



GUATEMALA COUNTRY ACTION PLAN FOR CLEAN COOKSTOVES AND FUELS



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





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Foreword

As Presidential Commissioner for Competitiveness and Investment, and as a Guatemalan, I recognize the need for a plan that incorporates all the necessary actions the country must take to reduce premature deaths from the use of open fires inside homes. The impacts of cooking with firewood inside the home have serious implications for Guatemala's health, environment and economy, especially for the most vulnerable groups in rural areas of the country.

We have identified a number of proposals, projects, and dispersed knowledge that has been incorporated into the Country Action Plan to enable the public and private sectors, civil society, and international cooperation partners to share a common vision and goals that will result in sustainable solutions in the long term. This document reflects the government's commitment to address this problem, and to promote the legal framework and initiatives from different sectors interested in joining this effort, with viable and effective actions tailored to the particular needs of our country.

I wish to thank all individuals and institutions involved in developing this document for the invaluable contribution of their time and expertise, and I urge all sectors to continue their active participation in the various interventions that make this Country Action Plan a dynamic, actionable, and innovative instrument that will improve the quality of life of thousands of Guatemalans at risk.

Reversing the negative effects of the use of open fires is a task for all Guatemalans and it is in our hands to achieve a better future for coming generations.

Juan Carlos Paiz

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ACRONYMS

Acronym	Spanish	English
AgExport	Asociación Guatemalteca de Exportadores	Guatemalan Association of Exporters
ANACAFE	Asociación Nacional del Café	National Coffee Association
ANAM	Asociación Nacional de Municipalidades	National Association of Municipalities
BM/WB	World Bank	World Bank
CACCI	Iniciativa de estufas limpias en Centroamérica	Central America Clean Cooking Initiative
CAH/HAP	Contaminación de Aire en el Hogar	Household Air Pollution
CDC	Centros para el Control y Prevención de Enfermedades	Centers for Disease Control and Prevention
CECON	Centro de Estudios Conservacionistas	Center for Conservation Studies
CMNUCC/UNFCCC	Convención Marco de Naciones Unidas para el Cambio Climático	United Nations Framework Convention on Climate Change
COMISCA	Consejo de los Ministros de Salud de Centroamérica	Council of Ministers of Health of Central America
CONAP	Consejo Nacional de Áreas Protegidas	National Council of Protected Areas
CONCyT	Consejo Nacional de Ciencia y Tecnología	National Council for Science and Technology
CONFECOOP	Confederación de Federaciones de Cooperativas	Confederation of Cooperative Federations
CONGUANOR	Comisión Guatemalteca de Normas	Guatemalan Committee for Standards
CNCG	Proyecto Clima, Naturaleza y Comunidades en Guatemala	Climate, Nature and Communities in Guatemala
CRECER	Estudios de la exposición a contaminación intra-domiciliar y sus efectos crónicos de asma, alergias, y crecimiento	Chronic Respiratory Effects of Early Childhood Exposure to Respirable Particulate
DICORER	Dirección de Coordinación Regional y Extensión Rural	Regional coordination and Rural Extension Office
EM/ICS	Estufas Mejoradas	Improved Cookstoves
FAO	Organización de las Naciones Unidas para la Alimentación y la Agricultura	Food and Agriculture Organization of the United Nations
GEI	Gas de efecto invernadero	Greenhouse gas
IARNA-URL	Instituto de Agricultura, Recursos Naturales y Ambiente – Universidad Rafael Landívar	Institute of Agriculture, Natural Resources and Environment - Rafael Landívar University
IMF/MFI	Instituciones Micro Financieras	Micro Finance Institutions
INAB	Instituto Nacional de Bosques	National Forestry Institute
INTECAP	Instituto Técnico de Capacitación y Productividad	Technical Institute for Training and Productivity
ISO	Organización Internacional para la Normalización	International Organization for Standardization

Acronym	Spanish	English
LEDS	Estrategia de desarrollo con bajas emisiones de GEI	Low Emission Development Strategy
MAGA	Ministerio de Agricultura y Ganadería	Ministry of Agriculture
MARN	Ministerio de Ambiente y Recursos Naturales	Ministry of Environment and Natural Resources
MDL/CDM	Mecanismo de Desarrollo Limpio	Clean Development Mechanism
MEM	Ministerio de Energía y Minas	Ministry of Energy and Mines
MIDES	Ministerio de Desarrollo Social	Ministry of Social Development
MINFIN	Ministerio de Finanzas Publicas	Ministry of Public Finance
MINECO	Ministerio de Economía	Ministry of Economy
MINEDUC	Ministerio de Educación	Ministry of Education
MSPAS	Ministerio de Salud Pública y Asistencia Social	Ministry of Health
NAMA	Acciones Nacionales de Mitigación Apropriadadas	Nationally Appropriate Mitigation Actions
NACER	Estudio del efecto de exposición a contaminantes intra-domiciliarias sobre los bebes y niños	Newborns and Children Exposed to Respiratory Pollutants
OCDE/OECD	Organización para la Cooperación y el Desarrollo Económicos	Organization for Economic Co-operation and Development
ODM/MDG	Objetivos/Metas de Desarrollo del Milenio	Millennium Development Goals
ONG/NGO	Organización no Gubernamental	Non-Governmental Organization
OLADE	Organización Latinoamericana de Energía	Latin America Energy Organization
PAFFEC	Programa de Agricultura para fortalecer la Economía Campesina	Agricultural program to Foster peasants economy
PAFG	Plan de Acción Forestal para Guatemala	Forestry Action Plan of Guatemala
OPS/PAHO	Organización Panamericana de la Salud (Organización Mundial de la Salud)	Pan American Health Organization (World Health Organization)
PNDRI	Política Nacional de Desarrollo Rural Integral	National Integrated Rural Development Policy
PNUD/UNDP	Programa de las Naciones Unidas para el Desarrollo	United Nations Development Program
PoA	Programa de Actividad (parte del Mecanismo de Desarrollo Limpio)	Programme of Activities (part of the Clean Development Mechanism)
PPP/APP	Alianza Público-Privada	Public Private Partnership
PREPCA	Programa Regional de Energía y Pobreza en Centro América	Regional Energy Programme and Poverty in Central America
PRESANCA	Programa Regional de Seguridad Alimentaria y Nutricional para Centroamérica	Programme on Food and Nutrition Security in Central America
PRONACOM	Programa Nacional de Competitividad	National Competitiveness Program
ProRural	Programa Nacional de Desarrollo Rural	National Rural Development Programme
Q.	Quetzal	Guatemalan Currency

Acronym	Spanish	English
REDD +	Reducción de Emisiones de la deforestación y la degradación de bosques	Reducing Emissions from deforestation and forest degradation
REDIMIF	Red de Instituciones de Microfinanzas de Guatemala	Network of Microfinance Institutions of Guatemala
RESPIRE	Estudios aleatorio de la exposición a contaminación intra-domiciliar y sus efectos respiratorios	Randomized Exposure Study of Pollution Indoors and Respiratory Effects
SE4ALL	Energía sostenible para todos	Sustainable Energy for All
SEGEPLAN	Secretaría de Planificación y Programación de la Presidencia	Presidential Secretariat for Planning and Programming
SESAN	Secretaría de Seguridad Alimentaria y Nutricional de la Presidencia	Presidential Secretariat for Food Security and Nutrition
SICA	Sistema de la Integración Centroamericana	Central American Integration System
UICN/IUCN	Unión Internacional para la Conservación de la Naturaleza	International Union for Conservation of Nature
WWF	Fondo Mundial para la Naturaleza	World Wildlife Fund

EXECUTIVE SUMMARY

More than half of Guatemala's population lives below the poverty line, and around 70% of households use firewood for cooking. It is estimated that household air pollution (HAP) results in more than 5,000 premature deaths in Guatemala annually due to inefficient use of wood and biomass fuel. In addition, the annual fuelwood deficit is equivalent to nearly 6 million tons of dry firewood, and fuelwood supply exceeds demand in only three administrative regions. However, Guatemala has extensive experience in improved cookstoves projects, many of which have been highly subsidized in the past, yet there is no systematization of information or quantification of cumulative cookstoves installed across the country.

Reducing the use of firewood is defined as one of the five specific objectives of the government's Energy Policy 2013-2027, while the National Strategy for Sustainable Use of Wood, presented in November 2013, aims to achieve the deployment of 65,000 improved cookstoves per year over the next ten years, and to inform 70% of the population on the sustainable use of firewood.

With the aim of removing barriers to the adoption of clean cookstoves and fuels at scale in Guatemala, the Country Action Plan (CAP) helps to organize information and identify activities relevant to all stakeholders in the sector (manufacturers, implementers, government, universities, and donors). It was prepared with support from the Global Alliance for Clean Cookstoves and contributions from sector stakeholders.

The intervention options and the key steps for achieving them were defined based on consultations with sector stakeholders throughout 2013 and 2014, the conclusions of workshops held in 2013 and 2014 with interested parties in Guatemala, the National Strategic Plan for the Sustainable Use of Wood released in November 2013, and the Guatemala Cookstoves and Fuels Market Assessment conducted in 2013.

From the 25 intervention options identified, the following interventions are considered short-term priorities (2014), and must start as soon as possible. Several of them may continue after 2014.

- **Institutional Measures:** Organize stakeholders into legal structures (Wood Roundtable, Cluster).
- **Standards and Testing:** Adopt cookstove standards based on international standards in development and evaluate and implement procedures for cookstove testing and certification.
- **Awareness and Education:** Build upon existing government programs to initiate awareness activities and adapt the training modules in development by MEM and INAB.
- **Coordinate Regional and International Actors around the Country Action Plan:** Coordinate a meeting with regional and international institutions in order to reinforce their collaboration and define their technical and/or financial support.

- **Monitoring & Evaluation (M&E):** Implement a registration system for cookstove projects (administered by MEM) and form a technical committee with representatives of the Wood Roundtable and Cluster to define an M&E methodology based on the methodology developed by the Global Alliance.
- **Consumer Finance:** Develop a mapping of institutions offering microfinance to consumers (microfinance institutions, banks, cooperatives).
- **Sustainable Production of Firewood:** Define and implement a strategy for the sustainable production of firewood.
- **Demand Segmentation:** Launch a segmentation study of the demand for cookstoves and fuels with the aim of identifying priority segments and suitable strategies.
- **Systemization of Information (cross-cutting action):** Define and implement a mechanism to centralize and share information (virtual library or other), and assess the data and studies available on cookstoves (cookstoves catalog), consumer needs, existing government programs, integrated projects, opportunities for supporting entrepreneurs, etc.

INTRODUCTION

The World Health Organization (WHO) estimates that household air pollution resulted in 4.3 million premature deaths worldwide in 2012, due to the inefficient use of coal, firewood, and biomass. It is estimated that there were nearly 5,200 deaths in Guatemala in 2010 due to these same causes. The inefficient use of firewood also contributes to the deterioration of forest cover and soils.

The Global Alliance for Clean Cookstoves (Global Alliance) is an innovative public-private partnership consisting of more than 950 partners working together to save lives, improve livelihoods, empower women and protect the environment through the creation of a thriving global market for clean cooking solutions. Among the partners of the Alliance are national governments, the private sector, UN agencies, foundations, NGOs and academic institutions.

With the ambitious goal of 100 million households to adopting clean and efficient cooking solutions by 2020, the Alliance is

dedicated to identifying and implementing solutions to overcome the many barriers that currently impede the large-scale production, distribution and use of clean cookstoves and fuels.

Following the stakeholder workshop organized in Guatemala in July 2013 to discuss the analysis of the market for clean cookstoves in the country, the Global Alliance initiated the preparation of the Country Action Plan (CAP) for clean cookstoves and fuels. The CAP identifies relevant activities to overcome the barriers to the large-scale adoption of clean cookstoves in Guatemala, and prioritizes short-term actions.

In addition, the Country Action Plan helps organize the information and strategies that exist or are in discussion by stakeholders in the Guatemalan cookstoves and fuels sector. While the CAP will evolve over months and years to come, the initial version of the plan will inform the Global Alliance's decision whether to include Guatemala as a focus country for future activities.

1 THE COOKSTOVE AND FUEL SECTOR IN GUATEMALA

1.1 Macro-environment¹

Poverty and extreme poverty

Guatemala, the most populous country in Central America, has a population of 15 million people, of whom 51% live in rural areas. 40% of the Guatemalan population is indigenous and 23 languages are spoken. More than half of the population lives below the poverty line, with 13% in extreme poverty.

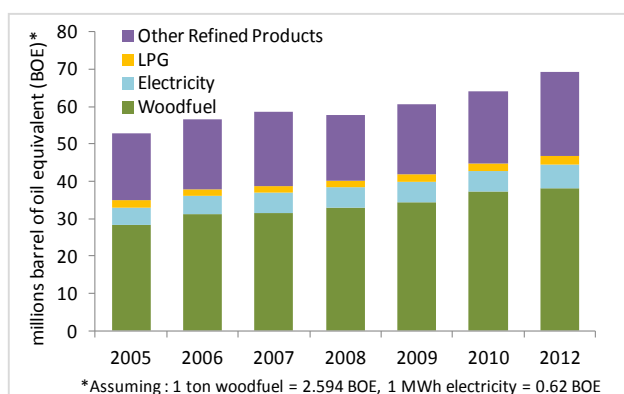
Dependence on firewood

According to the Ministry of Energy's 2012 report, firewood accounts for almost 57% of final energy sources. About 70% of households use firewood for cooking (2.1 million households - more details in Annex 1).

LPG is used for specific purposes (preparing breakfast, reheating food). Although it is still a niche and marginal market, it is important and can be strengthened.

28% of urban households and 47% of rural households collect all the firewood they consume, while others collect a portion and purchase the rest. In contrast to other countries, firewood collection in Guatemala is shared between men and women (between 1.5 and 2.2 hours per day).

¹ The Guatemala Cookstoves and Fuels Market Assessment, conducted by Energía sin Fronteras, Fundación Solar, Universidad Politécnica de Madrid, for the Global Alliance in 2013, provides more data. It is available at: http://www.cleancookstoves.org/resources_files/guatemala-a-market-assessment-1.pdf (Sector Mapping) and http://www.cleancookstoves.org/resources_files/guatemala-a-market-assessment.pdf (Intervention options)



Final energy uses in Guatemala
(prepared with MEM data)

Cooking habits

In Guatemala, the average family consumes 3 kg of tortillas per day. In order to prepare tortillas, cookstoves must be designed with a flat surface or griddle. In addition, the preparation of *nixtamal* (tortilla dough) requires that corn is cooked slowly for several hours.

Impacts of the inefficient use of firewood

On public health: Household air pollution (HAP) is responsible for economic losses equivalent to about 1% of Guatemala's gross domestic product (GDP). About 5,200 deaths were attributed to HAP in Guatemala in 2010, 1,775 of them children under 5 years old. These negative impacts and their reduction through the use of clean cookstoves and fuels is still unknown by the majority of households.

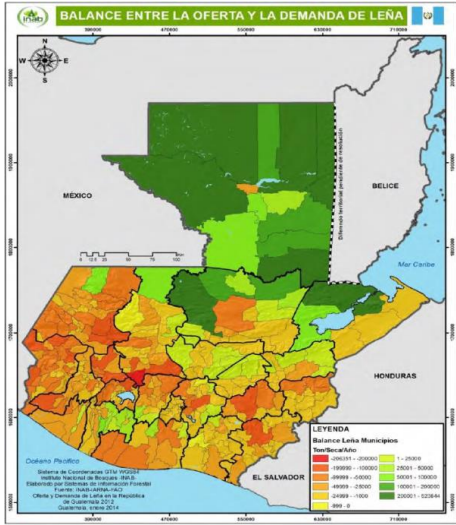


"Poyeton" (elevated platform where fire is ignited), 2013

On forests: According to the study of supply and demand for firewood (INAB, IARNA-URL, FAO,

2012), the annual firewood deficit is equivalent to nearly 6 million tons of dry wood per year, with a sustainable firewood supply of 10 million tons and an energy consumption of nearly 16 million tons (97.7% for residential uses). Supply exceeds demand in only three rural administrative regions (Petén, Izabal and Alta Verapaz).

Firewood consumption is widespread throughout the country, but 85% is consumed in rural areas, especially in the administrative regions of Huehuetenango, San Marcos, Quiché, Alta Verapaz and Quetzaltenango. These administrative regions have a greater concentration of indigenous people and high poverty levels.



Firewood supply/demand balance (dry tons per year by municipality) (INAB)

Extensive experience, without systematization of information

Guatemala, where the Lorena cookstove was developed in the mid-1970s, has an extensive and unique experience in improved cookstoves in Latin America, yet there is no systematization of information or quantification of cookstoves installed to date.

There are different models of portable improved cookstoves as well as several versions of built-in-place cookstoves (the catalog of cookstoves available in Guatemala is included in Annex 4). Moreover, most of the projects financed by the government and NGOs have involved highly subsidized cookstoves.

The first steps toward certification

There are currently no certification or quality requirements for cookstoves produced in the country. However, the Guatemalan Standards Commission (COGUANOR) has just officially joined the ISO Technical Committee 285 on clean cookstove standards.



Countries participating in ISO TC/285 on clean cookstoves and fuels

Moreover, the Ministry of Energy and Mines (MEM) is currently examining the possibility of implementing a national testing center at the Ministry.

The potential market

2.1 million Guatemalan households use firewood². These are "potential" users of improved cookstoves. Of these, 1.3 million households purchase all or a part of the firewood they consume; for these households, fuel savings is a key factor.

² National Survey of Living Conditions 2011.

According to the Guatemala Market Assessment (see reference on the previous page), it is estimated that households who use firewood and have incomes over Q3700 per month (0.9 million households) are able to purchase a cookstove by saving money and paying in cash or on short-term credit. The population segment in extreme poverty (0.4 million households) are deemed unable to purchase cookstoves and must be addressed through different strategies. Households in the poverty segment with incomes between Q2000 and Q3700 per month and that use firewood (0.9 million households) are the households that require more attention with a view to understanding their willingness to pay. Their willingness to pay depends on stability of income, payment options, estimated savings from purchasing less firewood, and the priority they give to health impacts of HAP. Annex 1 provides more details.

Universal access to clean cookstoves

Assessing the number of clean cookstoves that correspond to universal access, as proposed by the Sustainable Energy for All (SE4ALL) initiative, is useful for understanding the magnitude of the strategies to be implemented. The goal does not consist of assessing the conditions for achieving the adoption and use of clean cookstoves and fuels, but aims to quantify the cookstoves required in order to achieve universal access.

The estimated demand for clean cookstoves in Guatemala is 2.3 million by 2020 and 2.8 million by 2030. Depending on the lifespan of the cookstove (this analysis used 7 years), the number of cookstoves to be provided per year may reach 400, 000 cookstoves. For the implementation of 65,000 cookstoves per year, as proposed in the National Strategy for

Sustainable Use of Wood, the gap for achieving access for all would be reduced to 1.9 million in 2020 and 2.3 million in 2030. Annex 1 provides more details.

1.2 Institutional framework

The Energy Policy 2013-2027

The Ministry of Energy and Mines Energy Policy 2013-2027 opens the door to new initiatives and strategies to promote clean cookstoves and fuels. One of the five specific objectives of the policy is to reduce the use of firewood in the country, with quantitative goals including:

- Install 100,000 cookstoves and inform the population on the sustainable use of firewood,
- Reduce the consumption of industrial firewood by 15%,
- Increase energy forest plantations by 10%,
- Replace firewood with other energy sources in 25% of households.

The National Strategy for Sustainable Use of Wood

In November 2013, under the commitment of the President of Guatemala Otto Pérez Molina, the government presented its National Strategy for Sustainable Use of Wood (Wood Strategy) with the overall objective of progressively contributing to improving the lives of Guatemalans through the sustainable use of firewood. Among others, the Wood Strategy has the objectives of achieving the implementation of 65,000 cookstoves per year and informing 70% of the population on the sustainable use of firewood.



Inter-institutional Wood and Energy Roundtable (*Wood Roundtable*)

The Wood Roundtable, a result of the National Strategy for the Sustainable Use of Wood, is a mechanism for dialogue and consensus on the design of public policies to ensure the sustainable use of firewood in Guatemala. Up to now, it includes representatives of 14 institutions (MEM, MARN, MAGA, MIDES, MSPAS, MSPAS, INAB, FAO, PRONACOM, MINECO, MINEDUC, SEGEPLAN, SESAN SOSEP and INE). It was established in fall 2013. More details in Annex 3.

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The Cluster of Improved Cookstoves and Clean Fuels (*Cluster*)

The Cluster represents individuals and organizations who work in the area of cookstoves



and fuels with the aim of providing technical, social and economic solutions to the problems of household air pollution, the excessive use of firewood, the improvement of fuel efficiency, the appropriation of technology, and social responsibility. It includes local and international manufacturers and distributors of cookstoves and fuels, implementers, and universities.

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Other Policies

In addition to the Energy Policy and Wood Strategy, the policy framework includes a number of other policies relevant to the subject of cookstoves and clean fuels:

- Policy for Food Security and Nutrition, including the Zero Hunger Pact (SESAN) <http://www.sesan.gob.gt/>: Fight hunger and promote food security.
- Agricultural Policy including the Development Plan for the Strengthening of Family Agriculture Home Economics (PAFFEC, MAGA) http://web.maga.gob.gt/wp-content/uploads/pdf/home/programa_agricultura.pdf: Help eradicate hunger and malnutrition through the promotion and strengthening of the rural economy.
- Integrated Rural Development Policy (Cabinet) http://www.segeplan.gob.gt/downloads/clearinghouse/politicas_publicas/Desarrollo%20Rural/Pol%203%ADtica%20Desarrollo%20Rural%20Integral.pdf: Achieve gradual and permanent progress in the quality of life of the inhabitants of rural areas.
- Forestry Policy (MAGA, PAFG, INAB, CONAP) http://www.segeplan.gob.gt/downloads/clearinghouse/politicas_publicas/Recursos%20Naturales/Politica%20Forestal%20de%20Guatemala.pdf: Ensure the provision of goods and services from forests (natural or cultivated) for the social and economic welfare of its inhabitants.
- National Policy on Climate Change (MARN) http://www.marn.gob.gt/documentos/novedades/politica_cc.pdf: Promoting the adoption of risk prevention practices, reducing vulnerability and enhancing adaptation to climate change and contributing to the reduction of greenhouse gas emissions.

1.3 Current Initiatives

Several initiatives are under way in Guatemala and are presented briefly here. More information can be found in Annexes 2 and 3.

Government level

In order to secure the Q42 million in resources announced in 2013 and contribute to the goal of installing 65,000 cookstoves per year over the next ten years, government institutions are reviewing their operating plans with the aim of evaluating potential investments and specific activities for 2014. Several programs already focus on clean cookstoves and fuels or can incorporate these technologies into their strategies. For example (details on these programs are included in Annex 2):

- Sustainable production of firewood, Training Plan and Forestry Extension for the sustainable production of firewood by INAB;
- Healthy Household Program, Pilot Project on governance and firewood by FAO;
- Improved Cookstoves Project of the Rotary Club of Eastern Guatemala, Sustainable Forest Management and Multiple Global Environmental Benefits, Biodigestor Cookstoves by MARN;
- Various support programs in health, education, and food (possible awareness-raising and training among guiding mothers) by MIDES;
- PAFFEC projects and possibility of training extensions by MAGA;
- First 1,000 Days by MSPAS;
- Installation of 286 cookstoves in Malacatancito (JAGUAR project). The favorable opinion of MARN is expected, depending on the verified reduction of CO2 emissions. The Energy Mining Planning Unit of MEM would provide support and advice

during the implementation and development of the project;

- Implementation of improved cookstoves in the town of San Mateo Ixtatán Huehuetenango, funded by the National Conservation Fund FONACON, through the commonwealth border of North Huehuetenango.

In addition, a technician training module on cookstoves is being developed by MEM and INAB, with financial support from WWF and technical support from members of the Wood Roundtable, the Cluster, and universities.

Non-Governmental level

Guatemala has more than 30 manufacturers, implementers and importers of over 25 different types of improved cookstoves, which are mobile or built-in-place, and made of metal or cement (see Annexes 3 and 4).

Within academia, the University of the Valley of Guatemala, UC Berkeley, and UC San Francisco have studied the impacts of household air pollution on health (studies include NACER, CRECER, and RESPIRE, among others). The Institute of Energy at Galileo University conducts research on emissions monitoring, effectiveness, and cookstove testing. The Institute of Agriculture, Natural Resources and Environment at Rafael Landivar University leads many research projects on Guatemala's forests and natural resources.

A research study analyzing the LPG fuel and cookstoves market is in negotiation involving several partners, and should start in the coming months. Among others, it will study economic factors, safety and standards.

International level

Initiatives related to Sustainable Energy for All (Central America Clean Cooking Initiative, World Bank), Reducing Emissions from Deforestation and Forest Degradation (REDD+, IDB/USAID) and

the Low Emission Development Strategy (LEDS or Guatemala Huella Cero, USAID/IDB) have recently been launched and will include activities related to clean cookstoves and fuels and energy forest plantations.

2 INTERVENTION OPTIONS AND KEY ACTIVITIES

2.1 Sources of information

The intervention options and the key steps for implementing them have been defined based on:

- Consultations and exchanges with sector stakeholders throughout 2013 and 2014.
- The findings of the Guatemala Country Action Planning Workshop on clean cookstoves and fuels held on March 5 and 6 2014 in Antigua, Guatemala, materials available at: <https://unfoundation.box.com/s/y81mbs7i61yrfksn4iw9>
- The National Strategy for the Sustainable Use of Wood, launched in November 2013, available at: http://issuu.com/mem_gt/docs/plan_estrat_gico_nacional_para_el
- The conclusions of the Stakeholder Consultation and Strategic Planning Workshop held on July 9 and 10 2013 in Antigua, Guatemala, materials available at: <https://unfoundation.box.com/s/y81mbs7i61yrfksn4iw9>



Stakeholder Consultation and Strategic Planning Workshop, Antigua Guatemala, July 9-10, 2013

- Guatemala Cookstoves and Fuels Market Assessment conducted by the Global Alliance in 2013, available at: http://www.cleancookstoves.org/resources_files/analisis-guatemala-sector.pdf (sector mapping) and http://www.cleancookstoves.org/resources_files/analisis-del-mercado-guatemala.pdf (intervention options).


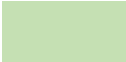





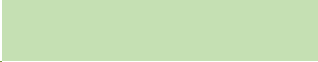

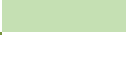



The following intervention options and key steps and activities are organized according to three strategic axes proposed by the Global Alliance for transforming the sector:

- **Enhance Demand:** Understanding and motivating potential users and consumers, developing better and more technology options, and providing consumer finance;
- **Strengthen Supply:** Creating innovative distribution models to reach a wide variety of consumers, attracting finance and investment, increasing access to carbon finance, enhancing market intelligence and creating inclusive value-chains;
- **Foster an Enabling Environment:** Promoting international standards and rigorous testing protocols, engaging national and local stakeholders, building the evidence base for the benefits of clean stoves and fuels, enhancing monitoring and evaluation, and championing the sector.













2.2 Full list of intervention options

 : Essential  : Recommended

ENHANCE DEMAND

	2014	2015	2016+
Understanding, motivating, and meeting the needs of the consumer			
1 Obtain and organize data on needs of current and future demand in all regions of Guatemala			
1a Assess and organize public data already available in Guatemala			
1b Launch a segmentation study of demand, define priority segments and suitable strategies			
1c Assess future scenarios for demand and adoption of clean cookstoves and fuels			
2 Implement an awareness and education strategy on the effects of smoke and available solutions			
2a Implement awareness activities built upon government programs	initiated		
2b Launch a national multimedia campaign			
2c Include topics related to clean cooking in formal education (primary and secondary schools)			
Consumer finance			
3 Develop a mapping of institutions offering microfinance to consumers (microfinance institutions, banks, cooperatives) and build alliances with them			
3a Map the microfinance institutions			
3b Build partnerships with financial institutions (consumer focused)			
4 Encourage corporations to facilitate the purchase of cookstoves for their employees through appropriate Corporate Social Responsibility programs			
5 Encourage suppliers to offer warranties for cookstoves			

STRENGTHEN SUPPLY

Innovative Distribution Methods			
6 Strengthen distribution networks for cookstoves, spare parts, and after-sales technical services throughout the country			
7 Install an exhibition with the different types of cookstoves	initiated		
8 Strengthen the role of municipalities and associations of local authorities in cookstove and fuel distribution chains			
Access to Finance (social investment, working capital, carbon)			
9 Improve access to finance for manufacturers and implementers			
9a Inform manufacturers and implementers about opportunities for financial support			
9b Establish mechanisms for manufacturers and implementers to access credit			
9c Develop new funding mechanisms to facilitate the sale and distribution of cookstoves			
9d Reduce taxes imposed on cookstove and fuel materials and technologies			
10 Reinforce the opportunities for carbon/climate financing			
Entrepreneur Training and Capacity Building			
11 Train masons of built-in-place cookstoves			
12 Strengthen business capacity and skills of manufacturers and distributors			

FOSTER AN ENABLING ENVIRONMENT

Standards and Testing		2014	2015	2016+
13	Adopt cookstove standards relevant to the Guatemalan context based on international standards in development			
14	Evaluate and implement procedures for cookstove testing, certification, and labeling			
14a	Evaluate the options for cookstove testing			
14b	Develop and enforce a certification and labeling system to distinguish certified cookstoves from others			
Fuels and Technology				
15	Establish a program promoting LPG in households			
15a	Perform an LPG mapping			
15b	Ensure consumer safety and information			
16	Explore and promote alternative fuels and technologies for cooking			
17	Strengthen technical knowledge and promote research and innovation			
17a	Strengthen technical knowledge			
17b	Promote research and innovation			
Sustainable Production of Firewood				
18	Define and implement a strategy for sustainable production of firewood			
Monitoring, Evaluation, and Adoption				
19	Develop a system for monitoring and evaluating cookstoves (M&E)			
19a	Design and implement a registration system for cookstove projects			
19b	Define the M&E framework			
20	Implement mechanisms to ensure the adoption and appropriate use of the technology			
Building the Evidence Base (research on impacts and benefits)				
21	Promote research and dissemination of information			
21a	Assess available data and studies			
21b	Make impacts and benefits on health and development known			
Champion the Sector and Engage Stakeholders				
22	Centralize and share knowledge			
22a	Complete the catalog of technologies, manufacturers, experiences			
22b	Implement an information dissemination system			
23	Organize stakeholders in legal structures			
23a	Wood Roundtable			
23b	Cluster			
24	Coordinate regional and international actors around the Country Action Plan			
24a	Promote the alignment and synergy of the CAP and other international strategies			
24b	Support regional coordination			
Promote Integrated Projects for the Extreme Poor ("give-away: no")				
25	Define an integrated intervention framework for the extreme poor			
25a	Promote the intervention framework for the extreme poverty segment			
25b	Define strategies for implementing cookstoves into national programs for the population in extreme poverty			

2.3 Overview of short-term priority actions

Short-term priority actions are identified as actions that must be implemented as soon as

possible in order to overcome the barriers that currently impede the large-scale adoption of improved cookstoves and fuels in Guatemala.

The short-term secondary actions are the other actions to be deployed in 2014.

Short-term priority actions

- **Institutional Measures** 23
 - Institutionalize the Wood Roundtable and strengthen the role of the MSPAS.
 - Legalize the Cluster and reinforce it with dedicated human resources.
 - **Standards and Testing** 13 14a
 - Adopt cookstove standards relevant to the Guatemalan context.
 - Confirm Guatemala as the host for next working groups meeting of ISO/TC285 in fall 2014.
 - Organize and assemble an advisory board of Guatemalan stakeholders.
 - Evaluate and implement procedures for cookstove testing and certification.
 - **Awareness and Education** 2a
 - Build upon existing government programs to initiate awareness activities and adapt the training modules in development by MEM and INAB.
 - **Coordinate Regional and International Actors around the Country Action Plan** 24
 - Coordinate a meeting with international and regional actors to reinforce their collaboration, promote clean cookstoves and fuels, and define technical and/or financial support.
 - **Monitoring & Evaluation (M&E)** 19
 - Implement a registration system for cookstove projects, administered by MEM.
 - Form a technical committee with representatives of the Wood Roundtable/Cluster to define an M&E methodology based on the methodology developed by the Global Alliance.
 - **Consumer Finance** 3a
 - Develop a mapping of institutions offering microfinance to consumers.
 - **Sustainable Production of Firewood** 18
 - Define and implement a strategy for the sustainable production of firewood.
 - **Demand Segmentation** 1b
 - Launch a segmentation study of the demand for cookstoves and fuels with the aim of identifying priority segments and suitable strategies.
 - **Systematization of Information (cross-cutting action)**
 - Information dissemination system: Define and implement a mechanism to centralize and share information (virtual library or other). 22b
 - Assess data and studies available on:
 - Available cookstoves available (catalog) - ongoing. 22a
 - The needs of the consumer. 1a
 - The activities of the various ministries, including detailed maps of the priority areas. 2a
 - Best practices for integrated projects for the poorest. 25b
 - Opportunities for supporting entrepreneurs (business training and funding opportunities). 12
 - The availability and impacts of the alternatives to the open fire (could be 2015). 21a
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Short-term secondary actions

- **Catalog of Cookstoves** 22a
 - Finalize and validate the data in the catalog of cookstoves.
 - **Awareness and Education** 2c 2b
 - Prioritize the use of the materials already available related to "*Guidelines for curriculum development in environmental education with emphasis on climate change.*"
 - Develop an interactive module for children to be offered in schools.
 - Start preparing a multimedia campaign.
 - **Climate Change** 10
 - Assess the contribution of cookstoves and clean fuels in climate change mitigation: Determine the carbon emissions avoided by cookstove use.
 - **Technical Knowledge** 17a
 - Organize visits to other countries and participate in international forums. For example: South-South Exchange to the Clean Cookstoves Expo in China, April 2014; Global Alliance Biennial Forum, Ghana, spring/summer 2015.
 - **Access to Finance (social investment, working capital, carbon)** 9a
 - Organize the participation of manufacturers in the Micro, Small and Medium Enterprises (MSME) week (MINECO, 05/2014).
 - Assess potential financing mechanisms for the purchase of production materials in the case of large orders.
 - **Strengthen business capacity and skills of manufacturers and implementers** 12
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2.4 Enhance Demand

2.4.1 Understanding, motivating, and meeting the needs of the consumer

Barriers	Intervention Options	Expected Result
Satisfying the needs of users, taking into account family size, type of cooking, habits, climate, knowledge and perceptions, terms of willingness and ability to pay, conditions of access for the poorest, are key factors to be taken into account for defining appropriate strategies.	1 Obtain and organize data on the needs and segmentation of current and future demand for cookstoves across Guatemala.	Better understand the decision factors on the use and purchase of improved stoves and cleaner fuels, in all regions of Guatemala. Determine and locate the size of the different market segments as well as the priority segments and regions.
Many people in the country have no idea about the harmful effects of smoke. Open-fire cooking has been the traditional way of cooking for centuries, and changing cultural patterns is not easy. The majority of households are unaware of the existence of clean cookstoves and their benefits. Furthermore, the costs of advertising are very expensive for any one cookstove company.	2 Implement an awareness and education strategy on the effects of smoke and on the solutions available.	Firewood users are aware of the effects of smoke, of the saving when using clean cookstoves and fuels, and how to acquire the cookstoves. Information on cookstove models, on certification and on pricing is available.

Key Steps and Activities	Timeline/ Geography	Stakeholders
1 Obtain and organize data on the needs and segmentation of current and future demand in all regions of Guatemala		
1a Assess and organize public data already available in Guatemala <ul style="list-style-type: none"> Hire a person to assess the existing information and public data already available in Guatemala ⁽¹⁾. In light of the assessment, determine if a further study is performed to fill the gaps on requirements. Organize, centralize and share information, using the dissemination system proposed in option 22. 	2014 urgent National	Wood Roundtable Cluster Universities All providers of data and reports
1b Launch a segmentation study of demand in order to define priority segments and suitable strategies <ul style="list-style-type: none"> Conduct a study on the segmentation of demand, in the perspective of market development (priority segments, ability to pay). The terms of reference can be based on the studies carried out in other Global Alliance focus countries (http://www.cleancookstoves.org/resources_files/partner-country-toolkit.docx). From the study results, define the segments/the most favorable regions to begin the appropriate strategies. ⁽³⁾ 	2014-2015 National	Cluster Universities Global Alliance MEM MINECO
1c Assess future scenarios for demand and adoption of clean cookstoves and fuels <ul style="list-style-type: none"> Conduct a study to estimate future cookstove demand under different scenarios and targets, such as Sustainable Energy for All (SE4ALL) by 2030. Determine appropriate national targets for cookstove adoption towards the Global Alliance's 100 million households by 2020 goal. Share and harmonize the hypotheses with other ongoing studies. 	2014-2015 National	MEM PRONACOM Universities World Bank Global Alliance

- (1) Option 1a - Examples of available sources and studies: Guatemala Cookstoves and Fuels Market Assessment Sector Mapping and Intervention Options conducted by the Global Alliance in 2013, Reports and data from the National Statistics Institute (National Survey of Living Conditions ENCOVI), Supply and demand of firewood, FAO, Firewood Strategic Plan 2020, Forest Cluster, Poverty Maps, List of Municipalities Prioritized in Zero Hunger Pact SEGEPLAN, Indices of Human Development, UNDP, Assessment of improved cookstoves, Sierra Madre Foundation, ENCOVI, Respiratory Diseases Information, MSPAS, Use of firewood and cookstoves, Joint Action (1976), Study of Cost of firewood, ECLAC / MEM, Information in Universities, CDC data.
- (2) Options 1a and 1b - Examples of factors characterizing needs and demand: cultural and geographical factors (alternative and complementary, religious uses, worldview, ethnicity, demographic, diet), forms of cooking of people (cooking volume, type of food, etc.), payment capacity of families (collection cost, opportunity cost, savings, time of year of the crop/income generation, employment, etc.), preference of type of firewood (species, sizes, etc.), availability of biomass supply as an energy source, health status, environment and economy, production chain analysis and analysis of livelihoods. Involvement of women is crucial for understanding what they want and need from a cookstove.
- (3) Option 1b - The segmentation study will be able to:
- Distinguish between rural/urban areas, different regions of Guatemala.
 - Identify the segments with greater probability of adoption of improved clean cookstoves and fuels in the short term according to the implementation strategies; the regions where active MFIs already exist could be part of the development priorities of the market (*see options 3a/3b*); regions with high biomass deficit, and/or high use of open fire, and/or high level poverty and/or high level of malnutrition (PNDRI, INAB, MIDES, Zero Hunger Pact SEGEPLAN, SCEP, etc.) could be another approach.
 - Divided into two phases, the first country-level characterization and identification of priority segments; the second more detailed characterization of the priority segments; or it can be focused directly on the second type of analysis, after selecting the priority segments in cooperation with the IMF (*see options c3a/3b*).

Alignment with the National Strategy for Sustainable Use of Wood:

- Promotion of efficient technologies of firewood consumption (marketing plans for installation of stoves sold, plans for integrating cookstoves into multisectoral government programs);

Key Steps and Activities	Timeline/ Geography	Actors
2 Implement an awareness and education strategy on the effects of smoke and available solutions		
2a Implement awareness activities built upon government programs. <ul style="list-style-type: none"> • Share the training modules developed by MEM and INAB on climate change and improved stoves with the Wood Roundtable so that each institution can assess how to use/adapt these modules in their own programs and for their field agents in their activities with target populations. The modules developed by INAB on use of forest resources for firewood can also be shared. • Develop modules tailored to the different ministries and programs that already integrate or can integrate information on the effects of smoke and solutions available nationally and in remote areas. <ul style="list-style-type: none"> – Target ministries/programs including: FAO-INAB (field staff), MAGA (rural extension workers), MSPAS (guiding mothers), MIDES (monitoring mothers), 1,000 days, Zero Hunger, Integrated Rural Development Plan, etc. – Identify key messages including: health (very important), environment, economic savings, where to buy, distinguishing features of different technologies, etc. Develop gender-sensitive messaging. – Define and coordinate the roles of government institutions (including executive agencies) with regards to target populations, geographical area/municipality, and messaging. Develop detailed maps of the actions of the different institutions. – Develop the concept of "Field Training Workshops" at education centers, primary health care centers, etc. so that mothers are able to see cookstoves in operation and find out about their benefits. • Raise awareness among decision-makers within each institution on the effects of inefficient use of firewood and the benefits of clean cookstoves and fuels using the Wood Roundtable. 	2014 Begin urgently (development of additional modules through 2015) Priority areas of the different ministries and programs	Wood Roundtable (especially: INAB-MEM-MIDES-MAGA-MSPAS-MINECO-INAB-MINEDUC) Cluster Cabinet of Integral Rural Development CNCG (WWF) Global Alliance World Bank
2b Launch a national multimedia campaign <ul style="list-style-type: none"> • Request support from communication experts to design a national campaign, including principles of aspirational marketing. • Develop a national campaign with multilingual and multimedia tools with simple messages. Initial focus should be on priority areas of Guatemala. • Prepare a video on improving nutrition through a healthy way of cooking in Guatemala (BM, ongoing). • Options to explore: <ul style="list-style-type: none"> – Study the campaigns, such as the WHO's "killer in the kitchen" and explore how to adapt them. – Identify a champion (popular or respected national figure, such as the First Lady of Peru) who can promote improved cookstoves as an attractive product. – Use community radio broadcasting in Mayan languages. – Invite journalists to events related to the subject. Organize training sessions for journalists. 	2015-2016 National (initial focus on priority areas)	Wood Roundtable (with communication experts) Global Alliance

<p>2c Include topics related to clean cooking in formal education (primary and secondary schools)</p> <ul style="list-style-type: none"> • Develop an interactive module for children to be offered in schools. The Wood Roundtable will need to have a ministerial agreement with MINEDUC. • Prioritize the efforts of MARN and MINEDUC to manage funds for reproductions of material already available related to <i>"Guidelines for curriculum development in environmental education with emphasis on climate change."</i> • Develop a proposal of curricular modules for formal education, following the experience of INAB with MINEDUC on forestry and environment. Possibility of cascaded implementation (e.g. INAB is working with 1,300 teachers in 300 schools now). • Train teachers at primary and secondary school levels in relation to the sustainable use of firewood and the effects on health and environment. • Develop competencies established in the CNB of the primary and secondary school levels related to environmental education. • Promote diploma studies in sustainable use of wood and management of improved cookstoves and its relation to climate change. 	<p>2014 (module for children + MARN collaboration)</p> <p>2016 (curriculum modules)</p> <p>Start with pilot projects</p>	<p>Wood Roundtable INAB Cluster MINEDUC MARN (with communication experts)</p>
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Alignment with the National Strategy for Sustainable Use of Wood:

- Research, education, diffusion and information (Have the strategy and methodology, have visuals and support for education and awareness, and have the personnel for training trainers; 70% of the population is informed on the sustainable use of firewood; 45 trained INAB trainers; 22 trained Forestry and Municipal Technicians; 266 trained Extensionists of MAGA, 51 GO and NGO trained Technicians, 6,650 rural promoters providing assistance to 798,000 rural people; Teachers trained in the prioritized municipalities; Students of prioritized municipalities reach an acceptable level of achievement).

2.4.2 Consumer Finance

Barriers	Intervention Options	Expected Result
There are microfinance institutions working in rural Guatemala, but coordination between manufacturers and financial institutions is needed to promote consumer financing for clean cookstoves and fuels. In addition, interest rates on loans and transaction costs are high (risk, need for local offices), requirements such as the NIT are barriers, clean cookstoves and fuels are not known ⁽¹⁾ , tax education of the beneficiaries is required, and when governments and NGOs subsidize products or articles, people lose interest in investing.	3 Develop a mapping of the institutions offering micro-financing (microfinance institutions, banks, cooperatives) and build alliances with financial institutions.	Microfinance providers across regions and sectors of Guatemala are known and this information is used to create opportunities to extend microcredit for consumers of clean cooking solutions. Credit conditions are accessible and accepted by the consumer.
Companies may promote the purchase of cookstoves, but not all corporate executives are aware of the use of firewood for cooking by many of their workers, or the opportunities offered by Corporate Social Responsibility.	4 Encourage corporations to facilitate the purchase of cookstoves for their employees through appropriate Corporate Social Responsibility programs.	Companies promote and facilitate the purchase of cookstoves for their employees.
When a new cookstove breaks or does not work users do not have a recourse and lose confidence in the product.	5 Encourage suppliers to offer warranties for cookstoves.	Cookstoves are guaranteed by manufacturers, building confidence among consumers.

⁽¹⁾ A campaign informing the public about the benefits of clean cookstoves and fuels is urgent (*see Option 2*). It has been shown that households with stable incomes in the poverty line are willing to buy firewood to pay for cookstoves, when they are aware of the benefits of clean cookstoves and fuels, and when the saving in firewood has been demonstrated.

Key Steps and Activities	Timeline/ Geography	Stakeholders
3 Develop a mapping of institutions offering microfinance to consumers (microfinance institutions, banks, cooperatives) and build alliances with financial institutions		
3a Develop a mapping of the institutions offering microfinance to the consumer (micro-financers, banks, cooperatives) <ul style="list-style-type: none"> Meet with micro-financial or credit institutions, including cooperatives, in order to: <ul style="list-style-type: none"> Better understand the supply of microcredit (sectors, population segments, access to women, regions of Guatemala, conditions) with the initial aim of focusing on the promotion of clean cookstoves and fuels in these segments and regions. Inform these organizations on the variety of fuels and cookstoves already commercially available (e.g., share the cookstoves catalog⁽¹⁾). 	2014 National	MEM MINECO Cluster REDIMIF Banrural Génesis Empresarial Cooperatives Global Alliance

<ul style="list-style-type: none"> From these meetings, develop a mapping of the institutions offering micro-financing. The mapping may include: <ul style="list-style-type: none"> Description of the mechanisms for micro-financing cookstoves already available. Understanding the mechanisms of micro-financing of other household products like cell phones, water purifiers and solar lanterns and assessing how they could be expanded to cookstoves. Conditions offered and accepted by the different consumer segments. The level of geographical detail will be able to distinguish between rural/urban areas, different regions of Guatemala. 		
<p>3b Establish partnerships with financial institutions with the aim of improving the conditions of the loans available to consumers (the proposed steps can be coupled with the above steps⁽²⁾)</p> <ul style="list-style-type: none"> Encourage the financial institutions and define the possibilities of including cookstoves in the products offered with micro-credit. Define how to channel the financial support provided by the government through financial institutions. Define a "fiscal awareness" plan for users. These possibilities may also help reinforce the distribution channels and strengthen supply. 	<p>2014-2015</p> <p>Start with areas where MFIs are already active</p>	<p>MEM MINECO Cluster REDIMIF Banrural Génesis Empresarial Cooperatives Global Alliance</p>
<p>4 Encourage corporations to facilitate the purchase of cookstoves for their employees through appropriate Corporate Social Responsibility programs clean cookstoves and fuels</p>		
<ul style="list-style-type: none"> Raise awareness among landowners (palm, coffee, rice, sugar, livestock, etc.), as well as executives of industrial companies on the problem and on the possibilities of including clean cookstoves and fuels in the Corporate Social Responsibility programs. Define internal financial scheme models in the companies. For example, home-owners can buy cookstoves, and then reduce the wages of the employees with a pre-negotiated monthly fee. Explore the possibility of involving cooperatives in the purchase of cookstoves for distribution to their members. 	<p>2015-2016</p> <p>Areas of work of the participating companies</p>	<p>MEM MARN MAGA Cluster CONFECOOP ANACAFE Sugar Foundation Association of rubber tappers Other business associations</p>
<p>5 Encourage suppliers to offer warranties for cookstoves</p>		
<ul style="list-style-type: none"> Promote warranties of cookstoves, which, with follow-up services, technical support and availability of spare parts in all regions, foster consumer confidence and willingness to pay. Inform consumers of the existence of warranty (<i>see Option 2</i>) 	<p>2015+</p> <p>National</p>	<p>Cluster</p>

⁽¹⁾ The availability of a wide range of cookstoves and fuels is important in order to give the consumer choice.

⁽²⁾ Need for coordination with integrated projects (highly subsidized cookstoves) to avoid market distortions. Additional idea: Evaluate Family Remittances theme. It could be marketed in USA so that family members can obtain cookstoves in Guatemala.

Alignment with the National Strategy for Sustainable Use of Wood:

- Promotion of efficient technologies of firewood consumption (Alliances with subscribed financial institutions).

2.5 Strengthen Supply

2.5.1 Innovative Distribution Methods

Barriers	Intervention Options	Expected Result
It is difficult for consumers to access cookstoves and spare parts in rural and remote areas, as well as creating a challenging environment for monitoring. Distributors and trained technicians may not be available locally, which contributes to improper use and loss of confidence in the product.	6 Strengthen distribution networks for cookstoves, spare parts, and after-sales technical services throughout the country.	Users have access to cookstoves, spare parts, and local technicians in their region.
People on a limited income choose not to purchase cookstoves because they are not aware these products exist, have not seen them in operation, or do not trust in their benefits. There is a lack of product demonstration and variety in product offerings by manufacturers and distributors.	7 Install an exhibition with different types of cookstoves so that their advantages can be presented and potential consumers can try them.	Users can view different cookstove models and choose the one that suits them best. The risk perceived by users is reduced.
Municipal and community leaders are unaware of the impacts of smoke on health, but they are a key part of the clean cookstoves and fuels value chain given their proximity and knowledge of local communities.	8 Strengthen the role of municipalities and associations of local authorities in the distribution chain for clean cookstoves and fuels.	Municipal and community leaders contribute to the implementation of clean cookstoves and fuels projects and programs.

Key Steps and Activities	Timeline/ Geography	Stakeholders
6 Strengthen distribution networks for cookstoves, spare parts, and after-sales technical services throughout the country		
<ul style="list-style-type: none"> Identify existing distribution networks and how they could be used to expand the sale of improved cookstoves and spare parts. Include community networks. Generate support through word of mouth. Explore the possibility and conditions for including cookstoves in 400 Cementos Progreso stores nationwide. Consider opportunities for including cookstoves in microfinancing activities, including package deals for different products (<i>see Option 3b</i>). Share best practices on cookstove and spare parts distribution and after-sales technical services (for example: how to develop the role of salespeople and technicians offering them a commission as with any household electrical appliance, how to promote the availability of technicians and supply of spare parts in at least one place in each regional administrative area where cookstoves are sold=. 	2015 National	Cluster IMF Hardware Stores Cooperatives Cementos Progreso

7 Install an exhibition with different types of cookstoves so that their advantages can be presented and potential consumers can try them

<ul style="list-style-type: none"> • Value demonstration: Install an exhibition of different types of cookstoves. Support the attendance of representatives of municipalities, including those from rural areas, so that they are able to come and see the cookstoves, cook with them, and compare portable and built-in-place cookstoves. This initiative is underway (MEM). • Organize road shows, involving municipal mayors and community leaders. 	<p>2014-2015 already initiated National</p>	<p>Cluster ANAM MEM MSPSA (Health Centers) Ministry of Education (Schools) Cooperatives</p>
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8 Strengthen the role of municipalities and associations of local authorities in the distribution chain for clean cookstoves and fuels

<ul style="list-style-type: none"> • Provide information to local mayors and community leaders (<i>see Option 2</i>). The selection may follow the recommendations in terms of priority areas. • Explore the possibility of establishing cooperation agreements with associations and Learning Centers for Rural Development (MAGA). • Explore the possibility of developing an online project application system for mayors and determine under what conditions projects would be approved. Given the legal framework, this idea must be assessed and agreed with local authorities. • Explore the potential role of a support network such as Cementos Progreso, a cement company with a chain of retail stores, which has a great deal of contact with municipalities and could help in the sensitization process on municipal investment in cookstoves. 	<p>2015 National</p>	<p>Wood Roundtable ANAM Administrative region advisors Associations of municipalities (Mancomunidades) Cabinet of the PNDRI Cementos Progreso</p>
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2.5.2 Access to Finance (social investment, working capital, carbon)

Barriers	Intervention Options	Expected Result
The costs and risks of operating in the BOP market are high, and margins are low. Difficulties of access to and costs associated with finance limit manufacturers' capabilities.	9 Improve access to finance for manufacturers and implementers.	Cookstoves manufacturers and implementers have access to finance options suited to their needs.
Including clean cookstoves and fuels in carbon finance/climate projects can generate revenue. However, the complexity and administrative costs associated with the requirements are significant barriers. In addition, clean cookstoves and fuels are not a priority in mitigation projects and carbon trade in Guatemala.	10 Reinforce the opportunities for carbon/climate financing.	Cookstoves, projects and programs in Guatemala are strengthened with the use of carbon/climate financing.

Key Steps and Activities	Timeline/ Geography	Stakeholders
9 Improve access to finance for manufacturers and implementers		
<p>9a Inform manufacturers and implementers about opportunities for financial support</p> <ul style="list-style-type: none"> • Create methods/communication networks with information about opportunities to support entrepreneurs (website, other methods). The network should also include information about training opportunities (see <i>Option 12</i>), meeting investors, and other funding opportunities. • Explore the funding opportunities offered by the Global Alliance, such as the Pilot Innovation Fund, the Women's Empowerment Fund, and the Spark Fund, among others. • Identify the sources of funding available for MSMEs. 	<p>2014-2015</p> <p>National</p>	<p>Cluster MINECO PRONACOM IDB Global Alliance</p>
<p>9b Establish mechanisms for manufacturers and implementers to access credit</p> <ul style="list-style-type: none"> • Explore the possibilities offered by the Ministry of Economy's GT8000 program to strengthen the productivity of Micro, Small and Medium Enterprises (MSMEs). • Participate (manufacturers) in MSME week organized by the Ministry of Finance from May 19-23, 2014. • Develop partnerships with institutions and banks in order to negotiate lower (subsidized) interest rates and microfinancing for suppliers (activity to be launched in coordination with <i>Options 3 and 4</i>, related to consumer financing). • Define the structure of a guarantee fund for loans to cookstove producers ⁽¹⁾. • Develop a system of adequate financing for the purchase of production materials, such as cement, in large orders with payment upon delivery. • Explore the possibilities of financing microfranchises with a proven and structured business model. • Create an entity (or identify an existing entity) that presents the projects in an attractive way to investors, and seeks impactful international funds. 	<p>2015 (some activities planned in 2014)</p> <p>National</p>	<p>Cluster MINECO PRONACOM Comptroller of Accounts Banking institutions Avina Foundation Cooperatives Cementos progreso Global Alliance</p>

<p>9c Develop new funding mechanisms to facilitate the sale and distribution of cookstoves</p> <ul style="list-style-type: none"> • Create a social fund for NGOs that provide cookstoves in exchange for work from the consumer (integrated projects). • Define the terms of revolving funds for NGOs and distributors, with the aim of strengthening the role of brokers and dealers in the value chain. • Explore the opportunities offered by micro consignment. • All these actions must consider that according to the legal framework, Government is not allowed to provide project funds to NGOs. 	<p>2015+</p> <p>Start with pilot projects</p>	<p>MINFIN MINECO Cluster Wood Roundtable Cooperatives</p>
<p>9d Reduce taxes imposed on cookstove and fuel materials and technologies</p> <ul style="list-style-type: none"> • Conduct a study on the tariffs imposed on imported products. • Remove VAT on material and pieces used in the production of cookstoves. • Reduce rates on imports of material and pieces used in the production of cookstoves. • Coordinate with regional institutions to eliminate trade barriers for cookstoves that are produced in Central America. 	<p>2015+</p> <p>National</p>	<p>Government MINFIN Superintendence of Tax Administration (SAT) AgExport MEM Cluster</p>
<p>10 Reinforce the opportunities for carbon/climate financing</p>		
<p>Evaluate and promote the contribution of improved cookstoves and clean fuels for the mitigation of GHG emissions ⁽²⁾.</p> <ul style="list-style-type: none"> • Determine the amount of carbon emissions avoided by using clean cookstoves and fuels. • Identify the role of clean cookstoves and fuels in the activities of Huella Cero/LEDS and REDD+, and establish synergies to strengthen cookstove projects and programs (<i>see Option 24</i>). • Explore the possibility and conditions offered by carbon and climate programs like the Clean Cooking Loan Fund provided in partnership with Nexus Carbon and the Gold Standard. • Explore the possibility and conditions for extending an existing PoA (Program of Activities of the Clean Development Mechanism) to other cookstoves for easy access to climate finance. 	<p>2014-2015</p> <p>National</p>	<p>MARN MEM INAB CONAP FAO CNCG (WWF) Cluster PRONACOM USAID IDB</p>

(1) Need for coordination with integrated projects (highly subsidized cookstoves) to avoid market distortions.

(2) Importance of positioning Guatemala as a country with objectives of contributing to the fight against climate change.

Alignment with the National Strategy for Sustainable Use of Wood:

- Promotion of efficient firewood consumption technologies (Fund for the implementation of cookstoves projects, determine carbon emissions avoided).

2.5.3 Entrepreneur Training and Capacity Building

Barriers	Intervention Options	Expected Result
Built-in-place cookstoves are common in Guatemala and are sometimes constructed without technical knowledge, resulting in inefficient cookstoves with low durability.	11 Train masons of built-in-place cookstoves.	Built-in-place cookstoves are more efficient and of higher quality.
Companies or NGOs manufacturing and selling cookstoves lack commercial business skills, which limits them from attracting additional funding and investment.	12 Strengthen business capacity and skills of manufacturers and distributors.	Cookstove and fuel manufacturers and distributors possess adequate business skills to attract much needed funding and investment.

Key Steps and Activities	Timeline/ Geography	Stakeholders
11 Train masons of built-in-place cookstoves		
<ul style="list-style-type: none"> Design a national training program for masons of built-in-place cookstoves in order to enhance the performance of the stoves and to go to scale with the production. Prepare and deliver short courses, for example on: knowledge of the components of cookstoves and their importance in the quality of a cookstove; the importance of promoting correct use of the cookstove; the principles of the Maya worldview. It is important to monitor the training of these masons and its application in the construction of built-in-place cookstoves. Prepare short programs to teach temperature and insulation concepts and demonstrate the construction of improved cookstoves, offered in different regions. Practical workshops are important because many workers cannot read or write, but can work well. Study the feasibility of a system of licensing and accreditation of masons, associated with the training programs. 	2015+ National	Cluster MEM INTECAP
12 Strengthen business capacity and skills of manufacturers and distributors		
<ul style="list-style-type: none"> Identify existing business training programs in order to include skills development in key capacity areas such as financial management, marketing, supply chain management, investor pitching. 	2015+ National	Cluster MINECO PRONACOM INTECAP IDB Global Alliance

2.6 Foster an Enabling Environment:

2.6.1 Standards and Testing

Barriers	Intervention Options	Expected Result
There are currently no cookstove standards in Guatemala, meaning that cookstoves available in the market do not have to meet any minimum requirements. Manufactures do not have to comply with guidelines for producing clean, efficient, and durable cookstoves.	13 Adopt cookstove standards relevant to the Guatemalan context based on international standards in development.	Relevant standards for cookstove emissions, efficiency, and durability are adopted in Guatemala.
There is currently no cookstove testing center in Guatemala. While some have sent their cookstoves to the Zamorano Improved Cookstoves Certification Center (Honduras) or the Aprovecho Research Center (U.S.) for testing, challenges of affordability have limited some producers. Without certification requirements and a labeling system, quality cannot be ensured and consumers lose confidence after experiences with poor products. Consumers may not be aware of the advantages of purchasing a tested and certified cookstove.	14 Evaluate and implement procedures for cookstove testing, certification, and labeling.	Cookstoves available in the Guatemalan market have been tested and a certification and labeling system is in place. Consumers can distinguish certified cookstoves from others and understand the costs and benefits of different options. Consumers trust and willingness to pay is reinforced.

Key Steps and Activities	Timeline/ Geography	Stakeholders
13 Adopt cookstove standards relevant to the Guatemalan context based on international standards in development		
<ul style="list-style-type: none"> ○ The Guatemalan Standards Commission (COGUANOR) is an active member of ISO Technical Committee 285 and participates in formal discussions on standards development for clean cookstoves. ○ Sensitize national stakeholders on standards and testing processes. ○ Establish and convene an advisory board ("<i>mirror committee</i>") of local stakeholders to discuss topics including: <ul style="list-style-type: none"> ○ participating in regional and international standards discussions; ○ contributing to discussions on <i>plancha</i> (griddle) cookstoves; ○ minimum parameters for certification; ○ the definition of an "improved cookstove"; ○ testing protocols used for certification. ○ Participate in regional and international standards discussions. ○ Confirm Guatemala as the host for the next working groups meeting of ISO Technical Committee 285 in fall 2014. ○ While international standards are being developed, consider adopting the <i>IWA (International Workshop Agreement) 2012 Four Tier Specifications for Cookstoves</i> immediately and select tiers for each characteristic – efficiency, indoor emissions, total emissions (indoor & outdoor), and durability – to use for certification of stoves. 	<p>2014+ urgent</p> <p>National</p>	<p>COGUANOR ISO Cluster / manufacturers Universities Other research institutions Wood Roundtable ANAM (population education) Global Alliance</p>

14 Evaluate and implement procedures for cookstove testing, certification, and labeling

<p>14a Evaluate the options for cookstove testing</p> <ul style="list-style-type: none"> ○ Assess existing procedures for cookstove testing and the costs and benefits of enhancing national testing capacity. The assessment should consider: <ul style="list-style-type: none"> ○ available data for cookstoves already tested and the volume of new cookstoves to be tested; ○ existing testing organizations in the region; ○ the costs of creating and maintaining a testing center in Guatemala; ○ existing infrastructure available at MEM; ○ current capabilities (equipment, human resources) of the universities. In this regard, organize a meeting with the directors of various centers of study and a subsequent meeting with the deans of key faculties of interested universities. ○ Assess the potential for a subsidy or mobilize funds for a group shipment of different Guatemalan cookstove models to be tested at Zamorano to reduce the economic impact on manufacturers. ○ In the case of developing a national testing center: <ul style="list-style-type: none"> ○ equip the laboratory with equipment and human resources that meet ISO/IWA standards; ○ collaborate with institutions like the University of Zamorano or other institutions with expertise in testing for technical training; ○ assess the potential for a first time testing subsidy. 	<p>2014 urgent National</p>	<p>MEM Cluster ISO MINECO Universities and other laboratories Zamorano University PRONACOM Cluster Global Alliance World Bank</p>
<p>14b Develop and enforce a certification and labelling system to distinguish certified cookstoves from others</p> <ul style="list-style-type: none"> ○ Analyze, in conjunction with the Global Alliance, existing testing protocols for cookstoves and decide which protocols are used for certification. ○ Study and choose the most suitable type of labelling in the context of a multilingual Guatemala. ○ Include information on certification in awareness and education programs (<i>see Option 2</i>). 	<p>2016 National</p>	<p>MEM Cluster Global Alliance</p>

Alignment with the National Strategy for Sustainable Use of Wood:

- Promotion of efficient firewood consumption technologies (Certifications implemented for efficient cookstoves).

2.6.2 Fuels and Technology

Barriers	Intervention Options	Expected Result
The most common mix of energy sources is firewood (for prolonged cooking) and LPG (for reheating and making quick meals like breakfast). However, there is a lack awareness about the health benefits of LPG, and concerns regarding safety. Old and damaged cylinders remain on the market, and LPG is often sold in containers of 25 lbs and more, which represents a high initial cost of buying and filling.	15 Establish a program promoting Liquefied Petroleum Gas (LPG) in households.	LPG becomes an accepted and accessible option for base of the pyramid households, contributing to the objective of the National Energy Policy (substitution of firewood for other energy sources in 25% of households).
There is a lack of knowledge and support for the research and development of alternative fuels and technologies for cooking. For example, biogas offers many advantages in terms of energy, health, and agriculture, but biodigesters remain unaffordable for the majority of Guatemalans, despite the fact that their benefits would help to reverse the impacts of poverty.	16 Explore and promote alternative fuels and technologies for cooking.	Alternative fuels and technologies become accepted, accessible options for base of the pyramid communities, contributing to the objective of the National Energy Policy (substitution of firewood for other energy sources in 25% of households).
The quality of the cookstoves can be improved and manufacturing costs can be reduced with innovation and research findings.	17 Strengthen technical knowledge and promote research and innovation to improve cookstoves.	The manufacturing processes and the quality of cookstoves keeps improving.

Key Steps and Activities	Timeline/ Geography	Stakeholders
15 Establish a program promoting Liquefied Petroleum Gas in households		
15a Perform an LPG Mapping <ul style="list-style-type: none"> Perform an LPG mapping of the current fuel distribution network (from where the gas arrives, to its transportation to different regional administrative areas, municipalities, and even communities) and determine potential improvements to this distribution network. Study the market segmentation related to LPG. Study the conditions for stabilization of gas prices. 	2015	MEM World LPG Ass. GenteGas Private sector (distributors) CDC UVG World Bank
15b Ensure consumer safety and information ⁽¹⁾ <ul style="list-style-type: none"> Explore the conditions permitting consumers to purchase quantities of LPG smaller than 10 lbs, especially the poorest segments. Define appropriate standards for equipment, distribution and management related to LPG, including a diagnosis of gas cylinders in the market (diagnostic plan prepared by the MEM, but lack of funds). Inform consumers on LPG and its advantages (this can be done in synergy with awareness campaigns - see <i>Option 2</i>). 	2015	MEM World LPG Association GenteGas Private sector (distributors) World Bank

⁽¹⁾ Importance of information and education (see *Option 2*).

16 Explore and promote alternative fuels and technologies for cooking

<ul style="list-style-type: none"> • Create a mapping of ongoing projects using alternative fuels (non-firewood) for cooking, including cost and potential for scale. Include in the mapping: drawer solar cookstoves (MARN), solar ovens, thermal inertia pots, solar fruit dryers, ethanol, biomass briquettes, biogas (Alterna’s Pro-Bio initiative; MARN), and hydrogen gas (Galileo University). • Explore the market potential of biofuels from the sugarcane, palm oil and coffee sectors, including biogas and ethanol. Actions related to biofuels must be developed with the framework of the National Biofuel Action Plan. • Develop a program to promote biogas (see initiatives proposed by Alterna in Annex 3). • Evaluate the potential of institutional cookstoves. Institutional cookstove projects can support the government’s Food Security and Nutrition Policy, educate many people at once on nutrition, health and proper use, serve as a bridge to facilitating household adoption, and provide knowledge of consumer needs. • Explore opportunities for using cookstoves for food dehydration in places where there are difficulties preserving foods. • Create and promote distribution channels for products generated by new technologies. • Incorporate more details on the subject of energy sources in ENCOVI or through another national survey. • On the legislative front, create promotional instruments (incentives or subsidies) with the aim of facilitating access to alternative solutions. • Develop a fund or incentive mechanism similar to the Microenterprise Fund and mobilize (social-impact) funds for alternatives that promote positive impacts on health, fuel, energy, etc. • Determine a certification authority at a recognized or official institution and promote certification for alternative fuels that meet a minimum environmental standard. • Encourage research and experimentation aimed at creating efficient and low cost solutions. 	<p>2014 (contact with INE)</p> <p>2015+ (other actions)</p> <p>National</p>	<p>MEM MARN MAGA PRONACOM Universities Private Sector INE CONCyT Associations INAB FAO IDB Manufacturers Fundazúcar ANACAFE Network distribution of biogas alternatives</p>
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⁽¹⁾ Importance of information and education (*see Option 2*).

17 Strengthen technical knowledge and promote research and innovation

<p>17a Strengthen technical knowledge</p> <ul style="list-style-type: none"> Facilitate links between manufacturers, universities and research centers, foster innovation workshops, and encourage publication of lessons learned and best practices. Identify topics of interest to manufacturers. For example: enhance design to make cookstoves more visually appealing, how to adapt the models to different climatic conditions, different types of cement. Organize technical workshops on topics identified by the manufacturers. Organize visits to other countries and participate in international forums. For example: South-South Exchange to the Clean Cookstoves Expo in China, April 2014 (3 participants from Guatemala confirmed); Global Alliance Biennial Forum with more than 500 participants, next in Ghana, spring/summer 2015. 	<p>2015 + (other activities)</p> <p>National</p>	<p>Cluster MEM MARN Universities CONCyT Other manufacturers World Bank Global Alliance</p>
<p>17b Promote research and innovation</p> <ul style="list-style-type: none"> Design and implement a national program for fuelwood research with components including: energy efficiency, fuel switching, renewability/non-renewability of fuelwood, different species by location. Encourage graduate students to conduct research in the area of clean cookstoves and fuels. Establish programs of financial and technical support for the development of innovative pilot projects and replicate them on a larger scale. Search for partnership opportunities to produce and improve models in Guatemala. Collaborate with the University of Zamorano (Honduras) to improve the efficiency of <i>plancha</i> (griddle) cookstoves. Take into account Article 7 of the Framework Law for Regulating the Reduction of Vulnerability, the Adaptation to the Effects of Climate Change and the Mitigation of Greenhouse Gases (Decree 07/2013). This article addresses the need for public stakeholders and universities to develop research programs related to risk management, vulnerability, adaptation and reduction of greenhouse gas emissions. 	<p>2015+</p> <p>National</p>	<p>Cluster MEM MARN Universities CONCyT Other manufacturers</p>

⁽¹⁾ See Chapter III - Development of national capacities:
<http://www.marn.gob.gt/documentos/LeyCambioClimatico7-2013.pdf>

Alignment with the National Strategy for Sustainable Use of Wood:

- Fostering use of alternate energy sources (objective of the National Energy Policy: substitution of firewood for other energy sources in 25% of households).

2.6.3 Sustainable Production of Wood

This intervention is fully aligned with the National Strategy for Sustainable Use of Wood.

Barriers	Intervention Options	Expected Result
About 16 million tons of dry firewood is consumed annually in Guatemala, with a deficit of more than 5 million tons, which directly reduces the country's forest cover.	18 Define and implement a strategy for sustainable production of firewood.	The firewood deficit in priority municipalities is significantly reduced.

Key Steps and Activities	Timeline/ Geography	Stakeholders
18 Define and implement a strategy for sustainable production of firewood		
Foster forests and energy plantations <ul style="list-style-type: none"> Identify potential areas in the country for reforestation for energy purposes (energy plantations). Encourage the establishment of energy plantations with the programs PINPEP and PINFOR. Evaluate and financially strengthen forestry incentive programs and incentive mechanisms for energy plantations. Create the National Program of Forest Incentives with Energy Purposes (PINENERGIA). Achieve increases in forest coverage of 4,000 hectares per year for 12 years. 	2014+	INAB MEM Wood Roundtable Presidency
Promote agroforestry systems <ul style="list-style-type: none"> Determine the potential for firewood production through agroforestry systems for increasing the supply of firewood. 	2014+	INAB MEM Universities
Promote carbon/climate projects <ul style="list-style-type: none"> Determine carbon emissions captured by forests and agroforestry systems for energy purposes. Perform funds management by CO2 reduction. Create a financial fund for implementing energy forests. 	2014+	Parties interested in project certification INAB MARN MEM Wood Roundtable Presidency
Fostering markets and governance <ul style="list-style-type: none"> Encourage the improvement of local chains of production and firewood trading. Promote institutional arrangements between the forest service (INAB / CONAP) and municipal governments to promote energy forests and governance in the field of firewood. 	2014+	INAB CONAP Municipalities

Alignment with the National Strategy for Sustainable Use of Wood:

- This intervention option is crucial and corresponds to an entire strategic line of the Wood Strategy (Sustainable production of firewood). The text included in this Country Action Plan reflects the activities as defined in the Wood Strategy.

2.6.4 Monitoring, Evaluation, and Ensuring Adoption

Barriers	Intervention Options	Expected Result
Guatemala has unique experiences in improved cookstoves, but without systematization of information. Experiences are isolated, and sometimes lack coherence. It is not known how many cookstoves have been installed, or where, or the level of adoption. There is a need to integrate available information, keep an updated record of the projects, and improve knowledge management.	19 Develop a system for monitoring and evaluating cookstoves (M&E).	The number of cookstoves installed, the number of cookstoves in use, and the impacts these cookstoves are known.
Using the cookstove is necessary, but it is not sufficient: they must be used <i>well</i> . Understanding how to use the cookstove and the basic steps for preventive maintenance is vital for its care and continuous use. Monitoring and technical support is required to ensure that consumers use the cookstove well and know how to change the parts that wear out, such as chimneys. This should be performed locally.	20 Implement mechanisms to ensure the adoption and appropriate use of the technology.	The users understand how to use the cookstoves well and why they must do so. They understand that each part has an expected lifetime, and they know what to do in order to replace it in the future

Key Steps and Activities	Timeline/ Geography	Stakeholders
19 Develop a system for monitoring and evaluating cookstoves (M&E)		
<p>19a Design and implement a registration system for cookstove projects</p> <ul style="list-style-type: none"> Given the government's quantitative objective, it is urgent to develop a cookstoves projects registration system administered by the MEM. The hiring of an expert should be considered with a view to developing the registration system software. Explore the feasibility of: <ul style="list-style-type: none"> using the Integrated Accounting System (SICOIN) and generating a specific filter on cookstove projects within the SICOIN in order to generate reports for monitoring the budget allocated by the Government to cookstove projects. The public institutions involved in the National Strategy for Sustainable Use of Wood are assigned by law to use this system. using the System of Environmental-Economic Accounting (SEEA). designing a software tool that can monitor both the financial and physical aspects of cookstove projects, given its mandate under the Energy Policy and other legal frameworks that govern this. 	<p>2014 (registra- tion system) -2015</p> <p>National</p>	<p>MEM PRONACOM MINFIN IARNA Cluster</p>

<p>19b Define the M&E framework</p> <ul style="list-style-type: none"> As the M&E methodology developed by the Global Alliance is available (second quarter 2014), define how to adapt it in Guatemala. For this a Wood Roundtable/Cluster technical committee will be formed to evaluate: <ul style="list-style-type: none"> the criteria, based on the methodology of the Global Alliance, monitoring of the CDM (e.g. HELPS projects), the methodology of the Gold Standard (available online), the monitoring of the REDD + (IDB) projects, ISO certification, the direct and indirect benefits (health, environmental, social, economic); the computer system with which to implement the M&E system; the possibility of climate funding to offset the costs of M&E (<i>see Option 10</i>); the statistics required to monitor the objectives of the National Strategy for Sustainable Use of Wood. Determine the current status of institutional capacities in terms of statistics, and reinforce capacities. Define the mode of application: frequency of inspections, possible involvement of students (healthcare, engineering, sociology, etc.), possibility of removing cookstoves from beneficiaries if seldom or unused (in the case of projects integrated with highly subsidized cookstoves). 	<p>2015</p> <p>National (start with pilot projects)</p>	<p>MEM Cluster Global Alliance HELPS INE Wood Roundtable IDB</p>
<p>20 Implement mechanisms to ensure adoption and appropriate use of the technology</p>		
<ul style="list-style-type: none"> Require incorporation of at least two visits following the installation of the cookstove with the aim of ensuring adequate assimilation of the technology and provide answers to questions, doubts, small technical problems, etc. Project implementers should include this component in their business plans, as this makes users feel more comfortable with technology, and provides feedback to the implementers for improving the technology. Request such a tracking in government tenders. Share experiences (successes and failures) in implementing and adopting technologies, for example through a one-day workshop, and propose a best practice guide and parameters for future tenders. Use the results of the study on needs and segmentation of the supply (<i>see Option 1b</i>). Gather information through interviews and field visits of past experiences that were not necessarily documented in the different communities. This data will provide success or failure patterns and corrections can be pointed out. Support manufacturers and implementers to develop and include instructions for the users, as well as information on how and when to buy parts (provide contact information). Due to the multiple languages, graphical instructions are ideal. 	<p>2015+</p>	<p>Cluster Universities MEM</p>

Alignment with the National Strategy for Sustainable Use of Wood:

- Inter-institutional reinforcement (monitoring and evaluation system in place and operating in order to measure the sustainable use of firewood);
- Research, education, dissemination and information;
- Promotion of efficient firewood consumption technologies (national program for determining effectiveness of interventions, Manuals and instructions within the social context for technological appropriation).

2.6.5 Building the Evidence Base (Research on Impacts and Benefits)

Barriers	Intervention Options	Expected Result
The use of clean cookstoves and fuels has many co-benefits including health, environment, gender and economic. However, these impacts have not always been measured and documented. Impacts should also be compared those of other public health and environmental interventions.	21 Promote research and disseminate information on the benefits of clean cookstoves and fuels.	Know, qualitatively and quantitatively, the impacts and benefits (social, environmental, economic, etc.) of cookstoves and fuels.

Key Steps and Activities	Timeline/ Geography	Stakeholders
21 Promote research and disseminate information on the benefits of clean cookstoves and fuels		
21a Assess available studies and <ul style="list-style-type: none"> Perform an initial assessment (by University students/thesis work) of studies that already exist and those that are really needed. Share available studies, using the information sharing system proposed in <i>Option 22</i>. From the assessment, identify the issues that strengthen and promote related projects, for example in universities. 	2015 National	Universities Health: MSPAS, FAO, OPS/OMS, CDC, USAC, UVG, MINEDUC Development: SEGEPLAN, MAGA, PNUD, MEM, MARN, MINEDUC Environmental: MARN, MEM, MAGA, INAB, CONAP CECON IARNA, INE, Association of independent co-generators, Institute of Climate Change
21b Make impacts and benefits on health and development known <ul style="list-style-type: none"> Implement the conclusions of the December 2013 workshop for the "development of a national strategy for Guatemala on reducing the health burden attributable to air pollution in the home." Among them: <ul style="list-style-type: none"> Actively involve the MSPAS. Provide technical information to local Mayors and community leaders (<i>see Option 8</i>). Community leaders play a key role in communication and training for their communities. Raise public awareness (<i>see Option 2</i>). Promote certification (<i>see Option 13</i>). Coordinate with the Central American Integration System (SICA) and the Council of Health Ministers (COMISCA) a Central American regional strategy for the promotion of clean cookstoves and fuels (<i>see Option 24</i>). Support and make known the results of recent and ongoing studies on health impacts, for example (see Annex 2): <ul style="list-style-type: none"> UVG / UC Study on the impacts on childbirth and babies (BORN) CDC / UVG / PHI study on the impacts of LPG and firewood cookstoves on health, Past studies UVG / UC BREATHE and GROW. Assess and understand the impacts of improved cookstoves and clean fuels on the Millennium Development Goals. Get involved in the discussions of the goals of post-2015 development. 	2014+ National	MSPAS FAO OPS/OMS CDC USAC UVG MINEDUC MIDES MEM Global Alliance

Alignment with the National Strategy for Sustainable Use of Wood:

- Promote the use of alternative sources (studies that generate data and demonstrate the feasibility and advantages of the solutions)

2.6.6 Champion the Sector and Engage Stakeholders

Barriers	Intervention Options	Expected Result
Guatemala has many players in the market for clean cookstoves and fuels, but they are not known.	22 Centralize and share knowledge.	The stakeholders and the technologies in the Guatemalan clean cooking sector are known.
Several institutions of the government and the non-government sector are involved or should be involved in strategies for clean cookstoves and fuels in Guatemala. The Inter-Institutional Wood Roundtable and Cluster of Improved Cookstoves and Clean Fuels have been started.	23 Organize stakeholders into legal structures.	The Wood Roundtable and the Cluster are formal and legal institutions with an operational plan. All government institutions have a basic understanding of the issue.
Various international initiatives are underway in Guatemala and all of them can contribute to the development of the clean cookstoves and fuels sector.	24 Coordinate regional and international actors around the Country Action Plan.	The different strategies complement and reinforce each other.

Key Steps and Activities	Timeline/ Geography	Stakeholders
22 Centralize and share knowledge		
<p>22a Complete the catalog of technologies, manufacturers, experiences</p> <ul style="list-style-type: none"> Complete the catalog of technologies, domestic producers, importers and implementers existing in Guatemala. The first version of the catalog, based on information obtained from manufacturers, is included in Annex 4. In order to validate the catalog, the most important information needs to be verified, such as production capacity and efficiency. Assess the conditions and costs of group shipment of Guatemalan cookstoves to the Zamorano center in order to evaluate them (<i>see Option 14a</i>). Include the information in the Catalog of the Global Alliance. Compile information on the experiences of using clean cookstoves and fuels and the lessons learned, as well as the different projects related to them in Guatemala. Keep the information on projects and activities implemented by local, regional and international actors up to date. 	<p>2014 already started (see Annex 4)</p> <p>National</p>	<p>Cluster</p> <p>Universities</p> <p>Wood Roundtable</p> <p>PRONACOM</p> <p>World Bank</p>
<p>22b Implement an information dissemination system</p> <ul style="list-style-type: none"> Define and implement a mechanism to centralize and share information. For example, a virtual library. This system will integrate data and information on technologies and manufacturers, requirements and segmentation of the demand (<i>see Option 1a</i>), benefits and impacts (<i>see Option 21</i>), support programs (funding, technical training) to entrepreneurs (<i>see Options 12, 22b</i>). Establish, promote and maintain contact lists. Publish a newsletter to keep all stakeholders informed. 	<p>2014-2015</p> <p>National</p>	<p>Cluster</p> <p>Universities</p>

23 Organize stakeholders into formal and legal structures		
23a Wood Roundtable <ul style="list-style-type: none"> • Institutionalize the Inter-Institutional Roundtable, by a government decision, where the role of each member is defined (e.g., coordination by MEM, rotating technical secretary). • Manage resources for operation. • Put more emphasis on health issues and promote the active participation of institutions such as MSPAS. 	2014 urgent National	MEM Government World Bank
23b Cluster <ul style="list-style-type: none"> • Legalize the Cluster. • Manage resources for the operation and development of the tasks. • Define an operational plan. 	2014 already initiated National	Cluster Global Alliance World Bank
24 Coordinate regional and international actors around the Country Action Plan		
24a Promote the alignment and synergy of the CAP and other international strategies <ul style="list-style-type: none"> • Identify actors and actions related to cookstoves and clean fuels in the different strategies implemented in Guatemala (SE4LL, Guatemala Footprint Zero / LEDS, REDD +, ODM, etc.). • Coordinate a meeting with international and regional actors in order to advocate for clean cookstoves and fuels to be a priority globally, and particularly in their efforts in Guatemala. The meeting will involve representatives at the headquarters level and at the national level. It will permit: <ul style="list-style-type: none"> – reinforced coordination between headquarters and national initiatives; – information sharing about projects, initiatives and/or with the purpose of identifying possible synergies in order to avoid duplication; – defining of technical and/or financial support based on the Country Action Plan. • Implement a systematic coordination mechanism at the national level (now led by PRONACOM, one of the focal points of SE4ALL) that aligns with official government procedures international coordination. • 	2014 already initiated Inter- national	Global Alliance World Bank CNCG (WWF) USAID IDB GIZ UNDP Wood Roundtable PRONACOM Cluster
24b Support regional coordination <ul style="list-style-type: none"> • Identify opportunities for collaboration with other countries in the region. Collaborate with the Central American Integration System (SICA) on energy issues (American Sustainable Energy Strategy 2020), health (Council of Ministers of Health of Central Americas) and rural development (Central American Strategy for Rural Development). 	2014 already initiated Regional	Cluster Universities Wood Roundtable MEM PRONACOM World Bank Global Alliance SICA

Alignment with the National Strategy for Sustainable Use of Wood:

- Inter-institutional reinforcement (Inter-Institutional Roundtable of Wood formed and functioning effectively, More than 10 external cooperators are interested in supporting, technical cooperations or assistances in implementation, Cluster formed and functioning)

2.6.7 Promote Integrated Projects for the Extreme Poor ("give-away: no")

Barriers	Intervention Options	Expected Result
Strategies based on donations of cookstoves or in highly subsidized cookstoves should be clearly separated from market development strategies: the government must establish different strategies inspired by extensive stakeholder experience. Currently, cookstoves are given away without much discrimination, creating market distortions.	25 Define an integrated intervention framework for the extreme poor	Cookstove donations to beneficiaries of extreme poverty are integrated without causing negative impacts on the parallel development of the market.

Key Steps and Activities	Timeline/ Geography	Stakeholders
25 Define an integrated intervention framework for the extreme poor		
25a Promote the framework for the extreme poverty segment ⁽¹⁾ <ul style="list-style-type: none"> Disseminate the concept of integrated projects for reducing poverty and sustainable development that includes various components, such as energy, forestry, water, education, agriculture, energy, health, etc. Incorporate a social component into all cookstove and fuel programs emphasizing commitment, awareness and technology adoption. With technical support from the Global Alliance, raise awareness among decision-makers and decision implementers, including volunteers, for the need to break the "gift" pattern and replace it with "integrated projects" strategies. 	2014 urgent	Cluster Wood Roundtable Government MEM MIDES Global Alliance
25b Define strategies for implementing cookstoves into national programs for the population in extreme poverty <ul style="list-style-type: none"> Identify government programs where clean cookstoves and fuels can play a role (gender, environment, energy, health, forestry, etc.). Use maps of each institutions projects and priority areas (INAB PNDRI, etc.) in order to facilitate an "organized" implementation of integrated projects⁽¹⁾. Create a space (Cluster) to share experiences in the implementation and the criteria for choosing beneficiaries of integrated projects (<i>related to Option 20</i>). Suggest a guide of best practices⁽³⁾ and criteria⁽⁴⁾ and exchange with the Wood Roundtable in order to define any future government integrated cookstove projects. Explore the possibility of offering integrated services and energy products, such as decentralized electrification, which faces the same barriers of limited accessibility to remote areas, and the same requirements for monitoring and following-up users (training, maintenance and payment). Design low cost technology options tailored to user needs⁽²⁾. 	2014-2015	Cluster Wood Roundtable Government MEM Global Alliance

⁽¹⁾ Importance of the institutionalization the Wood Roundtable. Importance of strengthening the role of municipalities and local actors (e.g. COCODES).

⁽²⁾ Importance of the diversity of supply of cookstoves and fuels.

⁽³⁾ Importance of Monitoring, evaluation, and monitoring / maintenance, to ensure the assimilation of the cookstove.

⁽⁴⁾ Examples of criteria used for the selection of beneficiaries: geographic location, poverty map and supply gap vs. biomass consumption, informal economy, socio-economic study of the NBI for the beneficiaries, apparent interest of the beneficiary in improving their condition, ability and willingness to contribute.

Alignment with the National Strategy for Sustainable Use of Wood:

- Promotion of efficient technologies of firewood consumption (marketing plans for installation of efficient cookstoves with multisectoral government programs)

3 MONITORING PROGRESS AND MEASURING IMPACT

3.1 Global Context

The Global Alliance for Clean Cookstoves set a global target of fostering the adoption of clean cookstoves and fuels in 100 million households by 2020. The Global Alliance aims to achieve this by implementing a number of priority activities to enhance demand, strengthen supply and create an enabling environment for a thriving market for clean cooking solutions. In implementing these activities, measuring progress and performance to understand what works in which context is crucial for improving activities and results. The monitoring and evaluation (M&E) strategy of the Global Alliance aims to measure progress and performance on the number of households adopting clean, safe, and efficient cookstoves and fuels, and the associated success in saving lives, improving livelihoods, empowering women, and preserving the environment. The Global Alliance will use these findings to address evidence gaps and promote continuous quality improvement of clean cooking solutions.

3.2 Charting National Progress

The Global Alliance is developing M&E strategies for its focus countries that are informed by and aligned with its global M&E strategy, which seek to answer the following questions:

- What progress has been made towards the Global Alliance’s goal of “100 million households adopting clean cookstoves and fuels by 2020” and relevant country-specific goals?
- What are the impacts on health, the environment, livelihoods and women’s empowerment arising both from increased adoption of cleaner cookstoves and from changes in the clean cooking value chain?
- To what extent have the activities of the Global Alliance and its partners, globally and in specific countries, contributed to this progress?

The country-specific M&E strategies in development for focus countries can serve as a guiding resource for national monitoring and evaluation efforts. Key elements of country-specific M&E approaches that can be used to inform the measurement of progress in Guatemala include:

- Capacity building for collecting, reporting and quality.
- Opportunistic use of already collected data and tools in use.
- Annual outcome-reporting through the Global Alliance’s results reporting survey.
- Establishment of the necessary baselines.
- Development and use of tracking tools and templates.
- Data use.
- Reporting.

In addition to Guatemala’s contribution to household adoption of clean cooking solutions on a global scale, there are multiple key steps and activities proposed in the Guatemala Country Action Plan, including short-term priority actions, whose progress must be monitored in order to acknowledge

success and identify areas for improvement. To this end, Annex 5 includes potential indicators for monitoring the progress of key steps and activities for each intervention proposed in the CAP.

3.3 Measuring Impact

In advance of an M&E strategy tailored specifically to Guatemala’s targets for clean cooking, key performance indicators for measuring impact are included in the table below.

Monitoring and Evaluation of Impacts

Topic	Possible indicators	Quantitative targets in Guatemala
Clean Cooking Technology	<ul style="list-style-type: none"> • Number of cookstoves: <ul style="list-style-type: none"> – sold – installed – used after x months or years • Number of households with cookstove(s) • Efficiency of installed technologies 	<ul style="list-style-type: none"> • Supply capacity of 65,000 cookstoves per year ⁽¹⁾. • Installation of 100,000 clean biomass stoves, and training on efficient use of firewood ⁽²⁾. • Substitution of firewood by other energy sources in 25% of households ⁽²⁾. • Reduction of 15% of industrial firewood consumption ⁽²⁾.
Health	<ul style="list-style-type: none"> • Pulmonary illnesses, severe pneumonia, adverse pregnancy outcomes, low birth weight, growth of children, premature deaths • Burns, injuries • Perceived benefits 	To be determined
Livelihoods/ Economy	<ul style="list-style-type: none"> • Employment, income generation • Wealth, assets • Household energy expenditures • Workforce education and training levels 	To be determined
Gender	<ul style="list-style-type: none"> • Time collecting wood, distance, access • Female employment in the value chain • Institutions in the sector with gender policies or gender-informed best practices 	To be determined
Environment	<ul style="list-style-type: none"> • Local emissions • Global emissions (CO2) • Deforestation rate 	<ul style="list-style-type: none"> • 4,000 hectares per year for energy plantations during 12 years ⁽¹⁾. • 10% increase in energy plantations ⁽²⁾. • Significant reduction in the shortage of firewood in priority municipalities ⁽¹⁾.

⁽¹⁾ National Strategy for Sustainable Use of Wood.

⁽²⁾ Energy Policy 2013-2027.

4 CONCLUSION AND NEXT STEPS

The Guatemala Country Action Plan for clean cookstoves and fuels is a result of the mobilization of local stakeholders including manufacturers, implementers, government, universities, and donors who share the goal of removing the barriers that prevent the adoption of clean cookstoves and fuels at scale in Guatemala.

The identified activities must be transformed into operational plans and implementable projects. Some actions have already been initiated in the first half of 2014 (for example: formation of the Wood Roundtable and the Cluster, preparation of the cookstoves catalog, Guatemala's official entry to ISO Technical Committee 285 on clean cookstoves, development of a training module on cookstoves and climate change), while others will be developed in the coming months. At the governmental level, the investments and programs of the various ministries involved in the sector continue to be defined.

The Country Action Plan will evolve over the months and years to come in order to reflect the results achieved by the actions implemented and changes occurring in the sector and country. This first version can be used by sector stakeholders as an informational resource and fundraising tool to catalyze activity in the Guatemalan clean cooking sector.

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<i>Alianza de Derecho Ambiental y Agua, ADA²</i>	<i>Fundación Génesis Empresarial</i>
<i>Alterco 21</i>	<i>Fundación Guatemala (FUNGUA)</i>
<i>Alterna</i>	<i>Fundación Solar</i>
<i>Asociación Bienestar Progreso Desarrollo</i>	<i>Fundación Trece Aguas</i>
<i>Asociación de Generadores con Energía Renovable</i>	<i>Fundimetales</i>
<i>Asociación de Mujeres del Altiplano</i>	<i>GenteGas S.A.</i>
<i>Asociación de Mujeres Ixchel</i>	<i>GIZ, Energising Development (EnDev)</i>
<i>Asociación para el Desarrollo Rijatz'ul Q'ij</i>	<i>Good Neighbors Guatemala</i>
<i>Autoridad para el Manejo Sustentable de la Cuenca del Lago de Atitlán y su Entorno</i>	<i>Gremial Forestal</i>
<i>BUN-CA</i>	<i>Grupo HASA</i>
<i>Cementos Progreso</i>	<i>Grupo Gertek S.A.</i>
<i>Cemex</i>	<i>Grupo Interdisciplinario de Tecnología Rural Apropiada (GIRA)</i>
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<i>Centro de Acción Legal, Ambiental y Social de Guatemala</i>	<i>Hands for Peacemaking</i>
<i>Centro de Estudios Para el Desarrollo y la Cooperación</i>	<i>HELPS International</i>
<i>Club Rotario Escuintla</i>	<i>Hiteca</i>
<i>Colectivo de Estudios Rurales Ixim</i>	<i>Hivos</i>
<i>Comisión Nacional de Energía Eléctrica (CNEE)</i>	<i>Hornos Urrea</i>
<i>Community Enterprise Solutions</i>	<i>Industrias NIVI</i>
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<i>Consejo Nacional de Áreas Protegidas (CONAP)</i>	<i>Inter-American Development Bank (IDB)</i>
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<i>Economic Commission for Latin America</i>	<i>Ministry of Social Development (MIDES)</i>
<i>Ecostufa</i>	<i>Ministry of Health (MSPAS)</i>
<i>Energía para el Futuro</i>	<i>Pan American Health Organization (PAHO)</i>
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ANNEXES (SEPARATE DOCUMENTS)

Annex 1: Sector Mapping

Annex 2: Non-Governmental Stakeholders

Annex 3: Members of the Wood and Energy Inter-institutional Roundtable

Annex 4: Cookstoves available in Guatemala

Annex 5: Indicators for Measuring Progress of CAP Interventions

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