

# Transforming the Cookstoves Market through Standards & Labels in Guatemala

October 2017

## Executive Summary

The government of Guatemala, the private sector, and local and international NGOs, including the Global Alliance for Clean Cookstoves, seek to transition Guatemalan households to cleaner and more efficient stoves and fuels to reduce the use of firewood, improve health and reduce environmental impacts. Several efforts are already underway to support this transition, with the Nationally Appropriate Mitigation Action (NAMA) on the “Efficient Use of Fuel and Alternative Fuels in Indigenous and Rural Communities” three-year project<sup>1</sup> playing a leading role in forging the path to a more sustainable and efficient cookstove market. This transition can be enabled through the adoption of best practice standards and labeling (S&L) policies and programs.

Well-designed standard programs transform markets by removing poor-performing or low-quality products, while labeling programs encourage and empower consumers and other buyers to make informed decisions about the products they purchase. S&L policies and programs exist in a variety of types, often enable complementary market transformation projects, and can be adapted to most cultures, countries, and markets. The primary principles of S&L include:

- **Testing products** to better understand their performance and to improve confidence among consumers and investors;
- **Establishing performance criteria** for efficiency, emissions, and safety to set a benchmark for manufacturers to meet, based on comprehensive market data; and
- **Conveying information** to producers, consumers, distributors, retailers, and program implementers through labels, databases, and public awareness campaigns, to increase awareness of the benefits of clean and efficient cookstoves.

The specific components of an S&L policy or program, such as type (e.g. voluntary vs mandatory), scope (i.e. what products are included), metrics (i.e. what the product is being tested an assessed on), label type, and compliance scheme (aka monitoring, verification and enforcement) that will be most beneficial to a market are based on that market’s technology landscape, policy environment, actors, and consumers.

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<sup>1</sup> <http://preview.nama-facility.org/projects/guatemala.html>

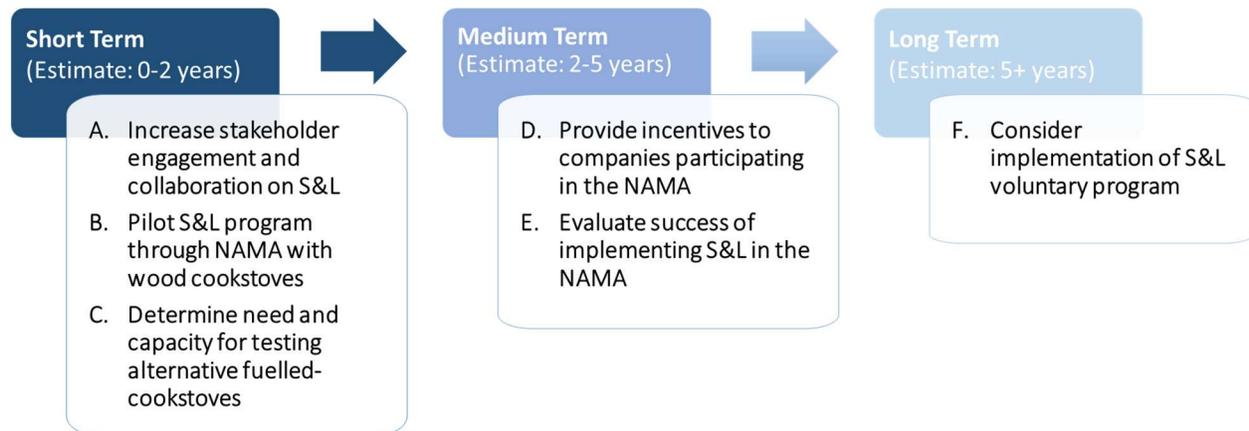
The status of the cookstoves market and sociopolitical framework in Guatemala indicates that specific components of S&L policies and programs can support the goal of substantially increasing consumer uptake of cleaner and more efficient cookstoves (also referred to as improved cookstoves, or ICS).

The following key findings were gathered from conversations with cookstove stakeholders, and influence the approach to devising and implementing a cookstove S&L strategy in Guatemala:

- The national ICS market is growing, but not yet mature for both wood and LPG stoves.
- Developing an improved cookstove market is becoming an increased priority for all stakeholders.
- There is an appetite for S&L interventions, although no legislative or institutional capacity is in place to support these policies.
- Greater S&L political will, leadership and coordination is needed at the institutional level.
- A stronger industry voice is needed.
- ICS efforts currently focused on wood stoves, but could be expanded to other technologies.
- More recent, well-researched and communicated market data can increase buy in to policy efforts.
- Streamlining facilities and improving capacity, accuracy and timeliness of testing for wood stoves and other technologies would benefit all stakeholders.
- Incentive programs based on efficiency and emissions criteria can support innovation and participation in the ICS industry.

Based on these features present in Guatemala’s cookstoves market, and best practices from other appliance S&L programs in markets that share some of them, we recommend that any approach taken by Guatemala remains voluntary, endorses top performing products, focuses on collecting market data, and on improving testing practices. As such, the existing NAMA project is well-placed to incorporate and apply certain S&L best practices to further strengthen its impact on transforming the market and to build a foundation and infrastructure for a future cookstove S&L program.

A strategy was developed integrating these characteristics and the key findings, as well as specific recommendations for its implementation over the short-, mid-, and long-term.



## Introduction

Across Guatemala, around 2.1 million households cook using traditional open-fires fueled by firewood. Mainly women and children from rural communities suffer the impacts of this everyday activity: burning wood indoors exposes them to harmful pollutants. Household air pollution (HAP) affects more than 10 million people, over seventy percent of households, and causes over 5,000 deaths in Guatemala<sup>2</sup>. Traditional Guatemalan cooking practices also cause detrimental environmental impacts. Firewood already accounts for fifty-seven percent of national energy consumption, and is expected to grow. Not only does this lead to increased felling of forests, but cooking with firewood also releases emissions that contribute to climate change, such as carbon monoxide and black carbon.<sup>3</sup>

The Guatemalan government recognizes the need to reduce firewood consumption, due to the harm caused by open fires and traditional stoves and increasing deforestation of the country. Various efforts have been implemented, focused primarily on reducing the use of firewood through improving stoves in impoverished and indigenous households. The recently launched Nationally Appropriate Mitigated Action (NAMA) support project on the “Efficient Use of Fuel and Alternative Fuels in Indigenous and Rural Communities” is a very important intervention towards tackling these challenges.<sup>4</sup> This and other efforts can be significantly enhanced by incorporating best practices from standards and labeling (S&L) policies and programs.

S&L policies are proven market transformation tools, and have been used to enhance markets for other products in Australia, China, India, EU, Ghana, US, and many other countries. In the US, for example, S&L policies have contributed to almost a four-fold decrease in energy consumption.<sup>5</sup> Product standards remove lowest-performing products from the market, while labels convey information to consumers to stimulate the purchase of high-performing products. Labels consequently drive innovation and competition among manufacturers by rewarding high-performing products. Enacting the S&L process also creates an environment conducive to broader market transformation efforts, such as technological innovation initiatives, awards and incentive programs, consumer finance mechanisms, and tax and tariff policies. Adopting S&L policy approaches for cookstoves can in turn impact on the transition to cleaner fuels, as the demand will be higher to match the demand for cleaner cookstove technologies.

A comprehensive S&L framework requires establishing reliable product testing, performance evaluation, and mechanisms for information-sharing, monitoring, verification, and enforcement among others. When political, financial, and technical resources are constrained or inconsistent, these components need to be adapted to the priorities and resources available. Nevertheless, in the past five years, the principles and components of S&L have been applied to early-stage market development efforts with great success. Relevant examples include traditional government-led S&L programs, like the Ghana Energy Efficiency Label<sup>6</sup> (for refrigerators and air conditioners), and industry-focused programs, such as Lighting Global<sup>7</sup>

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<sup>2</sup> Global Alliance for Clean Cookstoves. Guatemala Country Profile <http://cleancookstoves.org/country-profiles/focus-countries/2-guatemala.html>

<sup>3</sup> Global Alliance for Clean Cookstoves, 2015. Guatemala Country Action Plan for Clean Cookstoves and Fuels.

<sup>4</sup> <http://preview.nama-facility.org/projects/guatemala.html>

<sup>5</sup> <http://aceee.org/blog/2014/09/how-your-refrigerator-has-kept-its-co>

<sup>6</sup> <http://clasp.ngo/en/OurPrograms/SuccessStories/Ghana>

<sup>7</sup> <https://www.lightingglobal.org/>

and Global LEAP<sup>8</sup>. In other cases, a supporting foundation is required before launching into a full-scale S&L program. For example, India's successful voluntary and mandatory program<sup>9</sup> is built on the success of voluntary standards and conformity assessment for gold.

In support of Guatemala's ongoing efforts to transition the national market to cleaner and more efficient stoves, CLASP has been working with the Global Alliance for Clean Cookstoves to develop a national cookstoves S&L strategy. This process included assessing the feasibility of a national S&L program, and developing and documenting high-level recommendations, steps, and intervention activities to enact an overall S&L strategy. The strategy was developed based on in-person conversations with more than 20 stakeholders during a scoping mission to Guatemala City in October 2016. Interviewed stakeholders, listed in Annex 1, include government, industry, NGOs, professional organizations, testing laboratories, and others.

CLASP met with these stakeholders to learn about current cookstoves policies, projects and barriers; past projects and lessons learned; market maturity; and most importantly, the stakeholders' perspectives. Discussions also aimed to uncover the motivations of different stakeholders, how government processes and industry supply chains actually work on the ground, success stories, perceptions of S&L and its potential impact to consumers and industry, and ideal avenues to introduce the concepts of S&L to the cookstove market. Insights from these conversations were combined with desk research on Guatemalan projects, programs and resources and a review of international best practices for S&L programs to validate and inform this strategy document.

## Key Market and Policy Insights

This section outlines key findings from CLASP's interview of stakeholders. Understanding the technical and sociopolitical characteristics of the current cookstoves sector in Guatemala is a critical first step to determining the feasibility of a national S&L program. An assessment of market prerequisites, such as the five A's of market maturity, will identify which S&L characteristics (or "approaches" to S&L) and intervention options are *most* suitable for accelerating market transformation in Guatemala. Understanding the different market actors is essential to defining where responsibilities may lie and the viability of implementing specific policies or programs.

### The national ICS market is growing, but not yet mature for both wood and LPG stoves

**Availability** of improved cookstoves (ICS) is mixed across Guatemala. A large number of improved built-in wood stoves have been installed in rural areas, mainly as part of NGO or government programs. Several manufacturers are developing improved cookstove technologies in response to disbursement programs. LPG stoves are the most common alternative to firewood stoves, with both the stoves and canisters available primarily in urban areas.

**Awareness** of the benefits of ICS technologies and cleaner fuels is low<sup>10</sup>. However, recent efforts to introduce ICS sales stores with local sales women are intended to raise awareness of the benefits of

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<sup>8</sup> <http://globalleap.org/>

<sup>9</sup> <https://www.beestarlabel.com/>

<sup>10</sup> Fast Track Carbon, 2016. Market Segmentation: Improved Cookstoves and Clean Fuels in Guatemala. <http://cleancookstoves.org/binary-data/RESOURCE/file/000/000/452-1.pdf>

improved stoves through in-person demonstrations. Additionally, campaigns to educate users on the benefits of LPG stoves are being undertaken by local LPG distributors.

**Accessibility** of ICS is high in urban areas but less prevalent in rural areas. As mentioned above, LPG tank distributors and delivery services are starting to increase accessibility of LPG stoves in rural areas. Additionally, stores specializing in ICS, backed by the Global Alliance for Clean Cookstoves, are opening in various locations across the country.

**Affordability** of ICS, especially in rural areas is low. Artisan built-in ICS cost around \$130<sup>11</sup>, which is expensive for most rural consumers (with household incomes at less than \$100 per month). Many households in urban areas can afford large LPG stoves, and purchasing and refilling gas tanks can be cheaper than buying firewood.

**Acceptance.** Barriers such as the time it takes to cook on ICS compared to open fires, increased costs and bad user experiences with low quality stoves slow down the uptake of cleaner cookstoves<sup>12</sup>. Many rural communities also use their open fires for heating and social gatherings.

### Developing an improved cookstove market is becoming an increased priority for all stakeholders

Given the increasing risks of deforestation, the Guatemalan government has become increasingly conscious of the need to support and invest in the cookstove market, by deploying more ICS in households and institutions across the country. The use of firewood has been addressed in Guatemala's Nationally Determined Contribution (NDC) and the government is implementing their commitments through the NAMA for "Efficient Use of Fuel and Alternative Fuels in Indigenous and Rural Communities"<sup>13</sup>, under the leadership of the Ministry of Environment and PRONACOM. The Ministry of Energy and Mines also noted their commitment to this issue will be addressed in the upcoming national Energy Policy. These efforts indicate there is a strong recognition of the potential and importance of cookstoves to contribute to Guatemala's economy. However, as yet there is no clear political will for using S&L as the solution.

### There is an appetite for S&L interventions, although no legislative or institutional capacity is in place to support these policies

The 2014 Guatemala Action Plan<sup>14</sup> identified S&L policies as a key intervention to accelerate adoption of clean cookstoves and fuels. If introduced, this would be the first S&L policy of its kind in-country. Even though foreign energy labels feature on imported electrical appliances in stores, there is no national policy or platform for S&L. Introducing a traditional full-scale ICS S&L program would prove complicated and take significant time to introduce the necessary legislative foundation.

### Greater S&L political will, leadership and coordination is needed at the institutional level

While most stakeholders identified the Ministry of Energy and Mines as the owner of national cookstove policy<sup>15</sup>, including the Ministry themselves, other institutions are likewise well positioned to take the lead. The Ministry of Environment is responsible for meeting the NDC goals, and is doing so through

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<sup>11</sup> 2013. Guatemala Market Assessment Sector Mapping. <http://cleancookstoves.org/binary-data/RESOURCE/file/000/000/213-1.pdf>

<sup>12</sup> 2016. Fast Track Carbon, 2016. Market Segmentation: Improved Cookstoves and Clean Fuels in Guatemala.

<sup>13</sup> <http://preview.nama-facility.org/projects/guatemala.html>

<sup>14</sup> [http://cleancookstoves.org/resources\\_files/guatemala-country-action-plan.pdf](http://cleancookstoves.org/resources_files/guatemala-country-action-plan.pdf)

<sup>15</sup> Government agency that coordinates roles and responsibilities for all actors, and sets mandatory policies and standards

implementation of the NAMA project led by PRONACOM. An inter-ministerial committee, the Mesa de Lena, has been set up to coordinate efforts on firewood and clean cooking technologies, however no clear leader has emerged that would champion S&L policy implementation. Additionally, other government agencies hold responsibility for S&L related efforts such as standards development and consumer protection, but they are not part of the ongoing dialogue with the Mesa de Lena. Although roles and responsibilities are currently unclear, leaders and greater political will may come to the fore through improved coordination with implementation of the NAMA project.

### A stronger industry voice needed

A united industry versus a single manufacturer can have a strong hand in determining S&L policies, providing invaluable insight to setting standards levels, test methods and labelling requirements. Industry should be involved in any program design from the outset, to provide market data and ensure that requirements set by technical experts and policymakers are actually feasible for the market. Several companies from both the wood and gas stove sectors have formed the 'Cluster' to fulfill this role. However, due to legal, governance and resource issues, they have yet to make and understand their potential impact. Once the NAMA project starts implementing standards and requiring testing, they will have more opportunity to take action and lobby on behalf of their members. This may also attract other companies to join the Cluster, thereby increasing resources.

### ICS efforts currently focused on wood stoves, but could be expanded to other technologies

The NAMA project is one of the most important ICS efforts currently underway in Guatemala. The program will promote the buildup of a viable market for cookstoves as it will be providing loans to consumers to purchase wood-fueled ICS. Several LPG stakeholders expressed interest in the benefits the NAMA project has to offer. Despite this more targeted focus, other technologies can be folded into future programs so as to capture the benefits from incentivizing even cleaner cookstoves.

### More recent, well researched and communicated market data can increase buy-in to policy efforts

Multiple stakeholders voiced different opinions and hesitations regarding the soundness of existing market data. For example, on size of the cookstoves market, firewood consumption rates, opportunities for non-biomass cookstoves, and emissions that can be reduced by the use of clean cookstoves. The NAMA project is undergoing a market research exercise which should help address some stakeholder concerns.

### Streamlining facilities and improving capacity, accuracy and timeliness of testing for wood stoves and other technologies would benefit all stakeholders

Three test facilities in Guatemala currently have a stake in cookstove related testing. The Ministry of Energy's testing laboratory conducts fuel testing, including testing calorimetric levels of wood, and is eager to expand its testing capabilities. The Universidad del Valle (UNV) facility conducts on-site field testing to measure indoor pollution and pollutant levels (related to health risks). Their primary focus is proving whether gas cookstoves are cleaner and safer than wood-burning ICS. The Universidad de San Carlos is the facility best equipped and resourced to conduct greater ICS testing. They have received equipment from GIZ to conduct emission testing and are expanding and improving the current facility with funding from USAID-LEDS (as part of the NAMA) and through self-funding. These improvements are

focused on testing cookstoves that use firewood as fuel. No plans are currently in place to test for alternatively fueled stoves. There are concerns from stakeholders regarding the appropriateness and capacity for testing, which may be addressed once the expansion and improvements have been made.

### Incentive programs based on efficiency and emissions criteria can support innovation and participation in the ICS industry

Government and international NGOs have been administering disbursement programs for subsidized or even free cookstoves to local communities. Although disbursement programs are typically discouraged as a market tool, they have served a key role incentivizing many local manufacturers to not only engage in the market, but also to improve the efficiency of their products. Past programs have encountered barriers to success, as the recipients of these stoves have not recognized sufficient benefits from using these ICS, nor have they received adequate support or instructions for maintaining and repairing these products. There is interest, in particular from the NAMA project, in understanding how to incentivize manufacturers to participate in the market and in results based financing models to support their efforts. Future disbursement and procurement programs could base program selection criteria on quality and efficiency standards, to ensure long term success of the these programs and that beneficiaries receive best in class products.

### Key Stakeholders and Roles

The following stakeholders were identified as key actors in the development of a national S&L program:

- **Comisión Guatemalteca de Nomas (COGUANOR).** Government agency mandated to develop voluntary technical standards
- **Ministry of Energy and Mines (MEM).** Responsible to develop Guatemala’s Energy Policy, including fuels such as wood which then informs decisions on how much wood consumption should be reduced by and potential CO2 emissions reduction
- **DIACO:** Government agency mandated to survey quality and appropriate use of labelling for a variety of products
- **Ministry of Environment.** It ensures that ministries have set emission reduction goals in their strategic plans and provides environmental certificates for the go ahead of projects. MARN’s current mandate would not allow them to lead a cookstoves policy.
- **MEM Laboratorio Tecnico:** Institution operating under Ministry of Energy and Mines that tests mainly quality of fuels.
- **Universidad del Valle (UNV).** Private University that conducts emission and exposure tests in the field for wood and gas cookstoves.
- **Univerisidad de San Carlos (USAC).** 3) National University that conducts emission testing for wood cookstoves.

The following table lists the required roles and responsibilities for developing and implementing an S&L program. Key Guatemalan stakeholders are included based on their currently defined mandates, responsibilities, and capacity. In some instances there are still gaps or overlaps between stakeholders that need to be addressed, such as who would be best placed to administer a cookstoves S&L program.

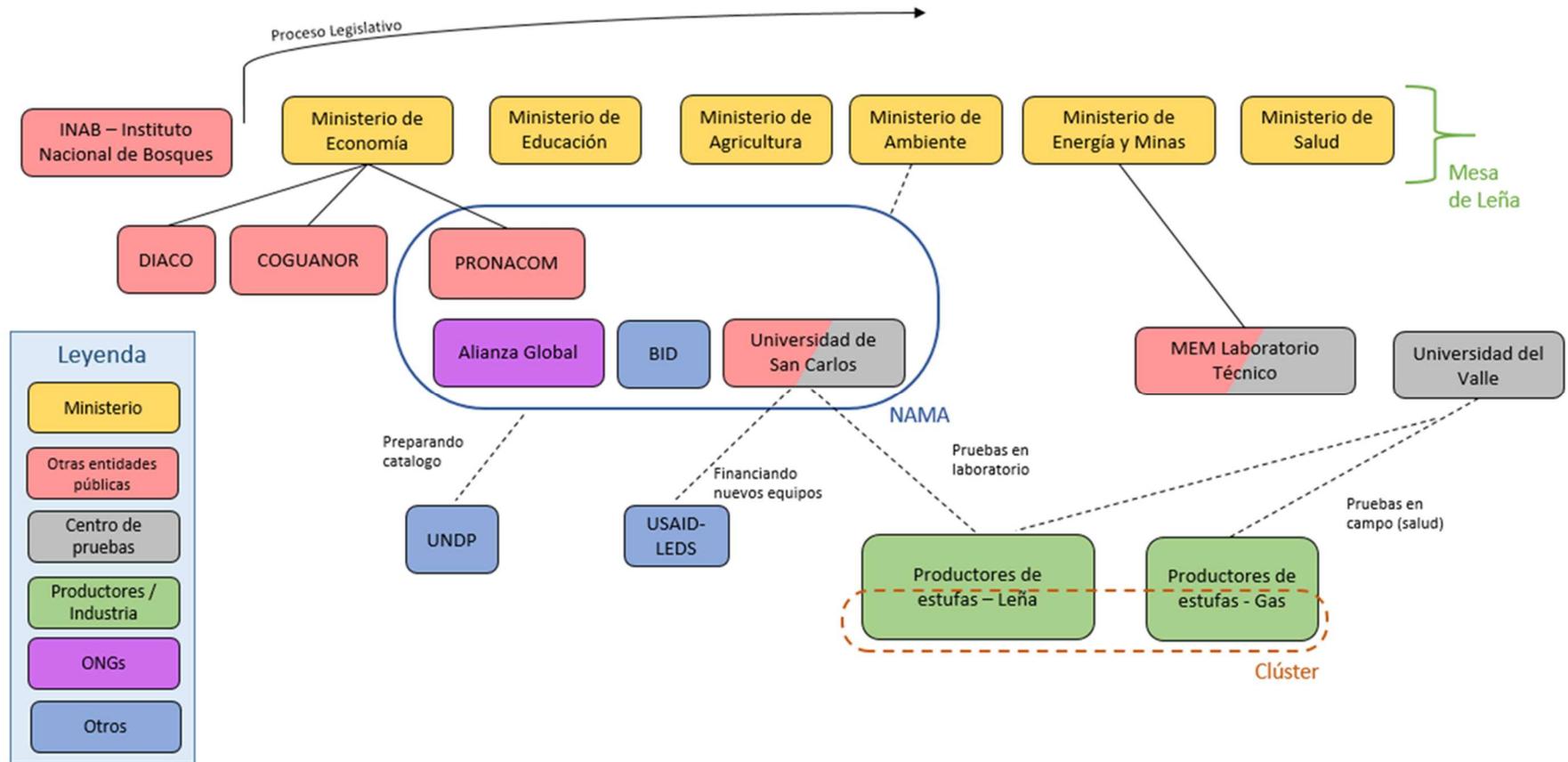
Table 1: Key Stakeholders and current roles related to potential cookstove S&L programs

Responsibility Area	Key Stakeholder	Role & Responsibility
<b>Standards</b>	COGUANOR	Government agency mandated to develop voluntary technical standards
<b>Regulations</b>	Ministry of Energy & Mines (MEM)	Government agency that coordinates roles and responsibilities for all actors, and sets mandatory policies and standards.
<b>Compliance</b>	1) COGUANOR 2) DIACO	Government agency mandated to survey quality and appropriate use of labelling for a variety of products
<b>Policy</b>	1) Ministry of Energy & Mines (MEM) 2) Ministry of Environment (MARN)	Owner of a potential cookstoves policy.
<b>S&amp;L Program Champion</b>	Not yet determined	Government entity responsible for making sure the proposed S&L program moves through appropriate process until put into law.
<b>S&amp;L Program Administrator</b>	1) Ministry of Energy & Mines (MEM) 2) PRONACOM 3) COGUANOR	Government entity responsible for administering the S&L program.
<b>Testing &amp; Research Center</b>	1) MEM Laboratory (Laboratorio Técnico) 2) Universidad del Valle 3) USAC	Testing laboratory for cookstoves of all fuel types
<b>Sector Coordination &amp; Representation</b>	1) Clúster de Estufas Mejoradas y Combustibles Limpios 2) Other associations	Industry group influence policies

## Institutional Mapping

Figure 1 is a map of Guatemalan cookstove stakeholders and their relationships. This map was developed based on CLASP’s 2016 scoping mission, and, while not exhaustive, attempts to represent each sector and most active stakeholders associated with the improved cookstoves market and current S&L related activities. As can be seen from the institutional map in Figure 1, there are many government actors that touch on cookstove-related policy. There are very few coordination efforts between these actors, and interviews with the respective institutions reflected a lack of collaboration or even understanding of other institutions’ roles. Their roles and responsibilities, as well as interactions with other institutions are summarized in the table below. More details on the current roles and interactions of institutions are provided in Annex B.

Figure 1. Map of Guatemala’s Stakeholders as of November 2016



## Recommended Approaches to Designing Cookstove S&L in Guatemala

Based upon the key findings compiled from interviews with stakeholders, the level of maturity of the improved cookstoves market, and international best practice, the following S&L best practice approaches are recommended to progress towards sustainable and successful future cookstove S&L programs in Guatemala. These approaches have been identified as those most likely to increase efficacy and impact, and minimize risk or burden to industry for any S&L-related activities implemented in the short-term.

### Phased introduction of S&L components into Guatemalan cookstove policy

As Guatemala has no existing S&L program for appliances, there is no legislative framework or institutional foundation upon which to build a cookstoves program. Introducing specific components of S&L programs into existing national projects can help prepare both government and market actors for future responsibilities and requirements within the cookstoves sector. This approach creates fewer upfront barriers to private sector investment in the cookstoves sector and supports a timely, feasible and successful transition to a sustainable S&L program in the long term.

CLASP therefore recommends introducing S&L components and best practice into the NAMA project. The NAMA project provides a clear pathway to build capacity S&L capacity in-country, pilot mechanisms to determine cleaner and most efficient ICS, prepare manufacturers for future legal requirements, all the while building a foundation for long-term S&L. It also provides a valuable learning curve for national stakeholders, and with a thorough evaluation can identify gaps and opportunities for improvement in future S&L implementation.

### Voluntary approach

A voluntary approach is more likely to be effective than a mandatory or regulatory-based approach under the current environment in Guatemala. Almost all appliance S&L programs start as voluntary because they are easier to launch and face less opposition from industry. Compared to mandatory programs, voluntary programs also often require significantly less compliance capacity and experience for the implementing organization. Voluntary programs only require compliance of products entered into the program as well as potential false-claims by non-participating or non-eligible products. This offers some flexibility to industry, which may be appropriate given their small market share, and subsequently increases their likelihood of supporting and participating in a voluntary program.

While voluntary programs cannot leverage direct disincentives, there are a variety of complimentary and highly effective market transformation tools available to augment any voluntary S&L program, including tax policy, financial incentives, procurement, awards, awareness programs, among others.

### Technology-neutral

Currently, all clean cookstove market transformation activities in Guatemala are focused on setting standards for and incentivizing the uptake of improved wood-fueled stoves. While this is an important place to start and make an initial impact, more focus should be given to expanding these activities to alternative-fueled stoves, including LPG.

A technology-neutral S&L approach – where *all* technologies, such as wood, charcoal, LPG, and ethanol stoves, are eligible under a single program – is more likely to have a greater impact than a technology-specific approach, based on current global S&L best practices as well as technology types available on the

market in Guatemala. The alternative to a technology-neutral approach is a technology-specific one – where an S&L program only applies to wood, for example, which can have perverse disincentives to the uptake of alternative technologies, such as LPG stoves and fuel supply in rural areas in Guatemala. A technology-neutral approach can maximize the benefit of changing market conditions that may benefit different technologies or fuels over time. This is especially relevant for government-led S&L programs, which can take many years to implement, during which markets and consumer preferences may undergo changes.

### Endorsement approach and labels

An endorsement approach is one that encourages and pulls the market toward producing higher quality products by encouraging manufacturers to produce better products in order to receive an “endorsement” that provides a competitive advantage. An endorsement approach, such as using an endorsement label – which allows consumers and other buyers to look for and purchase specifically labeled products – will more likely be effective than an approach that removes or cuts off the worst-performing products in the market. This is due to the low maturity level of the Guatemala cookstove market, specifically with respect to the low number of available, accessible, and affordable cookstoves to major consumer segments.

Endorsement programs are also more likely to be effective than minimum standards-based programs, as there is a lower threshold to prove that products meet specific requirements. Testing inconsistencies, lack of capacity or accreditation for testing, and the different operation of cookstoves in different households or regions (ex. type of wood used) each lead to uncertainty in test results when assessing stove performance. While local and international testing is diligently addressing these realities and performance metrics are being tested more accurately and consistently, the margin of error for test results is higher than other consumer products. Endorsement programs communicate in broader terms that a product is of high quality and performance, which requires a lesser degree of accuracy, making them better suited for current testing conditions.

### Registering Quality Products

Product registration systems offer multiple benefits to both new and well established S&L programs. They can serve as an initial compliance gateway whereby suppliers register compliant or certified products with the regulatory/implementing authority. The registration process usually requires manufacturers to report on annual sales per product type, submit test results for the products, and certify that the product performance meets the quality or performance standards, and/or any labelling requirements. For mandatory S&L programs, this happens before the product can legally be placed on the market. For voluntary programs, products are entered into the system before they can demonstrate they meet the endorsement criteria and are therefore eligible for program benefits.

Registration systems can be developed on a national or regional scale and can range from a basic list of policy-compliant products to a comprehensive, searchable online database. It may include both public and confidential information and serve a variety of uses and users. Regulators can use it to track individual models for performance verification, possible enforcement action, and to track the evolution of the market as a whole. It can be mandatory, where products must be registered in order to be legally offered for sale, or voluntary, the products may be registered according to specific set of criteria but it is not mandatory for products to be registered.

The database can serve as the portal for certified / incentive eligible products under the NAMA project.

## Incentives for industry

Incentives in a nascent market such as cookstoves help reduce risk across the supply chain by 1) lowering the cost for manufacturers and distributors that invest in the production and sale of high-quality products, and 2) providing clear options to companies to scale up their business.

An incentives program will be more successful if it also ensures that only the most high-quality and efficient products are rewarded, as this increases ambition among other manufacturers who will make changes to their products to reap the program benefits. Adopting a robust quality verification process guarantees products actually meet a certain performance and quality threshold, which increases credibility and trust in the program. Additionally, companies have an opportunity to enhance their brand recognition once accepted as an incentives program participant.

Some examples of incentive programs include, awards, bulk public procurement, microfinance, government bonds and tax incentives, and municipal financing. The NAMA would be well placed to consider implementing an awards program supported by results-based financing to drive up participation and investment in the program and its goals.

### Linking awards with procurement incentives

The **Global LEAP Award** is an international competition that identifies the world's best, most energy-efficient off-grid appliances. Each round of the Global LEAP Awards consists of competitions focused on specific appliances. Nominated products are evaluated by a panel of expert judges and via tests conducted in accredited test laboratories and according to internationally-accepted test methods.

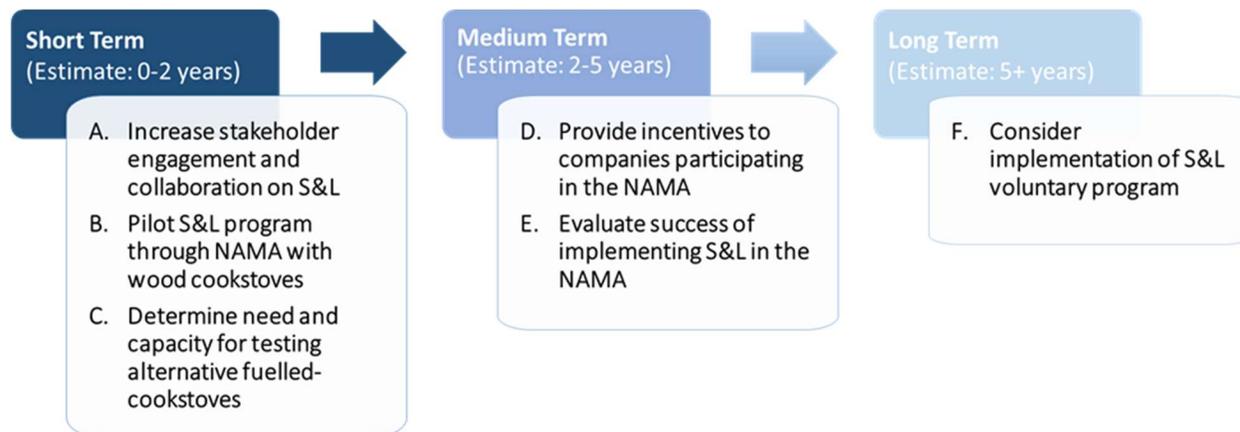
When winners and finalists of the Global LEAP Awards are identified, these products and their manufacturers are eligible to participate in the **Global LEAP Procurement Incentives program**. The incentives lower the cost of these best-in-class appliances, and are available to manufacturers and distributors. In order to provide the incentives, there is a 3 step process that verifies the purchase, shipment, and sale of the products. Incentive payments are paid after completion of each step in the verification process (results-based financing).

## Recommended Steps Toward S&L Policies and Programs

Guatemala's technological and sociopolitical circumstances indicate that a step by step approach toward S&L can help scale up and incentivize the Guatemalan market towards clean cookstoves. Initial investments have been made through previous foreign donor projects, the establishment of the Mesa de Lena and the implementation of the NAMA project, however, their efforts have not focused specifically on S&L for cookstoves. Additionally, without an existing legislative and institutional framework for S&L, capacity needs to be developed, roles and responsibilities need to be clarified and political will needs to be secured for the long term.

The following key activities outlined in figure 2 are recommended to accomplish the transition to cleaner cookstoves through S&L in Guatemala. These activities require implementation through a 3-stage roadmap (short-, mid-, and long- term). This approach will empower the Guatemalan market and Guatemalan policymakers to take ownership of the S&L framework in both the short and longer term. The activities and steps for each recommendation are detailed below. Each of these high-level recommendations will need to be scoped out in more detail with inputs from local stakeholders, if selected for further action.

Figure 2. Proposed recommendations in the short, medium and long term.



## Proposed Activities - Short Term

### A. Increase stakeholder engagement and collaboration on S&L

Establish an ongoing stakeholder engagement and collaboration mechanism, bringing government ministries, agencies, industry and donor organizations together to discuss S&L programs and best practice. Specifically, stakeholders should be encouraged to align their efforts, to leverage existing programs and resources, and work together to build a strong foundation and understanding of holistic S&L programs, responsibilities and needs. The development, design and implementation of a cookstove S&L program and best practices should be discussed, as well as the latest market data and baseline needs and efforts.

***Rationale:*** There is a distinct lack of sustained open dialogue between Guatemalan cookstove stakeholders, particularly between government and industry – which is key to any successful S&L program. In some cases, government institutions were unaware of each other’s responsibilities or priorities (and in some cases, existence); and industry struggles to leverage their lobbying power with government or in the standards development process. Stakeholder engagement is important to showcase the technologies and fuels available on the market and how they can help meet Guatemala’s NDC goals. Furthermore, S&L-focused dialogue will inform all stakeholders on the benefits these policies can offer when implemented holistically and encourage national action and implementation.

***Expected Outcomes:***

- Local stakeholders familiarized with the S&L process, how an S&L program (adhering to standards, applying a label, testing products, etc) can impact them.

- Increased lobbying efforts from industry and others to motivate government to take action.
- Clear roles, responsibilities and interactions within government institutions.
- All stakeholders invested in benefits of transitioning to cleaner stoves and fuels to achieve national climate, deforestation, economic and social policy objectives.
- Increased confidence from industry and civil society stakeholders about the transparency in the development of government-led cookstoves programs.

Activity / Intervention	Involved Parties	Potential for Success	Estimated Budget	Duration
<b>Initial Stakeholder Workshop</b>	NAMA project; GACC; Mesa de Lena; Cluster; All stakeholders	High	\$ 5, 000	1 -2 days
<b>Ongoing engagement</b>	NAMA project, GACC; Mesa de Lena; Cluster	High	-	Ongoing

## B. Pilot S&L program through the NAMA with wood cookstoves

### 1. Create a technical committee to provide S&L related input to the NAMA

Regularly bring together relevant actors to share updates from their work and to provide inputs to the development of quality criteria, performance standards, test methods, market assessments, incentive programs, and more. In particular, the technical committee should include participants from COGUANOR, the Cluster, the test laboratories, and other interested parties.

***Rationale:*** Engaging stakeholder buy in to program development will help ensure program integrity, support data collection efforts, and increase buy-in. Engaging COGUANOR will ensure that the NAMA standards follow the national standards processes and will build capacity within the agency for future S&L programs. Engaging the Cluster and other industry representatives will enable manufacturers to feed in valuable market data and scenarios, but will also help the association understand the value they can have as a united group versus individual lobbyists.

#### ***Expected Outcomes:***

- Increased participation and buy in to the program.
- Trust and credibility in standards development and testing capabilities.
- Increased communication and collaboration among institutions and other stakeholders.
- Potential to identify key actors responsible for specific program implementation activities.

### 2. Determine performance requirements and criteria for cookstoves eligible for the NAMA project with input from all stakeholders

Set performance requirements and criteria to determine which cookstoves are eligible for participation in and benefits under the NAMA, in line with program goals and based on technical committee input. The levels of ambition should correlate with the program goals – to sustainably stimulate the supply and demand for energy efficient cookstoves – by targeting the top 20-30% performing products available on the national market. These requirements should include both thermal efficiency requirements and emission level requirements, as well as product warranty and servicing criteria. These requirements should be aligned with international performance tiers and criteria, as well as national standards and

regional standards (Honduras, Mexico, Peru, Bolivia, etc) where feasible. A consultation process should be held via COGUANOR to capture input and feedback from all cookstove stakeholders.

***Rationale:*** Setting performance criteria that the top 20-30% of the market can meet ensures that only the most efficient and top performing products benefit from incentives and promotion to consumers. Other manufacturers are encouraged to innovate their products so they can also meet these more ambitious standards, which will drive transformation of the market. Aligning standards with other international or regional standards where possible reduces barriers to entry on the market, especially where manufacturers sell their products across borders. This is important when dealing with nascent markets and emerging industry. Engaging other actors in discussions about standards for the NAMA will not only ensure the criteria are effective and feasible, it will also help build understanding and capacity with other stakeholders.

***Expected Outcomes:***

- Ambitious and feasible standards and criteria for participation in the NAMA project.
- Increased participation and buy in to the program.
- Trust and credibility in standards development and testing capabilities.
- Increased communication and collaboration among institutions and other stakeholders.

### **3. Ensure testing integrity and build capacity for testing wood-fueled cookstoves**

Actively increase engagement between USAC, Universidad del Valle, the MEM Laboratorio Technico, and manufacturers (especially those with in-house testing capacity), and regional testing knowledge centers, such as Aprovecho, to share best practices and coordinate staff trainings.

Once the USAC test facility has been set up and completed, consider building staff knowledge and capacity by conducting round robin tests with three other regional test facilities to determine consistency of test results and identify potential opportunities for improvement. Address gaps, make required improvements according to lessons learned from the round robin exercise, and seek potential accreditation of test facility and procedures to build integrity and credibility with stakeholders.

***Rationale:*** All S&L programs must have a testing facility that can perform reliable, unbiased tests. The USAC test facility needs support to build their capacity, according to their own admission, as well as the views of most stakeholders. They will establish more trust and credibility with other testing facilities in the country if they engage in best practice sharing and improvement opportunities. Increasing engagement will also benefit the industry by providing more transparency around testing. Starting this process for wood-fueled cookstoves will also build a foundation for future testing of alternative technologies.

***Expected outcomes:***

- Stronger relationships and connections between local and regional testing labs.
- Increased testing capacity at USAC.
- Increased communication and transparency around testing capacity, barriers, and timelines.
- Increased confidence in testing results.
- Increased efficacy and impact of the NAMA testing requirements and any future S&L programs.

#### 4. Set up a product database

Build and implement a product registration or certification database, also known as a qualified products list, in which cookstove manufacturers or suppliers must register product models to be covered by the NAMA. Information to be provided would include thermal efficiency and emissions levels, warranty information, other relevant product criteria, number of products placed on the market (produced/imported), and contact information of the manufacturer or suppliers. The information should be verified (or certified) by the testing reports and information provided by USAC. The product catalogue developed as part of the NAMA can be based on and build from the information in the product database. Given funding constraints, the database could initially consist of a digital document that is kept up to date by the NAMA team and made available for download on the internet. It can be later be developed as an online database accessible by anyone via the internet.<sup>16</sup> Key users of the database will include the NAMA team (and PRONACOM), customers, manufacturers, and financial institutions providing credit to customers.

***Rationale:*** S&L best practice encourages the use of product databases to support: registration or certification of products in a program, as well as the monitoring and enforcement of products in a program. A central qualified product list populated by certified products tested to an established set of rigorous performance criteria can be an enormously helpful tool to ensure procurement officials, financial institutions, and donor organizations are selecting high-quality and high-efficiency products. While the catalogue is static, the database can be regularly and easily updated to reflect more ambitious product criteria or newer product models (without having to reprint numerous physical catalogues). This tool can be referenced by anyone anywhere, granting more users access to this product information. The data contained within these tools can also be used to inform project monitoring and evaluation efforts, as well as provide up to date market data for market assessments and updates to product criteria both under the NAMA or under a future S&L program. The online database may even be used as a regional resource (e.g. for comparison of cookstoves' efficiency levels available), and could be expanded to include relevant products from other markets that also meet the product requirements. This can help increase access to different markets across borders, and helps pave the way to more aligned standards.

#### ***Expected Outcomes***

- An up to date list of all products that meet the requirements of the NAMA
- A valuable resource for financial institutions and procurers, enabling them to incentivize the best performing stoves on the market
- A robust platform of information to inform project evaluations, market assessments and future S&L programs
- An alternative resource to the NAMA product catalogue

#### 5. Conduct research on consumer appetite for a cookstove label, pilot and evaluate label

Conduct a research project to determine whether Guatemalan stakeholders will respond to a promotional or endorsement label that identifies top performing products under the NAMA. This research project can inform whether the NAMA should invest in developing and using a label to support their program goals, as well as inform what type of label is most suitable and for Guatemalan consumers. The research should gather information on consumer perceptions of: visual design of the label; technical specifications that

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<sup>16</sup> Best practice guidance for setting up product databases is available at: <http://learning.enlighten-initiative.org/>

should be included on the label, if any; and other attributes such as product specific labels with brand names, or simply a common endorsement label that serves as an identifier for best products. This research has never been conducted in-country, as there is no existing S&L program in place. However, given the voluntary and temporary nature of the NAMA project, a light touch qualitative research project could be undertaken to provide sufficient information to inform the NAMA needs. This research can be conducted via interviews with customers visiting the cookstove stores, and other potential customers participating in cookstove demonstrations at churches, fairs, etc. The consumer research should be well scoped out, and should include a series of questions regarding purchasing decisions, as well as mock up labels for interviewees to react to. If deemed a valuable tool under the NAMA, a label should be developed and piloted under the NAMA, and subsequently evaluated to understand the impact it has had on the market.

***Rationale:*** Labels can communicate the benefits of cookstoves and provide manufacturers a way to distinguish their products in the market, which in turn can increase ambition to manufacture better and more efficient stoves so they can display the label. Although, there are labeling programs in Guatemala for clothing, food, and agroforestry products (e.g. Rainforest Alliance), there is still the need to understand the impact of labels in products such as cookstoves. The NAMA project can pilot the label and through subsequent evaluations can provide valuable research and insights on whether and how the label is counterfeited, how consumers respond to the label, and how to apply the label to stoves, which can then be built on in a future S&L program.

**Expected Outcomes**

- Market research on consumer understanding and appetite for a cookstove label
- Information on label design and attributes
- Piloted label providing information and lessons learned on implementing a label on the Guatemalan market

Activity / Intervention	Involved Parties	Potential for Success	Estimated Budget	Duration
Set up regular technical committee for inputs and consultation on NAMA standards and criteria	NAMA coordinator; with participation from all cookstove actors	High	\$ 5,000	Ongoing – holding at least 3 TCs in the process (kick-off; initial consultation; final consultation)
Draft performance criteria with support from the technical committee	NAMA; COGUANOR; Industry/Cluster	High	Staff time	6 months – 1 year
Conduct consultation on the standards through a written consultation process	COGUANOR; with support from the NAMA	Medium	Staff time	Should include 1-2 months open consultation period
Increase knowledge sharing by organizing trainings and engage with other testing experts (such as Aprovecho) in person or via webinars	Led by NAMA, USAC, Universidad del Valle, MEM Laboratorio Technico, and select manufacturers	Medium-High	Range from staff time to \$25,000	Ongoing

Conduct Round-robin testing exercise	USAC; with support from NAMA, GACC; independent consultant	Medium-dependent on funding	Around \$35,000	First half of 2018
Assessment of USACs testing capacity and needs; based on RRT results; use Alliance’s “RTKC toolkit”; consider engaging Aprovecho (test lab), who have provided trainings already.	Led by NAMA; with USAC; GACC and others	Medium-High	\$10,000-50,000	3 months
Develop online qualified product list document or tool to support the NAMA	Led by NAMA; supported by USAC	Medium	\$2,000 - \$100,000	2018-Ongoing
Research need for label	NAMA with consultants	High	\$ 30,000	First half of 2018
Implement labelling program	NAMA with PRONACOM	Medium	Staff time; communications costs	Second half of 2018-ongoing
Evaluate labelling program	NAMA with PRONACOM and Consultant	High	Staff time; consultancy fees	End of NAMA

### C. Determine need and capacity for testing alternative fuelled-cookstoves

Conduct a feasibility study to determine the capacity available for testing cookstoves using other fuel types than wood, and determine the need for future testing business needs of these alternatively fueled-stoves. This study would be conducted together with all testing facilities in Guatemala, and would identify other solutions for testing, such as using laboratories in the region.

***Rationale:*** The NAMA project will focus on building capacity to test biomass or wood-burning stoves, however, other stove technologies should be considered to help reduce deforestation impacts. If the NAMA standards are adopted in the long-term, other stove types will need to be addressed such as LPG, ethanol, or even electric stoves. Existing test facilities will need to be able to test these products, and a feasibility study can provide valuable insights and recommendations to inform these future testing capacity building needs.

***Expected Outcomes:***

- Information on future testing needs
- Information on current testing capacity, and recommendations to address future needs
- Alternative solutions to building new in-country test facilities

Activity / Intervention	Involved Parties	Potential for Success	Estimated Budget	Duration
Conduct Feasibility study	Led by the Ministry of Environment, Ministry of Energy and Mines; Mesa de Lena, with support from a consultant and inputs from USAC, Universidad del Valle, MEM Laboratory	Medium	\$ 30,000	Second half of 2018

## Proposed Activities - Medium Term

### D. Provide incentives to companies participating in the NAMA

Develop an awards program tied to procurement and distribution incentives, utilizing results-based financing to identify innovative and efficient technologies and motivate companies to participate in the NAMA program.

The awards program would recognize top performing products registered under the NAMA in different categories, e.g. size or fuel used, and could include several criteria, e.g. efficiency, length of warranty, product design, etc. This would require little additional investment, as companies participating in the NAMA program will have already covered all testing fees.

The awards program can be supported by procurement incentives to help encourage the uptake of the awarded products in the market. These financial incentives would be paid out to manufacturers and distributors to reduce risk across the supply chain. The program could be structured following a results-based financing mechanism where payments are provided once the distributors and manufacturers have completed a set step (e.g. products shipped to distributor and products sold to end consumers, etc). The program would require a strong monitoring and verification process.

***Rationale:*** Recognizing best in class products through awards can help raise ambitions and bolster innovation and efficiency in nascent markets, without creating additional barriers for entry onto market. Awards linked with incentives can identify best-in-class cookstoves; speed up their path to market by reducing financial risk across the supply chain; and track the winning cookstove impacts through a robust monitoring, verification and evaluation framework. The cookstove market can benefit from increasing access to product information, and by providing market actors with clear signals about product quality and efficiency.

Providing brand recognition and financial incentives for best performing products can encourage participation for companies that might be reluctant or unsure about the benefits of investing their resources to apply for the NAMA program. Additionally, developing a verification process for result-based financing programs can strengthen the capacity for future market surveillance activities in Guatemala.

#### **Expected Outcomes**

- Expand participation in the NAMA program
- Recognition of investments in product quality and efficiency which encourages availability of cleaner cookstoves
- Provides a pipeline of best-in-class products for distributors and other stakeholders
- Minimum purchase amounts can be determined for the procurement incentives program. This can incentivize large bulk procurements that are not common in the cookstoves market.

Activity / Intervention	Involved Parties	Estimated Budget	Duration
Establish award program criteria, materials, and judging process	NAMA and technical experts	\$15,000	1-3 months

Run the product nomination period	Managed by NAMA, with industry participating	\$3,000 – for regular engagement with industry	On-going or for a set period (3 months - indicative)
Conduct the judging process	NAMA and panel of judges	\$3,000	1 month
Organize award ceremony	NAMA	\$3,000	1 month
Outreach and communication activities (throughout the duration of the program)	NAMA	\$8,000	5-7 months
Establish criteria for procurement incentives program	NAMA and technical experts	\$15,000	1-3 months
Disburse incentives	NAMA	Depends on incentives amount - \$500,000 - indicative	On-going or for a set timeline (10 months – indicative)
Verification process for results-based financing	NAMA, technical experts, industry	\$50,000	To be conducted at set stages during the program

**E. Evaluate success of implementing S&L in the NAMA**

Conduct a study to evaluate the success of product requirements, test procedures, use of a certification database, and label (if implemented). The evaluation will have to include views from the NAMA program implementers, manufacturers, test laboratory, and costumers. Questions to be addressed include:

- Were requirements set at the right level for the market?
- Did products have issues meeting the testing requirements?
- How was the database used and by whom?
- Did the label have the expected impacts?

**Rationale:** A program evaluation will identify which efforts had the greatest impacts, and whether activities should continue with additional investment beyond the NAMA project. It will identify best practices that can be incorporated into a potential future S&L program, and will spell out which institutions are best placed to take on certain roles and responsibilities in the long term.

**Expected Outcomes:**

- Results of assessment of activities and impacts that will feed into the NAMA evaluation
- Stakeholders use results of study to inform implementation of future voluntary S&L program

Activity / Intervention	Involved Parties	Potential for Success	Estimated Budget	Duration
Conduct evaluation exercise of the S&L efforts implemented under the NAMA	NAMA, with support from an independent consultant and input from all stakeholders	High	\$ 25,000	Around 3 months

## Proposed Activities - Long Term

### F. Consider implementation of S&L voluntary program

Once the NAMA has piloted the different aspects proposed in this strategy, the Mesa de Lena and leading government institutions should consider whether or not to expand on the NAMA program or implement a new S&L program that builds on the NAMA. Depending on the state of the market, the ambition of the cookstove sector, and the capacity from different institutions to fully implement a program, Guatemalan stakeholders can consider developing and implementing a national S&L program for cookstoves. This program would start off as a voluntary program covering all cookstove technologies, and would build on existing foundations established under the NAMA and its lessons learned. The evaluation phase, along with other studies, such as the feasibility study for testing capacity, will provide valuable insights to help determine the transition to a more sustainable S&L voluntary program. Key activities to establish the voluntary program would include:

1. Development of revised and comprehensive voluntary standards for cookstoves of all fuel types, based on stakeholder consultations;
2. Continuation and improvements to the database for qualified products;
3. Development of an endorsement label for qualified products;
4. New testing capacity developed or improved based on feasibility study results;
5. Design of a monitoring, verification, and enforcement mechanism to safeguard S&L benefits;
6. Allocation of government budget to implement program.

***Rationale:*** Once the NAMA has piloted different aspects of S&L and fostered support from different institutions, a stronger foundation for S&L will exist in country with stronger support and capacity from government and cookstove actors. The program will have more success in its initial phase if it starts as a voluntary program, as it will be covering new product categories. At this point, Guatemala may have also started to implement S&L programs for other products, and will therefore have greater capacity and political will to make this effort a success.

#### ***Expected Outcomes***

- Sustainable long term S&L program for cookstoves in Guatemala
- Support from all stakeholder for development and implementation of S&L

Activity / Intervention	Involved Parties	Potential for Success	Estimated Budget	Duration
Design and implementation of S&L for cookstoves, based on NAMA pilot	Led by nominated government institution (based on NAMA evaluation), with support from all stakeholders.	Medium	High	2 years

## Annexes

### Annex 1: Organizations CLASP met during scoping mission

Organization	Type
PRONACOM - Programa Nacional de la Competitividad	Government
DIACO - Dirección de Atención y Asistencia al Consumidor	Government
Mesa Interinstitucional de Leña y Energía	Government
COGUANOR - Comisión Guatemalteca de Normas	Government
MEM - Ministerio de Energía y Minas de Guatemala, Dirección General de Energía	Government
MINEDUC – Ministerio de Educación	Government
MINECO - Ministerio de Economía, Viceministro de Inversión y Competencia	Government
MARN - Ministerio de Ambiente y Recursos Naturales	Government
Clúster de Estufas Mejoradas y Combustibles Limpios	Private sector association
CEDEC	Manufacturer
Gentegas	Manufacturer
Chispa	Manufacturer
ECOCOMAL	Manufacturer
Envirofit	Manufacturer
Super Cocinas	Manufacturer
USAC - Universidad de San Carlos de Guatemala	National University test lab
UVG - Universidad del Valle	Private University test lab
Laboratorios Ministerio de Energía y Minas de Guatemala	Government Test Lab
USAID-LEDS (Desarrollo con Bajas Emisiones)	International Program
UNDP - Programa de las Naciones Unidas para el Desarrollo	Multilateral
Guatemala Stove Project [via phone call]	NGO

## Annex 2: Overview of Stakeholders

### Policy Stakeholders

#### **PRONACOM - Programa Nacional de la Competitividad**

- Independent agency under the Vice-ministry of Economy with the role to build the competitiveness of the industries in Guatemala.
- Involved in the NAMA, providing their expertise on financial mechanisms (i.e. loans to be provided to individuals to purchase the approved by the NAMA).
- Supports the notion that in order to build a sustainable cookstoves market, it is necessary to build people's purchasing power.

#### **DIACO - Dirección de Atención y Asistencia al Consumidor**

- Currently, DIACO responds to consumer complaints, including about false advertisement. DIACO has not receive complaints for malfunction of cookstoves. This could be because stoves are given for free and users might not feel they can complain. Potential to work on monitoring the cookstoves market, provided the appropriate funds and mandate are in place.
- In special circumstances, DIACO runs large programs focused on one specific product. These programs can be in collaboration with other Ministries. Recent example: Ministry of Energy tracks international prices of fuels and indicated that the rise of fuel prices in the local market was not sustained. The ministry of Energy asked DIACO to look into this issue and have distributors to lower their prices.
- DIACO also tracks prices of basic goods (about 20 products).
- Currently running communication campaigns to educate people about their rights as consumers.
- When they receive a complaint, DIACO first ensures that a product is not malfunctioning due to costumer maintenance/use of the product. However, if the producer did not provide the customer with information on proper maintenance then the producer is at fault.
- If producer is at fault, DIACO organizes a dialogue table where costumer and producer can reach an agreement. Producer can offer to replace the product, repair it, provide financial compensation, etc. If consumer and producer do not reach an agreement through DIACO it can escalate to other legal mechanisms
- DIACO can also fine manufacturers. For example, DIACO recently gave fines to gas stations that were not giving the right amount of fuel
- DIACO hasn't responded to many counterfeit products complaints. This is not because it is not part of its scope but because of the lack of resources to monitor all types of products on a regular basis. Example: via a legal enactment initiated by the manufacturer through the court, DIACO closed distributors' stores that were selling counterfeit CLOROX.

#### **Mesa Interinstitucional de Leña y Energía**

- Government initiative (not yet a legal entity) – led first by Ministry of Energy and now by INAB (Institute of Forestry).
- INAB developed the 2013-2024 plan for the sustainable use of wood, which included the goal from the previous Energy Policy to install 100,000 stoves in the next 10 years. Currently doing a study on the types of wood that should be planted in each region.

- The group focuses on the sustainable use of wood. Cookstoves are a vehicle to reduce wood consumption.

#### **COGUANOR - Comisión Guatemalteca de Normas**

- COGUANOR used to be in charge of creating, monitoring, and enforcing the standards. The standards were mandatory. Now, COGUANOR only publishes voluntary standards.
- Team of 4-6 people that work on all of Guatemala's standards. COGUANOR tends to put focus on standards that industry asks for. Once a standard has been selected as important, COGUANOR is the entity responsible for convening interest groups in order to decide on the voluntary standard. If COGUANOR cannot take on this role, they designate another entity (government or private) to take on that role.
- COGUANOR has an ISO membership that allows them to participate in five technical groups.
- There is a policy already approved by the Ministry of Economy and that only needs presidential approval to allow COGUANOR to give certifications. Organizations will test at labs, bring the results to COGUANOR and then COGUANOR will give out the certifications. This might be enacted in 2017.

#### **MEM - Ministerio de Energía y Minas de Guatemala, Dirección General de Energía**

- Testing and certification is necessary in order to choose cookstoves that will be distributed by government programs to a sector of the population that would otherwise not be able to purchase cookstoves.
- Working on updating Guatemala's Energy Policy – tentatively to be ready by Feb. 2017. The new update should include information on wood consumption, which will then inform decisions on how much wood consumption should be reduced by, and potential CO2 emissions reduction.
- The Ministry has the mandate to regulate fuel use and it can run a cookstoves certification program. For a better verification process, the laboratory should be set up in the Ministry's facility (additional funding will be needed to set up the laboratory).
- The Ministry of Energy decided to leave the program. The calculations to develop the goals in the NAMA were conservative but not conservative enough according to the Ministry of Energy

#### **MINEDUC – Ministerio de Educación**

- Working with INAB and the Ministry of Environment to include topics of wood consumption, emissions reduction, and use of efficient cookstoves in the primary curriculum. The Ministry will organize trainings for teachers and produce materials that children can use in their classes.
- The installation of clean cookstoves in schools' kitchens will teach children about clean cookstoves by seeing and tasting the food made with those stoves. In addition, the mothers who work in schools' kitchens will get use to cooking with clean cookstoves and might want to have the same product at home.
- Use of graphical rather than written content in communication campaigns will more effective. The information should consider working at the regional or local level. Example: the use of local radios and mascots to educate people about the risks of certain chemical products.

#### **MINECO - Ministerio de Economía, Viceministro de Inversión y Competencia**

- Potential to grow the cookstoves industry and improve its importance in the SME sector.

- The cookstoves industry could possibly be classified under light manufacturing.
- Support provided to individual SMEs – capacity building (training) and other market mechanisms.
- The ministry of Economy has the mandate to work on the sustainable development of the economy – needs to consider the environment.
- The ministry of Economy has developed a plan for the sustainable development of the economy (by region). The plan is being shared with other ministries and stakeholders. The role that each stakeholder will play is still being defined.
- A cookstoves policy plan should consider outreach and communication strategies to motivate people to change cooking habits.

#### **MARN - Ministerio de Ambiente y Recursos Naturales**

- By law, every ministry has to include on their policy plan the actions that they will be taking to reduce emissions. If ministries do not include items related to this point then congress will not approve its budget. If they do not take the actions they promised, the ministry might face issues getting their budget approved by Congress in the following year.
- Ministries also need to include mitigation actions on their operational plans. SEGEPLAN reviews the operational plans and approves the actions each ministry will be taking.
- Although the NAMA will be focused on wood stoves, the Ministry of Environment could support the promotion other fuel type stoves (LPG, ethanol, solar, etc). This could be done through one of the environmental policies that enables the Ministry of Environment to do research on new technology that will allow further reductions of CO<sub>2</sub>.
- The Ministry has a mechanism to certify the environmental readiness of projects and it gives fines to projects that have not received a certificate of environmental impact assessment.
- The Ministry does not currently have the mandate to take on the policy for cookstoves.

#### **Testing Centers**

##### **USAC - Universidad de San Carlos de Guatemala**

- The university lab has a machine donated by GIZ to conduct stove testing and they have testing equipment for materials testing (e.g. concrete, metal, etc).
- The university is investing their own funds to expand the stoves test lab. USAID-LEDS will provide additional equipment.
- With the increased testing capacity, the university will be able to train more stove testing professionals in the country.
- The university is open to test stoves that use other types of fuels –additional funding will be necessary. They could also consider testing different types of wood to measure calorimetric levels.
- For the NAMA, since manufacturers will be paying for the testing costs, the university lab is looking to meet with the Cluster to receive feedback about the price of testing.

##### **UVG - Universidad del Valle**

- Testing indoor pollution and levels of pollutants - related to health risks.
- Testing done on-site with devices on people's bodies that people then wear while they do their daily activities.

- In their studies, the university takes into account environmental conditions such as the pollutants from volcanos' activity.
- They are interested in promoting the use of gas stoves.
- There are plans to open a test lab to have a controlled environment where to measure the levels of indoor pollution and pollutants people breathe. A test lab will allow them to compare the results from on-site conditions versus controlled conditions.
- Levels of pollution (as it relates to effects in health) should be included as part of a standard for cookstoves.

#### **Laboratorios Ministerio de Energía y Minas de Guatemala**

- Fuel testing, including testing of calorimetric levels of wood
- Lab accreditation in Guatemala is rare because it is expensive. The lab is recognized as an enforcing resource for the different ministries.
- The lab also provides testing services to private organizations.
- The lab submitted a plan to the Ministry of Energy to open a cookstoves test laboratory- follow up required.

#### **Industry Stakeholders**

##### **Clúster de Estufas Mejoradas y Combustibles Limpios**

- Only certified stoves should be allowed to participate in large procurement projects
- Opportunity for the Cluster to influence cookstoves policies
- Additional funding required in order to hire a part-time administrator that can implement the proposed actions on behalf of the Cluster
- New strategy for the Cluster is under development

##### **CEDEC**

- Producing only one model that they improve from time to time.
- CEDEC trains the masons that build the stoves.
- Most of CEDEC's sales are to NGOs - serving a different sector of the population that cannot afford to pay for stoves
- Educates its consumers in the use and maintenance of stoves. Provides post-sale repair service
- Considers useful the use of certification and an endorsement or quality label.
- Testing and verification process for certification need to be transparent in order to be trusted by industry

##### **GenteGas**

- Distributor of gas stoves.
- Educates its consumers on the use and maintenance of stoves.
- If customers have problems with the stoves, GenteGas enforces the warranty provided by the manufacturer.
- To increase acceptance of gas stoves, GenteGas also sells pressure cookers to reduce the time it takes to cook beans in gas stoves (compared to using open fire).

- Considers useful the use of certification and an endorsement or quality label.
- As a distributor, it could help with monitoring the market and alerting the enforcing agencies about any products sold that are not meeting standards.

### **Chispa**

- Most of Chispa's sales are to NGOs. Individual sales are still a small part of the business
- Some models produced are similar to those developed by Helps International.
- Educates its consumers in the use and maintenance of stoves. Provides post-sale repair service
- Performs basic emission testing in-house
- Not a member of the Cluster.
- Considers useful the use of certification and an endorsement or quality label, and sees not issue with re-testing every couple of years for re-certification.

### **ECOCOMAL**

- Most of ECOCOMAL's sales are to NGOs. Some models produced are similar to those developed by Helps International.
- A member of the Cluster – with the vision that united manufacturers can influence policy
- Educates its consumers in the use and maintenance of stoves. Provides post-sale repair service.
- Considers useful the use of certification and an endorsement or quality label, and sees not issue with re-testing every couple of years for re-certification.

### **Envirofit**

- Production and selling the stove is only half of the operations. The other half is the warranty and after-sales service provided (e.g. parts replacement, 24h customer service line, GPS location of every installed stove in order to check on a regular basis whether the stove works before the customer calls). Training customers on how to use the stove and its maintenance is also important
- One of the groups Envirofit targets is the group that aspires to buy better stoves.
- There are sectors of the population that need NGOs/government cookstoves donation programs
- A certification program should consider basic safety and efficiency components. The certification program should not compare between stoves because all stoves are good depending on the need of the customer (which will vary by region).

### **Super Cocinas**

- One of the largest manufacturers of gas stoves in Guatemala – 3,000 stoves per month
- Looking to partner with wood stove producers - Super Cocinas would provide space for wood stove producers to manufacture stoves
- A member of the Chamber of Industry- considered in the metal industry
- To avoid counterfeit products, all products have the logo stamped in the metal
- Provides 2-year warranty and post-sale repair services to its costumers
- Exports to other countries in Central America through distributors. There is no verification testing requirements for those markets
- Gas is available in most places in the country- distributed in motorcycles. Only certain areas in the country do not have access to gas.

- It is not an issue for gas stoves to have the same certification and label as wood stoves

## Other Stakeholders

### USAID-LEDS (Desarrollo con Bajas Emisiones)

- USAID program to build capacities and provide targeted technical assistance for low emission development strategies.
- One current project includes the biodigestor project, which can help produce gas to cook.
- The program is donating new testing machinery for cookstoves to the Universidad de San Carlos.

### UNDP - Programa de las Naciones Unidas para el Desarrollo

- Interested in producing a physical catalogue to showcase clean and efficient stoves. There is the possibility of producing a catalogue from the products selected for the NAMA.

### Guatemala Stove Project (GSP)

- GSP fundraises mostly in Canada. Local partners usually receive about 50% admin fee.
- CEDEC is the most important partner in building stoves – about 18 years as partners.
- Part of the funding received is to take pictures of the families in Guatemala who receive the donated cookstove. Those pictures are then send to the donor. These helps keep donors engaged but it is also a way to do the inspections.
- GSP hires about 4 masons. Masons are paid about 100 Quetzales (\$20 CA) per stove. A stove can take them 4 hours to build or sometimes 1 day for 2. Masons travel to the site where the stove is being built.
- Efficiency results from word of mouth. People using the stoves mentioned that they use 50% less wood (50% less of a “tarea”).

