the Caribbean (*Red de Biodigesteres de América Latina - RedBioLAC*) and founding member of the Network on Gender and Sustainable Energy of Guatemala (*Red de Género y Energía de Guatemala*).

<sup>4</sup> In terms of future activities the following could be developed:

- Manufacture of biodigesters for the poorest: Development of small-sized compact equipment, with high-quality materials so that the useful life of the equipment could be much higher than the amortization period, which may be able to partially or fully fund the poorest households with the participation of microfinance.
- Financing of the biodigesters: Establish a system for granting micro-credits in exchange for the transfer of the bio-oil, for a fixed period, between the potential producers of bio-oil (agricultural grassroots organization) and the potential buyers (sustainable farms, agricultural cooperatives), at a fixed pre-set price.
- Development of biodigester companies: Train and assist entrepreneurs interested in creating socially and environmentally responsible companies dedicated to providing the biodigester technology and the related services. Create the first biodigester company of Guatemala.
- Theoretical-practical research of the bio-oil: More research on the uses of bio-oil so that it can be economically viable at a fair sale price.
- Meetings of Guatemala biodigester users: Systematize the meetings after the first meeting held in February 2014 in Quetzaltenango, organized by Alterna at the request of the users for sharing experiences, expanding capabilities, identifying areas for improvement, and assessing impact and expansion.

Organization	Type <sup>1</sup>	Contact	Activities	Cookstove(s)	Fuel	Region
<b>ASOCIACIÓN BIENESTAR PROGRESO DESARROLLO (ABPD)</b>	NGO  M+I	Francisco Enríquez (502) 7839-7794 <a href="mailto:bpd.dir@hotmail.com">bpd.dir@hotmail.com</a> Web: <a href="http://www.behrhorst.org">http://www.behrhorst.org</a>	Organization working in Chimaltenango, focused primarily on child nutrition, programs of nutritional education programs, agriculture, water and sanitation, community empowerment, family planning and emergency interventions. Focused in Santa Apolonia and Patzún.	Peace Corps modified or TPS	Firewood	Chimaltenango (Santa Apolonia and Patzún)
<b>ASOCIACIÓN DE MUJERES DEL ALTIPLANO (AMA)</b>	NGO  M+I	Guadalupe Ramirez (502) 77616408 <a href="mailto:g.ramirez@highlandsupportproject.org">g.ramirez@highlandsupportproject.org</a>	AMA is a representative grass roots women's organization that has been innovating social entrepreneurial solutions in Highland Guatemalan communities since 1994. AMA operates under a Theory of Change model that begins with the construction of stoves and includes behavioral health, education, civic participation, and enterprise development. AMA has successfully marketed stoves to rural communities and the communities themselves are trained to build stoves for sustained distribution. AMA both manufactures its own stove varieties, as well as promotes other prefabricated solutions as appropriate.	ESTUFA LUPITA	Firewood	Highland Guatemalan communities
<b>ASOCIACION DE MUJERES IXCHEL</b>	NGO  M+I	Clara Colop <a href="mailto:clara_colop@yahoo.com.mx">clara_colop@yahoo.com.mx</a>	Development of activities based on community diagnosis, training, tracking and monitoring, emphasizing and acting with the environment and the empowerment of rural women.	In-situ griddle cookstove	Firewood	Quetzaltenango Totonicapan San Marcos Solola Santa Cruz del Quiche

Organization	Type <sup>1</sup>	Contact	Activities	Cookstove(s)	Fuel	Region
<b>ECOLOGIC DEVELOPMENT FUND</b>	NGO  M+I	Gabriela González García (502) 7763-5682 (502) 42239494 cel <a href="mailto:ggonzalez@ecologic.org">ggonzalez@ecologic.org</a> Web: <a href="http://www.ecologic.org/">http://www.ecologic.org/</a>	Empowering rural people to restore and protect the tropical ecosystems of Central America and Mexico, working with the rural poor, helping them to identify, assess and prioritize their needs for conservation and natural resources. This can include skills, funding, materials, access to decision makers and experts, practical experience, and other forms of support. EcoLogic acts strategically, community by community, based on common interests and goals, to create partnerships that lead to positive impacts and impacts that are cumulative not just at local level, but regionally and beyond.	TOTONICAPÁN	Firewood	Guatemala Honduras Belize Mexico soon
<b>FUNDACIÓN SOLAR</b>	NGO  I	Marta Ximénez de Rivera (502) 2369 1181 (502) 2369 4402 <a href="mailto:mxrivera@fundacionsolar.org.gt">mxrivera@fundacionsolar.org.gt</a> Web: <a href="http://www.fundacionsolar.org.gt">http://www.fundacionsolar.org.gt</a>	Solar Foundation has been promoting improved firewood cookstoves for over 15 years. It has conducted and participated in studies and proposals throughout the years. It works with models that provide warranty to the end user. In addition, it has incorporated the biogas cookstoves produced by biodigesters in rural areas.	ONIL and any firewood cookstove certified with a warranty for the user. Biogas cookstoves for biodigesters.	Firewood Biogas	The whole country, depending on the project being worked on
<b>GOOD NEIGHBORS</b>	NGO  M+I	Jorge González or Edgar López (502) 2331-2139 <a href="mailto:info@goodneighbors.org.gt">info@goodneighbors.org.gt</a> <a href="mailto:edgar.lopez@goodneighbors.org.gt">edgar.lopez@goodneighbors.org.gt</a>	International NGO dedicated to humanitarian work, focused on the holistic development of childhood and community development. We do not work for profit and we provide improved cookstoves as donations to families of sponsored children and non-sponsored children.	Improved cookstove GNG	Firewood	West (Chimalte-nango, Sololá, San Marcos) East (Zacapa)



Organization	Type <sup>1</sup>	Contact	Activities	Cookstove(s)	Fuel	Region
<b>HANDS FOR PEACE MAKING FOUNDATION</b>	NGO M+I	Marco Tulio Maldonado (502) 7780-2196 (502) 5366-8984 <a href="mailto:hfpf25@hotmail.com">hfpf25@hotmail.com</a>  Web: <a href="http://www.handsforpeacemaking.org">www.handsforpeacemaking.org</a>	Nonprofit NGO. We are committed to integral human development in the rural areas of Guatemala. As part of the work in defending the environment we manufacture firewood-saving cookstoves and we provide incentives for reforestation. We manufacture and implement Aler cookstoves in the most deprived communities with the support of US evangelical churches and Rotary Club groups. Our commitment is to produce a quality product that serves the communities.	ALER	Firewood	Barillas <sup>5</sup> Huehuetenango
<b>HELPS INTERNATIONAL</b>	NGO M+I	Richard Grinnell (502) 5318 5756 <a href="mailto:richardgrinnell@helpsinternational.com">richardgrinnell@helpsinternational.com</a>  Web: <a href="http://www.onilstove.com">http://www.onilstove.com</a>	Design, production and implementation of cookstoves.	ONIL ESTUFA NIXTAMAL	Firewood	Guatemala Nicaragua, Honduras El Salvador Mexico
<b>MAYA PEDAL</b>	NGO M	Mario Enrique Juarez (502) 5628-8501 (502) 4347-9060 cel <a href="mailto:mayapedal@hotmail.com">mayapedal@hotmail.com</a>  Web: <a href="http://www.mayapedal.org">www.mayapedal.org</a> <a href="https://www.facebook.com/mayapedal1">www.facebook.com/mayapedal1</a>	We use old bicycle pieces for constructing Bicimáquinas ("bicycle machines"), which are used as a rural and domestic agroindustrial tool. Production of cookstoves.	ESTUFA MAYA	Firewood	

Other actors are active in Guatemala in the field of clean cookstoves and fuels. For example:

- In the NGO sector: ARCAS, Maya Relief Association (Asociación Socorro Maya), CEDEC, Caritas, Peace Corps.
- From the financial sector: BANRURAL, Genesis Empresarial, Network of Microfinance Institutions in Guatemala (Red de Instituciones de Microfinanzas de Guatemala - REDIMIF).

<sup>5</sup> Our cookstoves can be moved to any part of the country. For now implementation is focussed in Barillas as it is one of the municipalities with acute poverty rates at national level.

## Universities

University	Contact	Activities
University del Valle de Guatemala, University of California, Berkeley and University of California, San Francisco	<p>Arturo Matute M.Sc. Director of Masters Degree in Development <a href="mailto:amatute@uvg.edu.gt">amatute@uvg.edu.gt</a> <a href="mailto:maedesarrollo@uvg.edu.gt">maedesarrollo@uvg.edu.gt</a></p> <p>Dr. John McCracken Head of the Unit of Emerging Infectious Diseases of the Health Studies Center <a href="mailto:jmccracken@ces.uvg.edu.gt">jmccracken@ces.uvg.edu.gt</a> Web: <a href="http://www.uvg.edu.gt/investigacion/ces/miembros.html">http://www.uvg.edu.gt/investigacion/ces/miembros.html</a></p> <p>Professor Lisa Thompson University of California, San Francisco, School of Nursing <a href="mailto:lisa.thompson@nursing.ucsf.edu">lisa.thompson@nursing.ucsf.edu</a> Web: <a href="http://profiles.ucsf.edu/lisa.thompson">http://profiles.ucsf.edu/lisa.thompson</a></p> <p>Profesor John Balmes University of California, San Francisco, School of Medicine, and University of California, Berkeley, School of Public Health <a href="mailto:jbalmes@medsfgh.ucsf.edu">jbalmes@medsfgh.ucsf.edu</a></p>	<p>Examples of research projects (current)</p> <ul style="list-style-type: none"> <li>- NACER (Thompson): Study of the effect of exposure to households air pollutants on pregnant women, on infants' growth and neurodevelopment, from 16 weeks' gestation through one year after birth / Newborns and Children Exposed to Respiratory Pollutants <a href="http://scienceofcaring.ucsf.edu/global-health/assessing-pollution%E2%80%99s-effects-infant-development">http://scienceofcaring.ucsf.edu/global-health/assessing-pollution%E2%80%99s-effects-infant-development</a></li> <li>- Study of chronic obstructive pulmonary disease COPD (Balmes).</li> <li>- Burden of Disease Report for Guatemala (McCracken). Analyze and report on the burden of disease distribution in Guatemala using data on fuel use and geographic distribution. Estimate the number of people exposed, risk of disease and total deaths. To be completed by 3/31/14.</li> <li>- Evaluate wood and gas stove interventions to reduce household air pollution exposure (McCracken). Implement wood- and gas-stove interventions to assess differences in HAP exposure levels. Pilot test 4 different stove-fuel interventions: ONIL woodstove, Ecostufa woodstove, gas stove (4-burners), gas stove with 50% gas subsidy. HAP exposure and stove use will be monitored for PM2.5 and CO. Recruitment and data collection is to begin in May 2014. Note: this study will be conducted in parallel with a COPD study conducted in Guatemala by UCSF to increase the study's power</li> </ul> <p>Examples of research projects (past)</p> <ul style="list-style-type: none"> <li>- CRECER: Chronic Respiratory Effects of Early Childhood Exposure to Respirable Particulate Matter <a href="http://ehs.sph.berkeley.edu/guat/?page_id=20">http://ehs.sph.berkeley.edu/guat/?page_id=20</a></li> <li>- RESPIRE: Randomized Exposure Study of Pollution Indoors and Respiratory Effects - <a href="http://ehs.sph.berkeley.edu/guat/?page_id=94">http://ehs.sph.berkeley.edu/guat/?page_id=94</a></li> </ul>

<p>Galileo University, Institute of Energy Resources (IRE)</p>	<p>Luis Rodríguez Project Manager of Energy and Environment <a href="mailto:org.guateambiente@gmail.com">org.guateambiente@gmail.com</a></p> <p>Cristian Guzmán Project coordination of energy and environment <a href="mailto:cristianfer@galileo.edu">cristianfer@galileo.edu</a></p> <p>Lourdes Socarras Academic Director of the IRE <a href="mailto:smerida@galileo.edu">smerida@galileo.edu</a></p> <p>Web: <a href="http://www.galileo.edu">www.galileo.edu</a> <a href="http://www.galileo.edu/ire/">www.galileo.edu/ire/</a></p>	<p>The IRE is a study center that promotes and strengthens renewable energy sources, environmental education and sustainable development.</p> <p>The IRE integrates three strategic areas: Academic Training, Research and Technical Services. In the IRE we perform research and analysis of firewood-saving cookstoves; activities on this topic include:</p> <ul style="list-style-type: none"> <li>• Monitoring of gaseous emissions. <ul style="list-style-type: none"> <li>○ Analysis of the overall structural integrity of the cookstove.</li> <li>○ Analysis of gaseous emissions.</li> <li>○ Thermographic analysis of the cookstove</li> <li>○ Analysis of the airflow and smoke from the cookstove</li> </ul> </li> <li>• Evaluating the effectiveness and operation of the cookstoves.</li> <li>• Checking the proper management and conservation of the cookstove.</li> </ul>
<p>University Rafael Landivar-IARNA (Institute of Agriculture, Natural Resources and Environment)</p>	<p>Juventino Gálvez M. Sc. Director IARNA <a href="mailto:jugalvez@url.edu.gt">jugalvez@url.edu.gt</a></p> <p>Pedro Pineda M. Sc. Research Coordinator <a href="mailto:papineda@url.edu.gt">papineda@url.edu.gt</a></p> <p>Cesar Sandoval M. A. P. Researcher in the Forest Area <a href="mailto:csandoval@url.edu.gt">csandoval@url.edu.gt</a></p> <p>Daniel Pinillos M. Sc. Researcher of complete Dedication, Forest Area</p> <p>Dr. Ottoniel Monterroso Dean, Faculty of Agricultural and</p>	<p>Many research projects on the forests and natural resources of Guatemala. Among them:</p> <ul style="list-style-type: none"> <li>• Too poor to be green consumers? A field experiment on revealed preferences for firewood in rural Guatemala. Authors: Luuk Van Kempen, Roldan Moradiah, César Sandoval, Juan Pablo Castañeda (Ecological Economics). The paper reports on a field experiment that investigates whether households in Guatemala are willing to surrender a small material gain in order to buy legal rather than illegal firewood. Given the ineffectiveness of command-and-control policies to curb the problem of illegal logging in Guatemala, the experiment assesses the potential viability of market-oriented solutions.,</li> <li>• Firewood Market: case studies of municipalities of San Juan Sacatepequez, Guatemala and Tecpán Guatemala, Chimaltenango. 2012 (IARNA publication. Technical Series 30). The research contains elements for understanding the consumption and market of firewood in the domestic environment and in the small industries of both localities, in such a way that it may be described and analyzed with a view to understanding the dimension of such consumption.</li> <li>• Environmental Profile Series for Guatemala (2004, 2006, 2009, 2010-2012): analysis on the pressures, status, impact and response to the problem of firewood consumption in Guatemala and sustainability analysis for addressing this.</li> <li>• Series of the System of Environmental and Economic Accounts of Guatemala: Official statistics are presented on the environment in Guatemala, in its sections of stock and flow of forest</li> </ul>

	<p>Environmental Sciences</p> <p>Web: <a href="http://www.url.edu.gt/iarna">http://www.url.edu.gt/iarna</a>  <a href="http://www.infoiarna.org.gt">http://www.infoiarna.org.gt</a></p>	resources and their contribution to energy production in Guatemala.
University of San Carlos	<p>Dr. Lauriano Figueroa  Dean Agronomy Faculty  <a href="mailto:Figueroa.lauriano@gmail.com">Figueroa.lauriano@gmail.com</a></p> <p>Carlos Orozco (Engineer)  Director of Postgraduate Studies  <a href="mailto:carlos_orozco34@hotmail.com">carlos_orozco34@hotmail.com</a></p>	Information not available

## Institutions/International initiatives

Initiative	Description
<b>Market Assessment, Pilot Innovation Fund, Women's Empowerment Fund</b>  By: • Global Alliance for Clean Cookstoves	<p>In addition to coordinating the preparation of the Guatemala Country Action Plan, the Global Alliance has supported the following initiatives in Guatemala:</p> <ul style="list-style-type: none"> <li>• <b>Guatemala Cookstoves and Fuels Market Assessment</b> (2013). See: <a href="http://www.cleancookstoves.org/resources_files/analisis-guatemala-sector.pdf">http://www.cleancookstoves.org/resources_files/analisis-guatemala-sector.pdf</a> (sector mapping) and <a href="http://www.cleancookstoves.org/resources_files/analisis-del-mercado-guatemala.pdf">http://www.cleancookstoves.org/resources_files/analisis-del-mercado-guatemala.pdf</a> (intervention options)</li> <li>• <b>Pilot Innovation Fund (PIF)</b> - Financing of companies for innovative initiatives: Applied Sunshine LLC, recent company that has developed an innovative solar cooker for the Guatemalan market.</li> <li>• <b>Women's Empowerment Fund (WEF)</b> - Financing of gender interventions and empowerment in the clean cookstoves and fuels sector: Soluciones Apropriadas has designed an improved cookstove for women tortilla entrepreneurs with active participation of women throughout the research and development process.</li> <li>• <b>Programmatic contributions</b></li> <li>• </li> </ul>
<b>Sustainable Energy for All (SE4ALL)</b>  By: • World Bank (Central America Clean Cooking Initiative CACCI)  Focal Points: • PRONACOM/MEM	<p><b>The Central America Clean Cooking Initiative CACCI</b> has two main goals:</p> <ul style="list-style-type: none"> <li>• Transitioning people who use solid fuels to adopt clean cookstoves, as well as supporting the development of markets for clean fuels for cooking.</li> <li>• Promoting an inter-sectoral approach led by the participating countries to achieve universal access to clean solutions for cooking by 2030.</li> </ul> <p>To achieve these goals, we propose:</p> <ul style="list-style-type: none"> <li>• Working with governments to include clean cookstoves solutions within their development agendas.</li> <li>• Supporting research and development, particularly in the areas of standards, testing and certification.</li> <li>• Supporting the development of financial products directed towards producers, distributors and consumers.</li> <li>• Strengthening the distribution networks of clean cookstoves.</li> <li>• Supporting countries to develop work plans for the universal access to clean cookstoves by 2030.</li> <li>• Developing clean cookstove investment prospectus for each of the participating countries.</li> <li>• Supporting countries to leverage partnerships on clean cookstoves issues.</li> <li>• Supporting an analytical study on energy usage patterns in the households of Central America from household survey data in collaboration with the International Institute for Systems Analysis and Applied Systems and OLADE (December 2014).</li> <li>• Providing technical support to SICA in the implementation of its regional program on the usage of sustainable energy from firewood.</li> <li>• Facilitating South-South exchanges.</li> </ul>

<p><b>Reducing Emissions from Deforestation and Forest Degradation (REDD+)</b></p> <p>By:</p> <ul style="list-style-type: none"> <li>•IDB (implementation of the World Bank Forest Carbon Partnership)</li> <li>•USAID (Program Climate, nature and Communities in Guatemala)</li> </ul> <p>Focal Point:</p> <ul style="list-style-type: none"> <li>•MARN</li> </ul>	<p><b>Preparation of the National Strategy for Reducing Emissions from Deforestation and Forest Degradation in Guatemala (2014-2017)</b></p> <p>The preparation of the National REDD+ Strategy in Guatemala have obtained advance funding (3.8 million U.S. \$) from the FCPF for its formulation and its implementation is due to start in March 2014. Within the structures of interinstitutional consultation and coordination of the strategy is the Interinstitutional Coordination Group (ICG) involving INAB, CONAP, MARN, MAGA, for coordination at political and technical levels.</p> <p>The IDB has established a transfer agreement with the World Bank under which the IDB is one of the implementing partners of the FCPF. The support by the FCPF for the development of the REDD+ platform in Guatemala is considering the following components: Organization and Consultation, Design of the REDD+ Strategy, Development of Reference Levels, and Design of a Monitoring System.</p> <p>As part of this initiative an Emissions Reduction Program "Reducing Emissions from the Forest Sector" is being prepared, in which the issue of the sustainable use of wood is an important component. The proposal will be developed at a national level but with initial focus on the sub-national areas of West, Lowlands, North and Sarstún - Motagua.</p> <p><b>Program of Climate, Nature and Communities in Guatemala (2013-2017)</b></p> <p>REDD+ activities are also included in the USAID program of Climate, Nature and Communities in Guatemala with the goals of: providing support for preserving biodiversity, promoting national strategies for reducing deforestation and establishing carbon markets; strengthening capacities of adaptation to the effects of climate change; supporting the Low Emissions Development Strategy (LEDS).</p>
<p><b>Guatemala Footprint ZERO<sub>2</sub> Initiative</b></p> <p>By:</p> <ul style="list-style-type: none"> <li>•USAID (Low Emission Development Strategies)</li> <li>•IDB (Support to the National Agenda on Climate Change)</li> </ul> <p>Focal Points</p> <ul style="list-style-type: none"> <li>•MARN and PRONACOM (under discussion)</li> </ul>	<p><b>Guatemala Footprint ZERO<sub>2</sub> Initiative (2014-2032, linked to the 2030 Katún Development Strategy of SEGEPLAN).</b></p> <p>National effort with the goal of bringing together all the activities, projects and programs implemented by government agencies, private sector, academia and civil society organizations, for promoting sustainable economic growth in the long term, improving environmental management and meeting development objectives, accompanied by development that is low in greenhouse gas (GHGs) emissions. Through the national agenda of environmental competitiveness, it will boost markets and green businesses to position Guatemala in a place of regional leadership and comparative global advantage, able to respond to the demands of a market ever more responsible with regards to the environment, climate change, accountability and social justice.</p> <p>This initiative is promoted by PRONACOM and MARN, and brings together the efforts made by government institutions such as MEM, MAGA, CONAP, INAB, MICIVI, CNEE, among others, as well as private sector and civil society, which result in the reduction in emissions of greenhouse gases. Some examples of these actions that are in development are the change of the energy mix towards renewable energies, energy efficiency programs, forestry incentive programs, the National Strategy for Sustainable Use of Wood (which includes clean cookstoves), the Guatemalan system of protected areas, mass transit programs (transmetro among others), carbon neutrality strategies of the private sector (AZASGUA, AGEXPORT, Cementos Progreso, etc.).</p>

	<p>The initiative is supported by USAID through the LEDS* Program and by the IDB through the Program of Support to the National Climate Change Agenda).</p> <p><b>*LEDS (Low Emission Development Strategies):</b> within the framework of the UNFCCC, the United States has pledged to support 20 countries in developing their respective National Strategies for Low Emissions Development. Among these six are found in Latin America: Mexico, Peru, Colombia, Costa Rica, Jamaica and Guatemala. This is an inter-agency initiative of the U.S. Government, which in the case of Guatemala is led by the State Department and USAID.</p> <p>Two National Workshops for the Coordination of Climate Change took place in October and November 2013. Consultants will be contracted in seven institutions to support this institutions in terms of integrating actions related to climate change into national development, providing analysis of potentials, costs, co-benefits of mitigation, identifying measures for reducing GHG emissions.</p>
<p><b>Climate, Nature and Communities in Guatemala (CNCG)</b></p> <p>By:</p> <ul style="list-style-type: none"> <li>•WWF (USAID funds)</li> </ul> <p>Contact:</p> <ul style="list-style-type: none"> <li>•WWF</li> </ul>	<p>Within the consortium developing the USAID funded project <b>Climate, Nature and Communities in Guatemala (CNCG)</b>, WWF is in charge of the mitigation component. The main goal of this component is to support the initial stages of a Low Emissions Development Strategy, led by the country.</p> <p>Within this context, the mitigation initiatives that the country already has in place are being supported, mainly regarding the issue of awareness-raising and training, and the National Strategy for Sustainable Use of Wood is one of them. It is being supported by the Ministry of Energy and Mines, MEM, with the promotion of cookstoves, and the National Institute of Forestry, INAB, with the promotion of agroforestry and energy plantations.</p>
<p><b>Forest and Farm Facility</b></p> <p>By:</p> <ul style="list-style-type: none"> <li>•FAO, UICN, IIED</li> </ul> <p>Focal Point :</p> <ul style="list-style-type: none"> <li>• INAB</li> </ul>	<p>Global Initiative, implemented in Guatemala in support of the institutions, organizations and national and local platforms, to give technical and advocacy training for the sustainable management of policies and investments with regards to the sustainable management of forests and farms. In Guatemala the main implementer is FAO.</p> <p>As part of this initiative it promotes intersectoral coordination at national / sub-national level, supporting governments to ensure that the issues of forests are included in new and/or existing multi-sectoral platforms and agendas. This through dialogue, information and development of improved training for coordinating the actors from various ministries, the private sector and civil society involved in, or affected by, policies and activities in "forest landscapes".</p> <p>Within this pillar, the forest-energy bond is encouraged, within which the firewood issue stands out. To that end, technical and methodological assistance has been provided to develop the Woodfuels Integrated Supply/Demand Overview Mapping (WISDOM). The dialogue, analysis and proposed solutions for the sustainable use of firewood in Guatemala are supported through the Inter-institutional Wood and Energy Roundtable, a space for the coordination and integration of different policies that allow for the sustainable production and use of firewood, efficiency, the renewable alternatives to the consumption of firewood, and the institutional arrangements for the treatment of the issue.</p>

## ANNEX 3: Members of the Inter-Institutional Wood and Energy Roundtable

As of April 2014, the Inter-institutional Wood and Energy Roundtable includes representatives from:

1. The Ministry of Energy and Mines (MEM), that presides and coordinates the Wood Roundtable through the Viceminister of Energy;
2. The Ministry of Environment and Natural Resources (MARN);
3. The Ministry of Agriculture, Livestock and Food (MAGA);
4. The Ministry of Social Development (MIDES);
5. The Ministry of Public Health and Social Assistance (MSPAS);
6. The National Institute of Forests (INAB);
7. The United Nations Organization for Food and Agriculture (FAO);
8. The National Competitiveness Program (PRONACOM);
9. The Ministry of Economy (MINECO);
10. The Ministry of Education (MINEDUC);
11. The Presidential Secretariat for Planning and Programming (SEGEPLAN);
12. The Presidential Secretariat for Food Security and Nutrition (SESAN);
13. The National Institute of Statistics (INE);
14. The Secretariat of Public Works of the First Lady of Guatemala (SOSEP) and
15. The Executive Coordination Secretariat of the Presidency (SCEP) - pending.

This list is not exhaustive and the Ministry of Energy and Mines may invite other relevant entities.

The activity programs and their links with the clean cookstoves and fuels sector are presented in the following table.

Institution	Program	Other Information
<b>Ministry of Energy and Mines / Ministerio de Energía y Minas (MEM)</b>	<p>The 2013-2027 Energy Policy was released in May 2013 with the aim of contributing to the country's sustainable energy development based on social equity and environmental priority. Among others, MEM promotes savings and efficient use of energy, including woodfuel within a sustainable development framework. In this context, the National Strategy for Sustainable Use of Wood became necessary and was released in November 2013..</p> <p>Government Resolution No. 80-2013 assigned to MEM the responsibility for coordinating the implementation of the update of the Energy Policy, articulating and facilitating actions between the various public and private institutions. This is why MEM coordinates efforts to shape and promote the implementation of an interinstitutional Wood and Energy Roundtable.</p>	<p>Contact: Energy Planning Unit Ministry of Energy and Mines <a href="mailto:upem1290@Gmail.com">upem1290@Gmail.com</a></p>



Institution	Program	Other Information
<b>Ministry of Environment and Natural Resources / Ministerio de Ambiente y Recursos Naturales (MARN)</b>  Contact: Engineer José David Díaz Unit Coordinator Environmental Information System <a href="mailto:jddiaz@marn.gob.gt">jddiaz@marn.gob.gt</a>	<b>Sustainable Forest Management and Multiple Global Environmental Benefits:</b> Strengthen the processes of management of the soil, forests and the conservation of biodiversity in order to ensure the flow of multiple ecosystem services and the resilience to climate change (approximately 2,000 cookstoves)  The project will be implemented with funds from the Global Environment Facility (GEF)	15 municipalities from Santa Rosa, Jutiapa and Jalapa; and 5 municipalities from Huehuetenango
	<b>Cookstoves Project of the Eastern Guatemalan Rotary Club:</b> Provide technical assistance in energy forests and implementation of firewood saving cookstoves. (212 cookstoves introduced and installed) 9,000 plants planted for rapid growth.	The communities of Cipresales, Panacal, Panyebar, Chofiero Pasajquim and San Juan La Laguna, Solola
	<b>Biodigester cookstoves using methane gas (CH<sub>4</sub>):</b> Reduction of the greenhouse gas effect. Reduction of organic waste. Contributes to cleanliness and beautification. Reduces firewood consumption by residents of communities.  It will be through IFAD Investment Fund for Agricultural Development. As well as with students from various institutes, and manual work in environmental courses.	Municipalities of: Jalapa San Pedro Pínula San Carlos Alzatate
	<b>Solar drawer cookstoves:</b> Reduction of the greenhouse gas effect. Use of solar energy. Reduces firewood consumption. Reduces firewood consumption by residents of communities.  The funds required will be subsidized by students, as they will provide manual work; already last year 15 cookstoves were made and donated to poor families in the community of Santa Maria Xalapan.	All municipalities are involved, jalapa, Monjas, San Pedro Pínula, San Luis Jilotepeque, Jalapa, San Carlos Alzatate, Chaparron, Mataquescuintla.
<b>Ministry of Agriculture, Livestock, and Food (MAGA)</b>	<b>Program of Family Agriculture to Strengthen the Rural Economy PAFEC:</b> The National Rural Extension system is the component of MAGA that brings continuity and differentiation to the type and nature of governmental interventions to boost the sectoral policy of MAGA related to rural economy, as prioritized in the National Policy for Integrated Rural Development (PNDR).	It currently has coverage in 334 municipalities.

Institution	Program	Other Information
<b>Ministry of Social Development / Ministry of Social Development (Ministry of Social Development)</b>  Different contacts for each program	<b>1. Jovenes Protagonistas (Young Actors):</b> It develops various extracurricular activities through training workshops.	Contact: GABRIELA MARQUEZ (Directora) <a href="mailto:gabymarque27@hotmail.com">gabymarque27@hotmail.com</a>
	<b>2. Mi Bono Seguro (My Insurance Bond):</b> It is integrated as a Conditional Cash Transfer (CCT) program that promotes the demand for health and education services for families using the program; as well as the promotion of early childhood development, school enrolment, and attendance and retention for children and adolescents aged 6-15 years.	Contact: RAUL ARMAS (Director) <a href="mailto:rarmas@mides.gob.gt">rarmas@mides.gob.gt</a>
	<b>3. Mi Bolsa Segura (My Insurance Bag):</b> Its character is temporary and consists of providing a bag of food, which is distributed periodically to families rendered vulnerable by poverty and/or crisis that live in areas of urban risk in the administrative region of Guatemala. It is also delivered to people with disabilities, older adults without social protection and families who suffer from situations that limit their access to food.	Contact: LEONOR SANCHEZ DE MOREIRA (Assistant Director) <a href="mailto:leosanchez.mides@gmail.com">leosanchez.mides@gmail.com</a>
	<b>4. Mi Beca Segura (My Insurance Grant):</b> This program involves the delivery of Conditional Cash Transfer (CCT) on a temporary basis to families who do not have the financial resources that their children at the age of adolescence and/or youth can exercise their right of access to education and it establishes conditions that allow this population group to attend, remain and pass the basic and diversified cycle of the country's school system. <b>Beca Artesano (Artisan Grant):</b> This program seeks to identify artisans for forming groups and training them in artisanal activities such as: weaving, pottery, wood carving, as well as in a line of various handicraft products such as decorative, cosmetic, or environmental crafts etc. with demand in local and international markets.	HIGHER EDUCATION GRANT: Contact: SIOMARA DE CASTRO (Assistant Director) <a href="mailto:sl_riveiro@hotmail.com">sl_riveiro@hotmail.com</a>  JOB GRANT: Contact: MAUEL GODOY (Sub-Director) <a href="mailto:cmgodoyp@gmail.com">cmgodoyp@gmail.com</a>  ARTISAN GRANT: Contact: FERNANDO RAMIREZ (Assistant Director) <a href="mailto:framirez.mides@gmail.com">framirez.mides@gmail.com</a>
	<b>5. Mi Comedor Seguro (My Dining Insurance):</b> This is a program that consists in providing support to individuals and families rendered vulnerable by their poverty situation, crisis, emergencies, calamities or others, which affect their access to food. Providing them with served rations of nutritious, balanced and hygienic food at low cost.	Contact: MARITZA URIZAR (Directora) <a href="mailto:comedorseguro@gmail.com">comedorseguro@gmail.com</a>
	<b>Agreement MIDES-FUNDAZUCAR "Programa Mejores Familias" ("Best Families Program")</b> This is intended for the organization, training and education of women, recognizing in them their capacity to be an agent of change for improving the nutritional status of their children	Presence in 308 municipalities 161 municipalities prioritized  Contact: OSSANA CERVANTES MARTINEZ (Manager of the

Institution	Program	Other Information
	<p>and the population in general, through change in behavior and preventive health.</p> <ol style="list-style-type: none"> <li>1. At Individual Level: Introduce women to practices for the proper selection, preparation and consumption of food.</li> <li>2. At Family Level: Educate mothers in preventive health with sustainable actions for improving the mother, child, and family and community condition.</li> <li>3. At Community Level: Strengthen the community organization in order to ensure processes of self-management and sustainability of SAN.</li> </ol>	<p>Program)</p> <p><a href="mailto:rcervantes@mides.gob.gt">rcervantes@mides.gob.gt</a></p>
<p><b>Ministry of Health and Social Assistance / Ministerio de Salud Pública y Asistencia Social (MSPAS)</b></p>	<p><b>Ventana de los mil días (Thousand Day window)</b> seeks to prevent chronic malnutrition with comprehensive health care and nutrition. The thousand day window is the period since pregnancy (average 270 days) up to 2 years of the child's life (730 days). It include a package of health care and nutrition, which seeks to ensure mothers and their children receive prenatal care, a skilled attention at birth, good feeding practices including breastfeeding, suitable food for minors, supplementation with vitamins and minerals; and the treatment of acute malnutrition, among others.</p>	<p>Contact:</p> <p>Manuel Gilberto Galván Estrada (Engineer), Technical Viceminister.</p> <p>Mr. Rodolfo Perez Ruben Oliva, Department of Regulation of the Health and Environment Programs.</p> <p><a href="mailto:rrperezoliva1@gmail.com">rrperezoliva1@gmail.com</a></p> <p>Ever Manolo Sánchez De León (Engineer), Department of Regulation of Health and Environment Programs.</p> <p><a href="mailto:everman8@gmail.com">everman8@gmail.com</a></p>
<p><b>National Forestry Institute / Instituto Nacional de Bosques (INAB)</b></p> <p>Contact: Wilfredo Villagran Guerra (Engineer) Manager of Forestry Commerce, Office of Industry and Forestry Commerce, INAB 7a. Av. 6-80 Zona 13. Tel. 23214590 Cell. 59493723 email: <a href="mailto:wvillagran@inab.gob.gt">wvillagran@inab.gob.gt</a></p>	<p><b>Sustainable Production of Firewood:</b> Sustainable production of firewood through the establishment of agroforestry systems and/or plantations for energy purposes, with financial support from the Forestry Incentive programs and PINFOR and PINPEP. The goal is to establish 48,000 hectares in 12 years (2013-2024) that will produce 1.2 million cubic meters of firewood from the fourth year.</p> <p><b>Training Plan and Forestry Extension for the Sustainable Production of Firewood:</b> Consists of 7 training modules directed at the technicians of the Ministry of Agriculture, Forestry and Municipal technicians and technicians of other local entities in the prioritized municipalities, with the purpose of training them as facilitators of technical assistance to communities. The goal is 42 INAB certified trainers, and to train 590 technicians from MAGA, OFM and other entities during the year 2014, which should assist 18,000 rural promoters and these 350,000 families.</p>	<p>Municipalities prioritized by deficit of firewood and poverty</p> <p>National</p>

Institution	Program	Other Information
<b>Food and Agriculture Organization of the United Nations / Organización de las Naciones Unidas para la Alimentación y la Agricultura (FAO)</b>  Contact: Diego Recalde, FAP Representative in Guatemala <a href="mailto:Diego.Recalde@fao.org">Diego.Recalde@fao.org</a>  Ogden Antonio Rodas Coordinator FFF Guatemala, FAO Tel. (502) 52041751 <a href="mailto:ogden.rodas@fao.org">ogden.rodas@fao.org</a>	<b>Healthy Household Program:</b> Promoting the adoption of best practices to better leverage resources that the house, the yard and the productive plot of land have or take remedial measures for protecting the family health, including the use of improved Cookstoves, use of latrines, water purification, animal confinement, maintenance and cleaning of roofs, floors and walls etc.	National
	<b>Facilitating inter-sectoral linking:</b> Facilitating coordination between institutions for implementing a national plan. Support for the formation of the inter-institutional table and the coordination of actions with other actors related to the consumption of firewood and the efficient use of energy.	National
	<b>Pilot Project of Governance and Firewood:</b> Promote production of firewood and use of cookstoves through municipal authorities and community organizations. Directed towards the production of firewood in Agroforestry Systems and plantations with energy purposes and improved cookstoves in order to serve 12 municipalities in 4 different regions of the country, prioritized according to firewood deficit, poverty and the FAO food safety programs. At pilot level, encourage 1,200 clean cookstoves (2015)	Chiquimula 3 municipalities San Marcos 3 municipalities Verapaz 3 municipalities Chimaltenango 3 municipalities.
<b>National Competitiveness Program / Programa Nacional de Competitividad (PRONACOM)</b>	<p>National and participatory promoter and facilitator of inter institutional partnerships between public –private sectors and civil society, to achieve common objectives.</p> <p>Given the impacts of open fire on health, environment, economy and overall quality of life of the population, especially for households in rural areas, PRONACOM supports initiatives of public and private sectors to raise awareness about the problem and develop technically and economically viable solutions for reducing the use of open fire. This will be achieved through shared leadership and support of innovative ideas and implementation programs , facilitating communications and interagency and intersectoral coordination.</p>	Contact: Maria Isabel Cifuentes <a href="mailto:micifuentes@pronacom.org">micifuentes@pronacom.org</a>
<b>Ministry of Economy / Ministerio de Economía (MINECO)</b>	Support for the funding of cookstove and clean fuel producers so that they can grow and increase their offer, in a structured and sustainable manner.	Contact: Luis Ángel de León Ramirez Executive Director National Programme for the Development of Micro, Small and Medium Enterprises <a href="mailto:Ldeleon@mineco.gob.gt">Ldeleon@mineco.gob.gt</a>

Institution	Program	Other Information
<b>Ministry of Education / Ministerio de Educación (MINEDUC)</b>	Incorporation of the issue of firewood and other aspects relating to the National Curriculum Base (CNB)	-
<b>Presidential Secretariat for Planning and Programming / Secretaria de Planificación y Programación de la Presidencia (SEGEPLAN)</b>	SEGEPLAN does not execute projects of any kind, but it can advise on the formulation of projects related to cookstoves. It can also help guide the implementation of projects and prioritize the areas based on the existing planning instruments in the country.	Contact: Jerson Quevedo, Environmental Policy Unit, Secretariat for Public Policy, <a href="mailto:jerson.quevedo@segeplan.gob.gt">jerson.quevedo@segeplan.gob.gt</a>
<b>Presidential Secretariat for Food Security and Nutrition / Department of Food Safety and Nutrition (SESAN)</b>	Entity directed towards the monitoring, follow-up and evaluation of progresses in implementing the actions of the <b>Zero Hunger Pact</b> Plan. This task allows generation of the joint commitment of all sectors of Guatemalan society and the government for the eradication of hunger and malnutrition in its various manifestations.	166 municipalities prioritized by chronic hunger, 213 municipalities by seasonal hunger, and the rest.
<b>National Institute of Statistics / National Institute of Statistics (INE)</b>	Incorporate the information produced by the Firewood Strategy, SE4All and Climate Change into the Environmental Accounts System, through the Sectoral Coordinating Office of Environmental Statistics (OCSEA).	Contact: Flor de María Hernández <a href="mailto:fhernandez@ine.gob.gt">fhernandez@ine.gob.gt</a>
<b>The Secretary of Public Works of the First Lady of Guatemala (SOSEP)</b>		
<b>The Executive Coordination Secretary of the Presidency (SCEP)</b>		

## ANNEX 4: Cookstoves available in Guatemala

### Information provided by manufacturers



Model	ONIL (2013 data)	NIXTAMAL STOVE (2013 data)	DOÑA DORA
<b>Supplier</b>	HELPS International	HELPS International	Estufa Doña Dora
<b>Type of Supplier</b>	NGO	NGO	Private
<b>Energy source</b>	Firewood	Firewood	Firewood
<b>Cookstoves installed in GUA</b>	> 90 000 since 2002	> 21600	750 from 2012
<b>Capacity of production</b>	Up to 60000 / year	Up to 48000 / year	Goal: 2000 / year - Current: 100 / month
<b>Technical Description</b>	Mobile. Made of concrete. Galvanized metal chimney. Rocket type combustion chamber. Two cooking rings. Can be used to cook tortillas.	Mobile. Made of lower half of 55-gallon drum. Insulated with white sand (pumis) sand, rocket type combustion chamber. Fits a large pot to cook nixtamal corn to make tortillas or big portions of food like beans. No chimney.	Cell. Isolated metal box. Galvanized metal chimney. Combustion chamber with rocket elbow. Three cookstoves with rings. This can be used to make tortillas.
<b>Cost</b>	Q970 (USD 125)	Q285 (USD 37)	Q1500 (USD 193)
<b>Characteristics</b>	Families up to 5 persons	Tortilla and tamal business, or very large families.	Families up to 9 people
<b>Lifetime</b>	10 years	5 years	10 years
<b>Efficiency</b> gain over open fires: energy / CO and particulate matter	66% / 99%	66% / 99%	60% / 98%
<b>Maintenance</b>	Chimney (weekly cleaning of soot + change after 1 or 2 years, depending on care and type of wood used)	-	Weekly cleaning of the soot in the chimney. Change necessary after one or two years, depending on care, type of wood and climate.
<b>Certification</b>	Yes (Zamorano and Aprovecho centers)	No	No
<b>Carbon accreditation</b>	Yes	No	No
<b>Diffusion</b>	Sales with bank support (micro-credit provided by Banrural), direct sales, work upon order	Donations, sometimes as part of combo deals, direct sales.	Start with direct sales, spoken references, sales with support from Génesis Empresarial with micro credit.
<b>Contact</b>	Richard Grinnell <a href="mailto:richardgrinnell@helpsinternational.com">richardgrinnell@helpsinternational.com</a>	Richard Grinnell <a href="mailto:richardgrinnell@helpsinternational.com">richardgrinnell@helpsinternational.com</a>	David Evitt <a href="mailto:david@estufaddora.com">david@estufaddora.com</a>
<b>Web</b>	<a href="http://www.onilstove.com">www.onilstove.com</a>	<a href="http://www.onilstove.com">www.onilstove.com</a>	<a href="http://www.estufaddora.com">www.estufaddora.com</a>
<b>Pictures</b>			

Model	ECOCINA	ECOCOMAL	ECOPLANCHA II
Supplier	ECOCOMAL	ECOCOMAL	ECOCOMAL
Type of Supplier	LIMITED COMPANY	LIMITED COMPANY	LIMITED COMPANY
Energy source	Firewood	Firewood	Firewood
Cookstoves installed in GUA	5500 from 2008	550 from 2008	6200 from 2008
Capacity of production	12480 per year	250 per year	3120 per year
Technical Description	Combustion system using a metal rounded structure. Does not need any chimney.	Combustion system using a metal rounded structure	Combustion system using a metal rounded structure
Cost	Q500 (USD 65)	Q850 (USD 110)	Q875 (USD 114)
Characteristics	Easy to transport, fully mobile, 29" diameter of the plancha	Easy to transport, fully mobile, 22" diameter of the plancha	Easy to transport, fully detachable, 4-piece design of 5800psi concrete with metal reinforcement
Lifetime	5 years	5 years	5 years
Efficiency gain over open fires: energy / CO and particulate matter	60% / 95% CO y MP	60% / 95% CO MP	60% / 95% CO and MP
Maintenance	Chimney cleaning 2 times per month, and change of chimney flues 1 time per year	Chimney cleaning 2 times per month, and change of chimney flues 1 time per year	Chimney cleaning 2 times per month, and change of chimney flues 1 time per year
Certification	Aprovecho and Zamorano	Only tests	Only tests
Carbon accreditation	Yes	No	Yes
Diffusion	Sale to NGO, end customer	Sale to NGO, end customer	Sale to NGO, end customer
Contact	Marco Tulio Guerra Buezo <a href="mailto:macog8@mail.com">macog8@mail.com</a>	Marco Tulio Guerra Buezo <a href="mailto:macog8@mail.com">macog8@mail.com</a>	Marco Tulio Guerra Buezo <a href="mailto:macog8@mail.com">macog8@mail.com</a>
Web	<a href="http://www.ecocomal.com.gt">www.ecocomal.com.gt</a>	<a href="http://www.ecocomal.com.gt">www.ecocomal.com.gt</a>	<a href="http://www.ecocomal.com.gt">www.ecocomal.com.gt</a>
Pictures			



Model	ECOPLANCHA III	NOYA (2013 Data)	EL POYO ESTRELLA
<b>Supplier</b>	ECOCOMAL	Manuel Tay (Engineer)	Community Solutions
<b>Type of Supplier</b>	LIMITED COMPANY	Private	Social Enterprise (Guatemalan)
<b>Energy source</b>	Firewood	Firewood	Firewood
<b>Cookstoves installed in GUA</b>	550 from 2008	About 6500 from 1998	About 200 from 2013
<b>Capacity of production</b>	6600 per year	Up to 5000 / year	Up to 100 / month
<b>Technical Description</b>	Fuel System using brick in a structure of 3 pre-cast pieces of 5800 psi cement with iron frame	Mobile. Insulated metal box with sand and bricks. The combustion chamber base is solid, made of bricks and sand. Galvanized metal fireplace, combustion chamber with rocket elbow. Two cookstoves with rings. This can be used to make tortillas.	Cookstove with mobile metal frame, with a 35" long griddle with three cookstoves, chimney with ash box, combustion chamber of brick insulated with pumice stone suitable for the sizes of firewood found in the communities
<b>Cost</b>	Q900 (USD 117)	Q1200 (USD 155)	Q1375 (USD 176)
<b>Characteristics</b>	60% efficient, easy to transport, fully detachable, usable griddle of 16"by 32"	Families 5+ persons	Designed as a main support for a traditional family.
<b>Lifetime</b>	5 years	15 years	10 years
<b>Efficiency</b> gain over open fires: energy / CO and particulate matter	60% / 95% CO and MP	Plus 50% / 99%	50% / unknown
<b>Maintenance</b>	Chimney cleaning 2 times per month and change of chimney flues 1 time per year.	Weekly cleaning of the soot in the chimney. Change necessary after one or two years, depending on care, type of wood and climate.	Cleaning of the ash box frequently depending on the installation of the chimney. Change of chimney approximately every 3 years.
<b>Certification</b>	Only tests	No	No
<b>Carbon accreditation</b>	Yes	No	No
<b>Diffusion</b>	Sale to NGO, end customer	For spoken references, work by orders	Local Offices of Community Solutions, promoted by the Micro Consignment network (local advocates and community leaders)
<b>Contact</b>	Marco Tulio Guerra Buezo <a href="mailto:macog8@mail.com">macog8@mail.com</a>	Manuel Tay <a href="mailto:Jmto90@hotmail.com">Jmto90@hotmail.com</a>	Miguel Brito <a href="mailto:miguelbrito8@gmail.com">miguelbrito8@gmail.com</a>
<b>Web</b>	<a href="http://www.ecocomal.com.gt">www.ecocomal.com.gt</a>	-	<a href="http://www.solucionescomunitarias.com">www.solucionescomunitarias.com</a>
<b>Pictures</b>			





Model	NIXTAMALERA	IMPROVED STOVE GNG	ALER
Supplier	Community Solutions	Good Neighbors Guatemala	Hands for Peacemaking Foundation
Type of Supplier	Social Enterprise (Guatemalan)	NGO	NGO
Energy source	Firewood	Firewood	Firewood
Cookstoves installed in GUA	Approximately 150 from 2013	215 from 2010	3000
Capacity of production	Up to 150 / month	<b>First generation:</b> 60 monthly under order. <b>Second generation:</b> 50-100 mnth. under order.	5000 per year
Technical Description	Manufactured inside a 20 liter container, rocket combustion type chamber. Brick chamber insulated with pumice stone, firewood mouth in metal, metal table, support with metal ring for pots up to 10 liters, support for larger pots located on the ring. No chimney, max capacity 15lb of corn	<b>First generation:</b> fixed, manufactured from block and brick, concrete chimney, three cookstoves with rings, surrounding tiles, can be used as a table. <b>Second generation:</b> Mobile, metal, pieces of iron and wood, brick combustion chamber, metal chimney, white pumice stone sand, two cookstoves with rings.	Of metal, insulated with thick brick; it can be assembled on site. Tables with coating of tiles (best presentation, finish and durability). Chimney, elbows and hat of aluzinc (best performance and durability). Two cookstoves with removable disks. A serpentine system and hot water can be connected (cookstove, shower).
Cost	Q250 (USD 32)	Q1800 (USD 230)	Q 1300 (USD 169)
Characteristics	For traditional families that cook up to 15 lb of corn and/or heat water for bathing.	Families up to 7-10 people	Families up to 8-10 people Ideal for nixtamal. No need to maintain levels in the combustion chamber. Solid chamber.
Lifetime	3 years	15 years	15 years
Efficiency gain over open fires: energy / CO and particulate matter	65% / unknown	<b>First generation:</b> 53% / 0 <b>Second generation:</b> 39% / 0	65%
Maintenance		Weekly cleaning of soot in the chimney and metal griddle, as well as the interior (ash) and combustion chamber.	Cleaning due to accumulation of soot weekly Tubes, elbows, and hat of aluzinc are changed every 3 years.
Certification	No	No	No
Carbon accreditation	No	No	No
Diffusion	Local Offices of Community Solutions, promoted by the Micro Consignment network (local advocates and community leaders)	It is promoted as donations through website, fundraising and networking. Program promoted in Good Neighbors donor countries (South Korea, Japan and USA).	Through churches and rotary clubs. Direct Sales
Contact	Miguel Brito <a href="mailto:miguelbrito8@gmail.com">miguelbrito8@gmail.com</a>	Jorge González / Edgar López <a href="mailto:edgar.lopez@goodneighbors.org.gt">edgar.lopez@goodneighbors.org.gt</a>	Marco Tulio Maldonado de Leon <a href="mailto:hfpf25@hotmail.com">hfpf25@hotmail.com</a>
Web	<a href="http://www.solucionescomunitarias.com">www.solucionescomunitarias.com</a>	<a href="http://www.goodneighbors.org.gt">www.goodneighbors.org.gt</a>	<a href="http://www.handsforpeacemaking.org">www.handsforpeacemaking.org</a>
Pictures		 First gen. Second gen.	

Model	"LA AHORRADORA" HM5000	"LA FRIJOLERA" M5000	"LA CARBONERA" CH5200
Supplier	ENVIROFIT INTERNATIONAL	ENVIROFIT INT INTERNATIONAL	ENVIROFIT INTERNATIONAL
Type of Supplier	"Private" Commercial Company	"Private" Commercial Company	"Private" Commercial Company
Energy source	Firewood	Firewood	Firewood
Cookstoves installed in GUA	Start of operations in January 2014 In Latin America 18000	Start of operations in January 2014 In Africa more than 300000	Start of operations in January 2014 In Africa and India over 300000
Capacity of production	Up to 60000 / year	Up to 100000 / year	Up to 100000 / year
Technical Description	Firewood cookstove, 85 lbs, griddle in cast iron or metal griddle in 3/16 or 1/8 with 3 cookstoves with rings. Combustion chamber in stainless steel with 5 year warranty, 90% of the cookstove is pre-assembled, installation time of 20 minutes. 100% of the product comes with special shock protective packaging. 450" griddle area for cooking.	Firewood stove. Weight of 10 lbs, and resistance for containing pots with capacity of 35 pounds of food, ideal size for a large family and for making soups, beans, nixtamal etc. Manufactured with high temperature resistant materials, combustion chamber in special alloys and ring that provokes turbulence helping to burn by 99% the gases generated during combustion.	Charcoal cookstove. Weight of 8 lbs, and resistance for containing pots with capacity of 35 pounds of food, ideal average for a large family and for making soups, beans, nixtamal etc. Manufactured with high temperature resistant materials, and insulators that allow high efficiencies in the fuel consumption (charcoal). Combustion chamber in special alloys.
Cost	Q2669 (USD 340)	Q353 (USD 45)	Q314 (USD 40)
Characteristics	Family up to 10 persons and small businesses.	Family up to 8 persons and small businesses.	Roasting or boiling can be performed; the ratio is approx. ½ of coal = 3 hrs of heat. Controlled entry of oxygen.
Lifetime	10 years	10 years	10 years
Efficiency gain over open fires: energy / CO and particulate matter	65% / 99%	70% / 99%	Plus de 60% / 80%
Maintenance	Weekly cleaning of the soot in the chimney and gases chamber. Change after 1 or 2 years, depending on care, wood and climate.	Very simple cleaning of the combustion chamber after usage.	Very simple cleaning after usage.
Certification	Certification Center "University of Colorado Denver"	Certification Center "University of Colorado Denver"	Certification Center "University of Colorado Denver"
Carbon accreditation	Yes	yes	yes
Diffusion	Sales in partnerships with Microfinancers, private distributors, direct sales to aid institutions, government.	Sales in partnerships with Microfinancers, private distributors, direct sales to aid institutions, government.	Sales in partnerships with Microfinancers, private distributors, direct sales to aid institutions, government.
Contact	Miguel Granados <a href="mailto:miguel.granados@envirofit.org">miguel.granados@envirofit.org</a>	Miguel Granados <a href="mailto:miguel.granados@envirofit.org">miguel.granados@envirofit.org</a>	Miguel Granados <a href="mailto:miguel.granados@envirofit.org">miguel.granados@envirofit.org</a>
Web	<a href="http://www.envirofit.org">www.envirofit.org</a>	<a href="http://www.envirofit.org">www.envirofit.org</a>	<a href="http://www.envirofit.org">www.envirofit.org</a>
Pictures			


Model	HITECA-PLANCHA	HASA	ECOSTUFA
Supplier	Soluciones Apropriadas, S.A	HASA	Manufacturas Especializadas Metálicas para la Industria de la Construcción S. A. of CV / Punto Alpha, S. A.
Type of Supplier	Private	Private Industry	Private
Energy source	Firewood	Firewood	Firewood (and other biofuel)
Cookstoves installed in GUA	10	More than 60000 griddles for improved stove Cookstoves: from 2014	50
Capacity of production	Up to 5,000 per year	Up to 48,000 griddles per year	120,000
Technical Description	Mobile cookstove with wide and resistant tables. 16 by 32"griddle with two cookstoves. Attractive metal box with solid insulator. Efficient combustion chamber. Large Mouth for receiving firewood. 8 feet of Aluzinc chimney, hat, hook, firewood support, chimney protector.	Mobile and self-installable design, of iron, stainless steel, cast iron griddle, galvanized metal chimney, rocket type combustion chamber, one stove with two rings. Cast iron griddle (even heat, optimizing the food cooking area, no need for civil works.	Mobile. 51 Kg. Isolated metal box. Galvanized metal chimney. Combustion chamber with rocket elbow. 10 caliber gauge griddle. Galvanized Steel Body. Protective side screens for heat radiation. Anti-skid levelling feet. No tool is required for its assembly.
Cost	Q1200 (USD 156)	Q. (USD 240)	Q1700 (USD 218)
Characteristics	Big griddle, solid insulation, powerful fire. Sufficient for large families.	Self-installable, packing in box, + 5 family/persons	Tray for placing utensils /or cookstove accessories. Gauge caliber 10 of 40.5 cm x 61 cm
Lifetime	5 years	Over 7 years	10 years, subject to good maintenance.
Efficiency gain over open fires: energy / CO and particulate matter	50% / 98% estim.	65%/ 95-99% (CO)	75% in savings
Maintenance	Weekly cleaning of the chimney, elbow and inside the cookstove. Remove the coal from the combustion chamber daily.	Weekly cleaning of the soot in the chimney. Change after 1 or 2 years, depending on care, wood and climate. Clean the griddle at least every 10 days and check the levels of insulation.	Fortnightly or monthly cleaning of the soot in the chimney. Daily cleaning of the griddle and the combustion chamber after each usage
Certification	No	Ongoing in Zamorano	Certified by the National Polytechnic Institute (IPN) of Mexico
Carbon accreditation	No	Ongoing	No
Diffusion	NGOs, direct sales, hardware stores	Direct sales, by network of over 100 dealers across Guatemala, Salvador and Honduras	Direct sales and referral
Contact	Malcolm Gribble <a href="mailto:Malcolm@SolucionesApropiadas.com">Malcolm@SolucionesApropiadas.com</a>	Hussein Hashim (Engineer) <a href="mailto:hh@grupo-hasa.com">hh@grupo-hasa.com</a>	Eduardo /Silvia de Townson <a href="mailto:eduardotownson@yahoo.com">eduardotownson@yahoo.com</a> <a href="mailto:silviadetownson@gmail.com">silviadetownson@gmail.com</a>
Web	<a href="http://www.solucionesapropiadas.com">www.solucionesapropiadas.com</a>	<a href="http://www.estufasmejoradas.com">www.estufasmejoradas.com</a>	
Pictures			



Model	TOTONICAPÁN	HORNO URREA	ESTUFA MAYA
Supplier	EcoLogic Development Fund	Hornos Urrea, S.A	Maya Pedal
Type of Supplier	Subsidiary	Private	NGO
Energy source	Firewood	Firewood	Firewood
Cookstoves installed in GUA	2500 from the year 2008	10 from 2012	In the initial phase
Capacity of production	1 person can manufacture 3 cookstoves per day.	Goal 500 per month / Currently they are produced on commission; we can make up to 100 per month.	6,000 per year
Technical Description	Mobile, manufactured with brick, galvanized metal chimney, three cookstoves with rings, basic chamber combustion of white sand. It can be used to make tortillas and needs maintenance to keep an even heating level.	Cookstove of only one body of brick and concrete with Fundido de Fundimetales iron griddle. Does not have parts to join together and the whole unit is one piece, plus the iron griddle and the metal chimney. The cookstove also has a large metal door for "baking" small pieces of bread inside it.	Mobile. Insulated metal box with sand and bricks. The combustion chamber base is solid, made of bricks and sand. Galvanized tin sheet chimney, combustion chamber with rocket elbow. This can be used to make tortillas.
Cost	Q800 (USD 100)	Q1,900	Q936 (USD 120)
Characteristics	Families up to nine persons	Families up to 9 persons	For family of 5 persons
Lifetime	15 years	25 years	20 years
Efficiency gain over open fires: energy / CO and particulate matter	40%	60% /98%	60 to 95 %
Maintenance	Weekly cleaning of the soot in the chimney. It is necessary to perform a change after one or two years of use, depending on care, type of wood used and the climate.	Only clean the cast iron griddle, in order to prevent rust.	Cleaning of the soot in the chimney. Change necessary after one or two years, depending on care.
Certification	No	No	No
Carbon accreditation	No	No	NO
Diffusion	Our own projects	They are sold for cash and pre-assembled.	Work by orders
Contact	Gabriela González García <a href="mailto:ggonzalez@ecologic.org">ggonzalez@ecologic.org</a>	Alejandro Urrea <a href="mailto:alex@hornosurrea.com">alex@hornosurrea.com</a>	Mario Juarez
Web	<a href="http://www.ecologic.org">www.ecologic.org</a>	<a href="http://www.hornosurrea.com">www.hornosurrea.com</a>	Under construction
Pictures			Not available

Model	LA UTZ	ESTUFA MESA	10 POUNDS GAS CYLINDER
<b>Supplier</b>	Tecnoutz	INDUSTRIAS NIVI S.A.	INDUSTRIAS NIVI S.A.
<b>Type of Supplier</b>	Private	Limited Company.	Limited Company.
<b>Energy source</b>	Firewood, propane gas (and ethanol in development)	Gas	Gas
<b>Cookstoves installed in GUA</b>	Improved model in launch phase. 14,000 cookstoves in other models from 1995	Since 2005: 2 cookstoves approx. 35,000 4 cookstoves approx. 25,000	Approx. 5,000 since 2012.
<b>Capacity of production</b>	Goal: 10,000 / year Current: 60 / month	2 cookstoves: 1000 Units / month 4 cookstoves: 500 Units / month	500 Units / Monthly
<b>Technical Description</b>	Mobile. Works with wood, propane gas and ethanol. Isolated metal box. Galvanized metal chimney. Individual combustion chamber. Three cookstoves with rings.	Wood cookstove, efficient with LP Gas supply.	Steel Cylinder for storing 10 pounds of LPG
<b>Cost</b>	Q1000-Q1500 (USD 129-198) depending on whether it is operating with firewood alone, or with firewood and with gas	2 cookstoves: Q150 (USD 19) 4 cookstoves: Q350 (USD 44)	Q150 (USD 19)
<b>Characteristics</b>	Families up to 5 persons	Cookstove of 2/4 burners with Peltrada Grill.	Easy transportation, with tropigas system valve (Fisher) for usage in the rural area of Guatemala.
<b>Lifetime</b>	10 years	5 years.	10 years.
<b>Efficiency</b> gain over open fires: energy / CO and particulate matter	75-80%/99%	45 % / 100 %	N/A
<b>Maintenance</b>	Weekly cleaning of the soot in the chimney. Change after 1 or 2 years, depending on care, wood and climate.	Clean with a damp cloth after each use.	Not required for the useful lifetime.
<b>Certification</b>	No (Assessed in work of URL Thesis)	N/A.	Certification of the Ministry of Energy and Mines of Guatemala.
<b>Carbon accreditation</b>	No	No	No
<b>Diffusion</b>	Sales with support from the bank (micro-credit with Banrural), direct sales, work by commands for large orders, integrated projects	Direct sales, government projects.	Direct sales, government projects.
<b>Contact</b>	Fernando Alvarado and/or Marco Antonio Alvarado <a href="mailto:fernandoscheel@gmail.com">fernandoscheel@gmail.com</a> <a href="mailto:makinnova@yahoo.com">makinnova@yahoo.com</a>	Giovanni Nistal. <a href="mailto:giovanni.nistal@gruponivi.com">giovanni.nistal@gruponivi.com</a>	Giovanni Nistal. <a href="mailto:giovanni.nistal@gruponivi.com">giovanni.nistal@gruponivi.com</a>
<b>Web</b>		<a href="http://www.gruponivi.com/">www.gruponivi.com/</a>	<a href="http://www.gruponivi.com/">www.gruponivi.com/</a>
<b>Pictures</b>			

Model	SUPER COCINAS MG-400	SUPER COCINAS MCA -315
Supplier	Super Cocinas De Guatemala	Super Cocinas De Guatemala
Type of Supplier	Private	Private
Energy source	Gas	Gas
Cookstoves installed in GUA	140880 units since 1984.	140880 units since 1984.
Capacity of production	14400 per year currently Highest possible capacity.	14400 per year currently Highest possible capacity.
Technical Description	Tubular frame and lining in black sheet with background application without chromate and polychrome Fast-Dray synthetic paint as general finish. 4 burners with aluminum burner of 3.5 ". Line grills, wide cabinet with door panel, removable tray for overflows and high resistance valves. Dim: Front 23" Back 23" Height 33"	Tubular frame and lining in black sheet with background application without chromate and polychrome Fast-Dray synthetic paint as general finish. 3 cookstoves with 2 aluminum burners of 3.5 "and 1 aluminum burner of 5". Additional iron griddle of 15"x 15". 1 line grill for 2 cookstoves, 1 individual grill, removable tray for overflows and high resistance valves. Dim: Front 27" Back 23" Height 33".
Cost	Q1270 (USD 165)	Q1050 (USD 140)
Characteristics	For families of 5 or more persons	For families of 5 or more persons
Lifetime	13 to 15 years	13 to 15 years
Efficiency gain over open fires: energy / CO and particulate matter	-	-
Maintenance	Regular cleaning of the whole cookstove	Regular cleaning of the whole cookstove
Certification	No	No
Carbon accreditation	No	No
Diffusion	Wholesale and retail sales across the country, using different channels: retail chains such as (Agencies Way, SA, Elektra, GMG), Microcredits with Banrural (Metrotech, HTG Guatemala), cooperative (5ND) and domestic receivables and wholesale customers.	Wholesale and retail sales across the country, using different channels: retail chains such as (Agencies Way, SA, Elektra, GMG), Microcredits with Banrural (Metrotech, HTG Guatemala), cooperative (5ND) and domestic receivables and wholesale customers.
Contact	Ingris Luna De Cruz ingrislunadc@hotmail.com	Ingris Luna De Cruz ingrislunadc@hotmail.com
Web	<a href="http://www.supercocinasguatemala.com">www.supercocinasguatemala.com</a>	<a href="http://www.supercocinasguatemala.com">www.supercocinasguatemala.com</a>
Pictures		



	ALTERNA
<b>Supplier</b>	Alterna-Biodigesteres
<b>Type of Supplier</b>	NGO
<b>Energy source</b>	Biogas
<b>Cookstoves installed in GUA</b>	20
<b>Capacity of production</b>	<ul style="list-style-type: none"> <li>Goal: 1000/year</li> <li>Current: 150/year</li> </ul>
<b>Technical Description</b>	Tubular biodigester, PVC geomembrane, 5m x 1.56m diameter. Vol fl (mud): 6 m <sup>3</sup> . Vol biogas: 2 m <sup>3</sup> . Basic Package: tubular digester + gas line + H <sub>2</sub> S filter + firewood cookstove + monitoring and evaluation (3 months). Complimentary: greenhouse or zaran. Accessories: mixer, special mixer barrel, filter table and/or bi-oil storage tank (200 l). Installation: optional in the administrative region of Quetzaltenango.
<b>Cost</b>	<ul style="list-style-type: none"> <li>Basic system: Q7500 (USD 974).</li> <li>Complete System: Q11785 (USD 1531).</li> </ul>
<b>Characteristics</b>	<ul style="list-style-type: none"> <li>Minimum available surface area: 11 m<sup>2</sup>.</li> <li>Continuous availability of water (no chlorine or sulfur) 100-120 l / d.</li> <li>Access to the organic substrate: 40-90 kg/d (2-6 mature cows and/or 6 to 14 large pigs).</li> <li>Stabled cattle and weather conditions, altitude and suitable physical conditions.</li> </ul>
<b>Lifetime</b>	8-10 years.
<b>Efficiency</b> gain over open fires: energy / CO and particulate matter	<ul style="list-style-type: none"> <li>Reduction of 56% approx. in the consumption of conventional energy (firewood and/or propane).</li> <li>By family unit (5 family members), the reduction is <math>1.17 \times 10^{-3}</math> kBOE/year.</li> </ul>
<b>Maintenance</b>	<ul style="list-style-type: none"> <li><u>Journal</u>: prepare the organic substrate mixture + water in the suitable ratio and feed the biodigester. About 30 minutes.</li> <li><u>Weekly/monthly</u>: check the level of the water trap, H<sub>2</sub>S filter, state of the water and gas pipes, and bi-oil storage tank level.</li> <li><u>Annual</u>: check the general condition of all equipment, accessories and components of the plant: corrosion, watertightness, etc.; review the level of sludge in the biodigester.</li> </ul>
<b>Certification</b>	No
<b>Carbon accreditation</b>	No
<b>Diffusion</b>	<ul style="list-style-type: none"> <li>Tripartite agreements: end user (20-30% of the total cost of the biodigestion system), umbrella (agricultural cooperatives, NGOs, etc.: 50-60% of the total cost) and Alternate (% remaining through agreements with other organizations; p.e.: Wisions-SEPS, Hivos, etc.).</li> <li>Other: sales with the support of micro-credits, community banks, government programs, etc..</li> </ul>
<b>Contact</b>	Daniel Buchbinder (Executive Director) Sebastián Paneque Navarro (Business Developer) <a href="mailto:info@alterna-la.org">info@alterna-la.org</a> .
<b>Web</b>	<a href="http://www.alternaimpact.org">www.alternaimpact.org</a>
<b>Pictures</b>	

Model	PEACE CORPS MODEL with some modifications from ABPD	ESTUFAS DON JUAN
Supplier	ABPD	Association of Women Ixchei / Ong
Type of Supplier	NGO	NGO
Energy source	Firewood	Firewood
Cookstoves installed in GUA	4500 from 2008	10000 from 2003
Capacity of production	100 monthly	1000/year
Technical Description	Cookstove built in the households. With block, brick and sand. Griddle is 3/16 "and 3 cookstoves with rings, with galvanized sheet pipe caliber 26 for the chimney, and a space at the bottom to dry firewood. Sloping combustion chamber. Griddle: 36x18", chicken: 52 ¼ x 34 ¾ x 30 ½"	Stationary. Iron griddle with 3 cookstoves and reinforced, galvanized metal pipe for the chimney, has materials for reducing firewood such as pumice for permanence of the heat, firebox according to the measurement of the griddle.
Cost	Q1,195 (USD 155)	Q1540 (USD 200)
Characteristics	Families of 5-12 persons	Families up to 13 persons
Lifetime	Not assessed. The first was delivered in 2008 and is still operating in perfect condition, it is estimated to last about 10 years	10 years
Efficiency gain over open fires: energy / CO and particulate matter	Combustion efficiency of 70%. We have not measured MP. The CO measurements show an average of 6 ppm inside cookstoves, compared to 39 ppm with open flame.	60% to 95%
Maintenance	Only weekly soot cleaning.	The firebox and chimney are cleaned fortnightly. Chimney pipes are changed every 3-4 years according to the use of firewood.
Certification	No	No
Carbon accreditation	No	No
Diffusion	Workshops in communities	International donation, application and offers.
Contact	Francisco Enríquez <a href="mailto:bpd.dir@hotmail.com">bpd.dir@hotmail.com</a>	Clara Colop <a href="mailto:clara_colop@yahoo.com.mx">clara_colop@yahoo.com.mx</a>
Web	<a href="http://www.behrhorst.org">www.behrhorst.org</a>	-
Pictures		



Model	ESTUFA LUPITA	JUSTA (2013 Data)
<b>Supplier</b>	Asociación de Mujeres del Altiplano/Highland Women's Association	ARKS and Rotary Club
<b>Type of Supplier</b>	NGO	NGO
<b>Energy source</b>	Firewood	Firewood
<b>Cookstoves installed in GUA</b>	15000 since 1994	800 from 2005
<b>Capacity of production</b>	1 complete stove by a mason per day 200 stoves per month	Current: 2000 / year Possible: 10000/year
<b>Technical Description</b>	Stationary, built in place. Cast iron stovetop with 3 cook tops. Maximizes ergonomic food preparation by providing built-in work surface. Masonry firebox with innovative flow design to faster heating and increased fuel efficiency. Reinforced galvanized metal chimney. Designed and built by local people to meet their own needs, and consistently identified as a preferred stove design amongst highland women. All materials are locally crafted and stove is adaptable to end user preferences.	Squared Justa model, with metal griddle built on a structure. With galvanized metal chimney.
<b>Cost</b>	Q1,200 (USD 160)	Q1045 (USD 134)
<b>Characteristics</b>	Families of 6 persons and more	
<b>Lifetime</b>	10-12 years	5 years
<b>Efficiency gain over open fires: energy / CO and particulate matter</b>	60% / 95%	About 50% / 98%
<b>Maintenance</b>	Chimney pipe changed every 2-4 years, Firebox cleaned of ash and surface cleaned daily.	Weekly cleaning of the soot in the chimney. Change after one or two years, depending on care, wood and climate.
<b>Certification</b>	No	Justa 2 x 3 in Honduras. It is not the local model.
<b>Carbon accreditation</b>	No	No
<b>Diffusion</b>	Direct sales, sales to NGOs, sales to volunteers. Application process as part of community empowerment methodology	Municipalities and groups of over 10 people.
<b>Contact</b>	Guadalupe Ramirez <a href="mailto:g.ramirez@highlandsupportproject.org">g.ramirez@highlandsupportproject.org</a>	Colum Muccio <a href="mailto:Colum_Muccio@hotmail.com">Colum_Muccio@hotmail.com</a>
<b>Web</b>	<a href="http://www.amaguete.org">www.amaguete.org</a>	-
<b>Pictures</b>		

## ANNEX 5: Indicators for Measuring Progress of CAP Interventions

Intervention option	Possible indicators for measuring progress of the interventions
<b>1 Needs and demand segmentation</b>	
1a Available data	. Number of studies and volume of data publicly available
1b Demand segmentation	. Characterization factors identified. . Maps available on demand characteristics in all regions of Guatemala. . Maps available on priority regions of each government institution. . Priority segments identified. . Intervention strategies identified in priority segments.
1c Future scenarios	. Assumptions of the baseline defined. . Volume of required cookstoves by 2020-2030 known in different scenarios, including “cookstoves for all” scenarios and doable targets for the different segments.
<b>2 Awareness and education</b>	
2a Awareness activities built upon government programs	. Number of participants/institutions in meetings to present and discuss training modules. . Number of key messages identified. . Target population of each institution identified (characteristics, localization, number). . Maps of activity/programs of each institution available. . Availability of training module relevant for each institution and target population. . Number of trainers trained (technicians, rural extension workers, etc.). . Number of Field Training Workshops implemented. . Number of participants in the Field Training Workshops. . Number of participants in the information meetings for decision-makers.
2b Multimedia national campaign	. Key messages identified. . Communication medias selected. . Champion identified and trained. . Number of journalists participating in events related to cookstoves and fuels. . Radio messages (o other) disseminated.
2c Formal education (primary and secondary school)	. Agreement with MINEDUC about the education module for children. . Agreement with MINEDUC about curricular modules. . Number of interactive workshops for children implemented. . Number of children participating in the workshops. . Number of curricular modules implemented. . Number of hours included. . Number of professors trained. . Number of students trained.

<b>3</b>	<b>Mapping of the institutions offering micro-financing and Partnerships</b>	
3a	Mapping of microfinance institutions	<ul style="list-style-type: none"> <li>. Number of MFIs active in Guatemala.</li> <li>. Mapping of MFI activities.</li> </ul>
3b	Partnerships with financial institutions	<ul style="list-style-type: none"> <li>. Number of MFIs interested in collaborate.</li> <li>. Number of MFIs that offer cookstoves in their products.</li> <li>. Number and type of “fiscal awareness” activities implemented.</li> <li>. Number of cookstoves purchased with micro-credit.</li> </ul>
<b>4</b>	<b>Corporate Social Responsibility</b>	<ul style="list-style-type: none"> <li>. List of corporations/cooperatives that could participate in a CSR program.</li> <li>. Financial scheme model defined and shared with corporations/cooperatives</li> <li>. Number of corporations/cooperatives that promote cookstoves in a CSR program.</li> <li>. Number of cookstoves implemented within CSR programs.</li> </ul>
<b>5</b>	<b>Warranties for cookstoves</b>	<ul style="list-style-type: none"> <li>. Number of cookstoves sold with guarantee.</li> <li>. Percentage of cookstove buyers who know about available guarantee.</li> </ul>
<b>6</b>	<b>Distribution networks for cookstoves, spare parts, and after-sales technical services</b>	<ul style="list-style-type: none"> <li>. Number of places where cookstoves and spare parts can be purchased.</li> <li>. Number of salespeople and technicians trained on cookstoves.</li> </ul>
<b>7</b>	<b>Exhibition</b>	<ul style="list-style-type: none"> <li>. Number of cookstoves included in the exhibition.</li> <li>. Number of visitors of the exhibition.</li> <li>. Number and location of road shows.</li> </ul>
<b>8</b>	<b>Municipalities and associations of local authorities</b>	<ul style="list-style-type: none"> <li>. Number of municipalities and community leaders involved in information activities.</li> <li>. Number of agreements between municipality associations (Mancomunidades) and Centers for Rural Development.</li> <li>. Number of cookstove projects with active leadership by local authorities.</li> </ul>
<b>9</b>	<b>Finance for manufacturers and implementers</b>	
9a	Information	<ul style="list-style-type: none"> <li>. Number of funds identified and included in the information webpage (o any other information tool).</li> <li>. Number of suppliers who obtain funds.</li> </ul>
9b	Access to credit	<ul style="list-style-type: none"> <li>. Number of suppliers who participate in the “MIPYME” week (May 2014).</li> <li>. Number of finance institutions that offer lower interest rate to suppliers.</li> <li>. Agreement about paying conditions in case of large orders.</li> <li>. Number of microfranchises.</li> </ul>
9c	New funding mechanisms	<ul style="list-style-type: none"> <li>. Number and volume of innovative funds available for cookstoves.</li> <li>. Number of projects and cookstoves supported by these funds.</li> </ul>
9d	Reduce taxes	<ul style="list-style-type: none"> <li>. Level of VAT applied.</li> <li>. Level of importation tariffs.</li> </ul>
<b>10</b>	<b>Carbon/climate finance</b>	<ul style="list-style-type: none"> <li>. Avoided carbon emissions.</li> <li>. Number of projects and cookstoves in emission mitigation projects.</li> <li>. Number of projects and cookstoves that receive carbon/climate funds.</li> </ul>

<b>11</b>	<b>Masons of built-in-place cookstoves</b>	<ul style="list-style-type: none"> <li>. Number of training modules available.</li> <li>. Number of masons trained.</li> <li>. If relevant, number of licenses / accreditation obtained by the masons.</li> </ul>
<b>12</b>	<b>Business capacity and skills</b>	<ul style="list-style-type: none"> <li>. Number of participants in the capacity-building activities.</li> </ul>
<b>13</b>	<b>Cookstove standards</b>	<ul style="list-style-type: none"> <li>. Number of international meetings on standards with participation of Guatemalan stakeholders.</li> <li>. Number of meetings of the advisory board / number of participants in the advisory board.</li> <li>. List of characteristics to be used for certification identified.</li> <li>. Standard text available.</li> </ul>
<b>14</b>	<b>Procedures for cookstoves testing, certification and labeling</b>	
	14a Cookstove testing	<ul style="list-style-type: none"> <li>. Number of cookstoves verified.</li> <li>. Testing center created.</li> <li>. Number of technicians trained.</li> </ul>
	14b Certification and labeling system	<ul style="list-style-type: none"> <li>. Number of cookstoves with labels.</li> </ul>
<b>15</b>	<b>LPG</b>	
	15a LPG mapping	<ul style="list-style-type: none"> <li>. Data available on LPG supply in all regions of Guatemala.</li> <li>. Data available on the characteristics and factors behind LPG demand.</li> <li>. Study available on the LPG prices.</li> </ul>
	15b Security and information	<ul style="list-style-type: none"> <li>. Standards defined and implemented on LPG equipment, distribution and management.</li> <li>. Diagnosis of the gas cylinders in the market available.</li> <li>. Number of households informed on LPG.</li> <li>. Number of households that consume LPG.</li> <li>. Quantity of LPG consumed by household.</li> </ul>
<b>16</b>	<b>Other fuels and technologies</b>	<ul style="list-style-type: none"> <li>. List and characteristics of projects, implemented or in development, with woodfuel alternatives.</li> <li>. Consumption data available (ENCOVI).</li> <li>. Number and volume of funds obtained to support woodfuel alternatives.</li> <li>. Number of sale locations of alternative technologies.</li> <li>. Number of biodigesters implemented.</li> </ul>
<b>17</b>	<b>Knowledge, research and innovation</b>	
	17a Knowledge	<ul style="list-style-type: none"> <li>. Number of technical workshops/conferences.</li> <li>. Number of participants in international events on cookstoves and fuels.</li> <li>. Number of technical reports published.</li> </ul>
	17b Research and innovation	<ul style="list-style-type: none"> <li>. Number and volume of funds obtained to support research on clean cookstove and fuels.</li> <li>. Number of new models or enhanced models available.</li> <li>. Number of collaboration agreements between universities and suppliers, at national and international levels.</li> <li>. Number of academic projects on clean cookstoves and fuels.</li> </ul>
<b>18</b>	<b>Sustainable production of</b>	<ul style="list-style-type: none"> <li>. See indicators included in the National Strategy for Sustainable Use of Wood.</li> </ul>

<b>firewood</b>	
<b>19 M&amp;E and adoption</b>	
19a Project registration system	<ul style="list-style-type: none"> <li>. Registration system defined and implemented.</li> <li>. Number of projects and cookstoves registered.</li> </ul>
19b M&E framework	<ul style="list-style-type: none"> <li>. Monitoring and evaluation criteria selected.</li> <li>. Implementation methodology defined.</li> <li>. Number of technicians trained to M&amp;E.</li> <li>. Results of the M&amp;E.</li> </ul>
<b>20 Adoption and appropriate use</b>	<ul style="list-style-type: none"> <li>. Best practice guide available.</li> <li>. Data available on the number of cookstoves used and the possible problems after a few months and years.</li> </ul>
<b>21 Research and dissemination of information on impacts and benefits</b>	
21a Available data and studies	<ul style="list-style-type: none"> <li>. Number of cookstoves and volume of data obtained and publicly available.</li> </ul>
21b Make impacts and benefits known	<ul style="list-style-type: none"> <li>. Focal point identified at MSPAS.</li> <li>. Number of information events on impact and benefits.</li> <li>. Indicators related to cookstoves integrated in post-2015 development objectives.</li> </ul>
<b>22 Knowledge</b>	
22a Technology, manufacturer and experience catalog	<ul style="list-style-type: none"> <li>. Number of technologies included in the catalog.</li> <li>. Number of suppliers and projects identified.</li> </ul>
22b Information dissemination	<ul style="list-style-type: none"> <li>. Information system implemented and used.</li> <li>. Number of reports, volume of information available in the information system.</li> <li>. Number of connections.</li> <li>. Number of newsletter published per year and number of stakeholders who receive it.</li> </ul>
<b>23 Organize stakeholders</b>	
23a Wood Roundtable	<ul style="list-style-type: none"> <li>. Governmental agreement implemented.</li> <li>. Number of meetings.</li> <li>. Number of active members.</li> <li>. Funds available to support the Roundtable.</li> </ul>
23b Cluster	<ul style="list-style-type: none"> <li>. Legalization done.</li> <li>. Number of meetings.</li> <li>. Number of active members.</li> <li>. Funds available to support the Cluster.</li> </ul>
<b>24 Coordinate with regional and international actors</b>	<ul style="list-style-type: none"> <li>. Number of participants in the meeting.</li> <li>. Volume of funds mobilized.</li> </ul>
<b>25 Integrated intervention framework for the extreme poor</b>	<ul style="list-style-type: none"> <li>. Best practice guide available.</li> <li>. Number of integrated projects and cookstoves implemented in very poor households.</li> <li>. Volume of funds for integrated projects.</li> </ul>

