



Ghana Country Action Plan for Clean Cooking

Ghana Country Action Plan

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Executive Summary

With almost 22 million people reliant on solid fuels for cooking and a quickly growing improved cookstoves market, Ghana is well poised to move from improved efficiency cookstoves to clean cookstoves and from a relatively small percentage of the potential cookstove market to a much larger proportion in the next few years. Several factors position Ghana for success, including: an active in-country cookstove market with consumer segments who are ready for but have not yet been reached by improved cookstove initiatives, an entrepreneurial local cookstove production base, government interest in reducing its citizens' dependency on solid fuels and moving towards cleaner fuels such as liquid petroleum gas with the goal of transitioning at least 50% of the population to using LPG as their primary cooking fuel by 2015. There are also several related factors which stand to assist Ghana in moving towards clean cooking solutions, such as the government's focus on rectifying the effects of deforestation caused in part by the use of inefficient cookstoves, the government's broader "low carbon" development goals, as well as a significant interest from several major international organizations and initiatives including the Global Alliance for Clean Cookstoves, Sustainable Energy for All, the World LPG Association, and the World Bank in supporting Ghana's improved cookstove and fuels markets.

While there is great opportunity to move towards scale up of clean cooking solutions in Ghana, a few key barriers exist that are preventing the Ghanaian cookstove market from achieving greater market penetration. The barriers and key interventions are summarized below:

Enhancing Demand: Meeting the Needs of Consumers

- **The cookstoves:** The Ghanaian cookstove market is currently dominated by one locally produced cookstove technology: the Gyapa charcoal cookstove and variations thereof. While in some ways this is advantageous – this technology has been successfully adopted by urban and peri-urban Ghanaian consumers because it effectively meets the cooking and cultural needs, and a vibrant local manufacturing base produces in large numbers the Gyapa model. However, despite gains in efficiency, it does not significantly reduce emissions and the single cookstove market also significantly limits consumer choice.
 - **Improving what works:** Improving the Gyapa cookstove through a variety of innovations beyond increased efficiency to additionally reduce emissions in order to decrease exposure to household air pollution and potentially have an impact on the health of users, while continuing to support the local production of cookstoves.
 - **Expanded technology options:** Greater choice for consumers both through domestic innovation and a more favorable regulatory environment that encourages technology transfer from abroad could offer greater likelihood of initial purchase and longer term sustained adoption.
 - **Culturally and cuisine appropriate cookstove models:** For consumers to sustainably adopt a new cooking technology, the cookstove market must incorporate more diversity of designs which lends itself to Ghanaian style cooking-using round bottom pots and sturdiness needed for making “banku”, “tuozaafi”, and “omotuo”.

- **The consumers:** There are two broadly defined cookstoves consumer segments in Ghana, including:
 - **Urban cookstove users:** With more than half of Ghana’s population residing in urban or peri-urban areas, and over 75% of those urban dwellers using and paying for fuels such as charcoal or wood for cooking, there is a large population who could be easily reached by improved cooking solutions within the next few years. Additionally, the vast majority of these households are families who have access to liquid petroleum gas and who use it when they are able to, pointing to an opportunity for these families to move completely to LPG if it becomes more affordable, the supply becomes more reliable, and other safety concerns are addressed.

Reaching the goal: In order to achieve the government’s goal of transitioning at 50% of the population to using LPG as their primary cooking fuel in the next few years, LPG must be completely reliable, consistent, easily accessible, and affordable. To do this, the current LPG subsidy must be modified so that it can only be utilized for household cooking.
 - **Rural cookstove users:** More than 95% of rural Ghanaians are reliant on solid fuels for cooking, and in regions where incomes are generally lower and fuel is unaffordable, significant amounts of time is spent collecting fuel wood in increasingly degraded forests. Time saved through increased efficiency cookstoves would bring greater freedom and opportunities to rural cookstove user, however, there are currently very few improved cookstoves in the market that cater the needs of rural populations, namely wood stoves at lower price points, and very low penetration of improved cookstoves that do meet rural user’s needs.
 - **Reaching the last mile:** After the local manufacturing base is strengthened and expanded and awareness in improved cooking technologies is raised through increased activity in urban areas, rural users will be more easily targeted for specific technologies which meet their needs and more easily reached through now expanded market activity.

Strengthening Supply: Production and Cost Barriers

- **Access to Finance:** High interest rates on loans have prevented cookstove manufacturers from being able to expand their businesses and reach greater production numbers, inhibiting their growth.
 - **Increase investment:** Develop more investment ready entrepreneurs and support them through products such as a capacity building, grants program and access to working capital, either through private means or through government matching programs.
- **Import duties:** Very high import duties have inhibited many international cookstove players from truly entering the Ghanaian market. This is true even at the level of testing a product to determine its potential success in Ghana and adapt it to Ghanaian cooking in order to determine if they should pursue producing it locally in Ghana. Additionally,

import duties on materials such as sheet metal used in locally produced cookstoves also prevents greater production scale and greater efficiency in production as manufacturers need to use locally sourced scrap metal instead of being able to purchase bulk quantities.

- **Enabling environment:** Create an enabling environment that provides for preferential duties on imports of raw materials for the production of improved cookstoves and agreements in the initial stages of sector development similar to programs that were put in place to encourage development of other renewable energy sectors like solar energy.
- **Reliance on natural resources:** The production of fuels such as charcoal as well as a heavy reliance on wood for cooking has significantly impacted on Ghana's forests with a 70% reduction in forest cover in the last forty years¹.
 - **Alternative fuels:** In order to address this pressing issue, as well as move the general population up the energy ladder to cleaner sources of cooking fuels without further compromising Ghana's natural resources, the sector must prioritize increased efficiency of the production of fuels such as charcoal. This should be done through the development of woodlot cultivation and promotion of improved charcoal production techniques, as well as work towards shifting its population towards cleaner and more renewable fuels.

Fostering an Enabling Environment:

- **Government policies:** Several government policies and goals, such as the LPG promotion program, focus on rectifying the effects of deforestation caused in part by the use of traditional cookstoves, and broader goals around development provide a supportive policy framework for advancing clean cookstoves and fuels, however, a more lenient regulatory framework is needed to diversify and strengthen the market.
 - **Favorable policies:** Similar to what was enacted for the solar industry, allowing special statuses for improved cookstoves and fuel businesses and initiatives in terms of taxes and tariffs would allow the sector to advance. In addition, advocating for the financial sector to help support the cookstove and fuels sector by providing lower interest rates for qualified entrepreneurs would also create an enabling environment and catalyze growth in the sector.
 - **Getting the word out:** Very few people in Ghana are aware of the risks associated with traditional cooking practices and the opportunities that more efficient and clean cookstoves provide. National health campaigns, such as around HIV/AIDs, have been largely effective in raising awareness of health risks in Ghana – a similar campaign focused on the negative effects of household air pollution could begin to spark consumer interest in clean cooking products.

If these barriers can be overcome, with timely execution of the recommended interventions, the already successful Ghanaian cookstove manufacturers will be able to expand their businesses, other cooking technologies will be able to enter the market allowing for greater consumer choice, and cost to the end user could be reduced -making clean cooking solutions available to more

¹ European Commission

people. With the support of the Ghanaian government, the interest of major international organizations mentioned above, as well as the presence of a strong manufacturing base and easily reachable consumer segments, Ghana could fairly easily achieve rapid growth in its effort to ensure universal adoption of clean and efficient cookstoves throughout the country and be a leader in household energy access across Africa.

The Wider Context

The Impact of Traditional Cookstoves

Exposure to smoke from traditional cookstoves and open fires – the primary means of cooking for nearly three billion people in the developing world – causes two million premature deaths annually, with women and children particularly affected. Toxic cookstove smoke contributes to a range of chronic illnesses and acute health impacts such as pneumonia, bronchitis, cataracts, lung cancer, cardiovascular disease, low birth weight and burns. The World Health Organization estimates that harmful cookstove smoke is the fifth leading cause of death in developing countries. Reliance on biomass for cooking forces women and children to spend many arduous hours each week collecting fuel. Especially near refugee camps and in conflict and rural areas, this work leaves them vulnerable to gender-based violence. The use of biomass for cooking also increases pressures on natural resources and contributes to climate change at the regional and global level.

Exposure to harmful cookstove smoke has historically received limited funding and research attention when compared to other risk factors (lack of clean water, sanitation, and hygiene) or diseases (malaria or tuberculosis) that lead to similar levels of mortality. Part of the reason for this lack of investment is structural – barriers such as a basic lack of awareness among both affected populations and the donor community about the impact of harmful cookstove smoke and the corresponding benefits of clean cookstoves, the lack of affordable, advanced solutions that met users’ needs, or the lack of research to effectively quantify the health and environmental benefits of improved stoves and fuels.

Those at the bottom-of-the-pyramid pay a heavy price for the environmental and health consequences of a life in poverty. By dramatically reducing fuel use and exposure to harmful cooking smoke, clean and efficient cookstoves and fuels deliver a wide range of health, environmental, livelihoods and gender benefits, while serving as a worthwhile investment that can rapidly offset the upfront costs.

Advanced cookstoves and cleaner fuels now exist and, if deployed at scale, could save millions of lives, while improving countless others, empowering women, creating opportunities for the poor, and reducing negative environmental impacts. Using less fuel reduces the time spent collecting it, allowing more time to engage in income-generating activities, pursuing educational opportunities and other important endeavors.

In cases where fuel is purchased, the cost of an efficient cookstove – typically ranging from a few dollars to around \$100 - can often be recovered through fuel savings within a couple of months. The emissions reductions can also create revenues from carbon credits, which can be used to reduce the price of the stove or to expand into new markets. The entire stove and fuel value chain can also provide a source of job creation, particularly for women.

Several factors are aligning to put the sector within reach of a “tipping point” for adopting clean cookstoves and fuels at scale. These factors include:

- Recent advances in clean cookstove design, testing, and monitoring;
- Compelling new research on the health and environmental benefits from the use of clean and efficient cooking stoves and fuels;
- Recent success and growth of a number of business models in the field;
- The launch of national cookstove programs in key countries in Asia, Africa, and Latin America;
- The increasing need for effective near- and long-term action to address climate change at the local and regional level; and
- The potential for carbon finance to fund stove initiatives at greater scale.

Why We Need Action Now in Ghana

Ghana, with a population of about 24.7 million, stands out in sub-Saharan Africa as having political stability, a vibrant democracy, and a growing economy. With a competitive business environment, a strong entrepreneurial spirit, and significant growth in recent years, Ghana will soon move from a least developed country to a middle income country. Ghana has also made significant strides in achieving its Millennium Development Goals, namely around reducing the proportion of its population living in extreme poverty, improving access to primary education, promoting gender equality, and initially reducing child mortality. However, despite these encouraging signs of development and economic growth, 87% of households continue to use solid fuels such as wood and charcoal as their primary fuel for cooking², affecting over 20 million people and leading to over 6,500 deaths annually, including 4,700 deaths of children under five³, and 28.5% of the population remains below the national poverty line⁴. Additionally, Ghana has seen troubling rates of deforestation and forest degradation, with over a 70% reduction in forests in the last forty years⁵.

Ghana is at a tipping point and has the opportunity to continue its trend of positive growth and reach its important development goals of empowering women, further reducing child mortality, improving the health of its population, and ensuring environmental sustainability by pursuing one comprehensive set of actions. Sustained adoption of clean cooking solutions, including both improved cookstoves and fuels, is a tangible means to making progress on all of the aforementioned goals. Clean cookstoves and fuels will help in improving the health of Ghanaians through reduced exposure to household air pollution, facilitating economic development by strengthening a market within Ghana and providing employment opportunities along the value chain, empowering women by involving them in formal employment and throughout the cookstove value chain from design to adoption, and finally in protecting Ghana's forests from further degradation by more efficiently using and therefore reducing reliance on natural resources.

The following section examines the current cookstove market in Ghana. A three pronged approach is used in assessing consumer interest, local production and supply, and the overall policy and regulatory environment.

- ***Enhancing demand:*** understanding and motivating potential users, developing better and more technology options, providing easier access to consumer finance, and creating innovative distribution models to reach remote and urban consumers.
- ***Strengthening supply:*** attracting more finance and investment, accessing carbon finance, enhancing market intelligence and creating inclusive value-chains; and

² World Health Organization

³ World Health Organization

⁴ World Bank

⁵ European Commission

- ***Fostering an enabling environment:*** engaging national and local stakeholders, building the evidence base for the benefits of stoves, promoting national and international standards and rigorous testing protocols, and enhancing monitoring and evaluation.

Enhancing Demand: Meeting the Needs of Consumers

The specific style of cooking in Ghana demands specific qualities in clean cooking solutions to ensure that they meet the end-user's needs. With physically demanding cooking practices required for many staple foods, Ghanaian consumers require very durable cookstoves which are sturdy and stable enough to withstand the pounding motions needed to prepare many traditional foods. Additionally, the long cooking periods needed for some traditional foods as well as the consistent increases in cost of fuel mean that consumers also value fuel efficiency gains. However, not all increased efficiency cookstoves have been successful in the Ghanaian market, as most internationally mass manufactured cookstoves are not compatible with the household cooking culture of Ghanaian. As a result, the locally produced Gyapa style charcoal fuelled improved cookstoves, manufactured by several primarily artisanal businesses and designed to specifically meet the needs of West African cooking, have found success through parts of Ghana. While meeting the needs of the consumer is critical, the dominance of the Gyapa style cookstove as the only appropriate cookstove in the market means that consumers have little choice in what they purchase, at what price they purchase it at, and what fuels they are able to use.

The very few choices of improved cooking technologies is especially important considering regional variation in Ghana. Urban dwellers are more likely to be dependent on charcoal, to purchase their fuel, and to therefore have a higher willingness and ability to pay for improved cookstoves. While almost 35% of Ghanaians cook using charcoal, the vast majority of households reliant on charcoal are families with access to liquid petroleum gas and who use it when they are able to, pointing to an opportunity for these families to move completely to LPG if it becomes more affordable and the supply becomes more reliable⁶. In contrast, in some rural communities, inhibiting poverty means there may be a daily struggle to afford necessities so that wood is largely collected for fuel and the sale of fuelwood is an important source of income for some rural families, meaning there is very little ability to pay for, and in some cases low interest in purchasing, an improved cookstove. This is becoming increasingly problematic for rural populations, particularly in the northern regions, as deforestation is especially prevalent in the north, making it more and more difficult to find fuel for cooking, and alternative fuels such as LPG are both unaffordable and inaccessible for rural populations.

Opportunities around consumer financing are relatively limited, as microfinancing is often out of reach for most of the population because of the relatively low cost of the improved cookstoves and the high interest rates on loans. To overcome this barrier, some of the manufacturers and distributors of improved cookstoves in Ghana have employed innovative consumer financing schemes, such as consignment financing in which consumers pay for the cookstove over a set period of time instead of providing all of the capital upfront.

⁶ World Health Organization and Accenture Development Partnerships

Strengthening Supply: Production and Cost Barriers

Cookstoves:

Ghana has a well-developed cookstove market with strong local players across all sectors, including government involvement. Although government interventions in improved cookstoves started in the 1980s, the sector really began to excel in the 1990s with the Ministry of Energy's 'Ahibenso coalpot' program. Improved cookstoves gathered further momentum when Relief International/Enterprise Works launched a large improved cookstove initiative in 2002, which remains active today and has shown significant and sustained success in its training and capacity building of a local manufacturing base to make Gyapa cookstoves. This initiative birthed several spin-off companies that have since formed the foundation of the sector and today Ghana is home to many improved cookstove producers that have each scaled up to tens of thousands of cookstoves annually and in one case, over 100,000. For a variety of factors, there are few instances of successful new entrants to the market.

While the established manufacturers have been largely successful in producing a well-accepted product into the market in large numbers, the production of improved cookstoves has some substantial barriers to overcome. Very high interest rates on loans make access to finance a key issue for implementers, preventing them from increasing production and expanding to other regions of Ghana and through West Africa. High import tariffs on raw materials and finished products increase the cost of locally made cookstoves and force imported cookstoves to be sold at prohibitively high costs, if they are able to enter the market at all, leading to a market dominated by one technology with very few other choices for consumers. This is especially true in the rural areas of Ghana, where there are very limited, if any, improved wood fuel cookstove options. Finally, although carbon financing is viewed as a key source of funding for improved cookstove initiatives, with two currently accredited and two registered Gold Standard cookstove projects and three carbon finance projects are pending approval, there are no large Program of Activities registered in the country and Ghana will be dependent on voluntary carbon markets as of 2012 because of its reclassification as a middle income country.

The cookstove manufacturers in Ghana, primarily trained by the RI/EW program, have largely chosen to focus on efficiency gains, which in some cases have produced some incremental emissions reduction but have not specifically focused on reducing emissions, indicating that while the cookstoves have been successfully adopted, they are unlikely to achieve the health benefits required to be called "clean cookstoves." While the Gyapa cookstoves produced within the existing RI/EW program go through quality control checks, given the number of other products that seek to replicate the Gyapa cookstoves, there is concern over the level of technology and the consistency of product quality of products in the market. Though some manufacturers do conduct their own testing, this has led to concern about impartiality and lack of consistent methodology. Finally, there are also questions about the product quality, as the clay liner is known to break prematurely after being made with low quality materials or treated roughly by the user. Though the single cookstove market in Ghana presents some challenges, it also presents some unique opportunities. Potential opportunities to upgrade the dominant Gyapa cookstove technology would allow for multiple manufacturers to benefit, while increasing the

efficiency and reducing the emissions of an already widely accepted cooking technology, therefore transferring that benefit directly to consumers.

Fuels:

The production and supply of fuels such as LPG and charcoal in Ghana presents its own challenges for the sector. More than 35% of the population relies on charcoal which is usually inefficiently produced through the under regulated small-scale informal charcoal industry, contributing to deforestation and rising costs of fuel. In terms of cleaner fuels, though the majority of those living in urban and peri-urban areas have access to LPG, its supply is unreliable and cannot be depended on. This is in large part to the well-intentioned government subsidy to increase the use of LPG in households which has been taken advantage of through the use in vehicles and for commercial purposes.

Addressing some of the problems with reliability, affordability, and efficient production of alternative fuels throughout Ghana could have the most significant potential to affect both the health of Ghana's people and the protection of Ghana's natural resources long-term as families could begin to transition fully away from the use of charcoal.

Fostering an Enabling Environment

The government of Ghana is very strong on some policies and regulations related to clean cookstoves and fuels, and could improve on others. It has a strong commitment to move its population towards LPG with a goal of transitioning at least 50% of the population to using LPG as their primary cooking fuel by 2015, and a commitment to reducing deforestation and the effects of forest degradation throughout Ghana. This points to significant opportunities to enable the almost 4 million households in Ghana currently reliant on solid fuels for cooking to not only move from inefficient traditional cookstoves and open fires to improved cookstoves, but to also transition some households from charcoal to even cleaner cookstoves and advanced fuels, making Ghana a potential model for moving multiple segments of a population up the energy ladder simultaneously by addressing key barriers throughout the value chain and therefore enabling the broader market. The regulatory framework that is not as accommodating to facilitating progress is that around import duties. As mentioned previously, very high import tariffs prevent new entrants to the market, and import tariffs on raw materials make it difficult for even local cookstove manufacturers to thrive at the increased scale needed to meet the needs of all Ghanaian consumers.

In terms of other stakeholders, many different stakeholder groups are currently working on clean cooking solutions in Ghana but unfortunately they are working primarily independently from one another, with no overall coordination or agreed upon plan for moving the sector forward. In order to ensure that progress is made, the sector needs to come together around one coordinated action plan agreed to by all parties involved.

Defining a Country Action Plan – Why It Is Needed

A Country Action Plan (CAP) defines what the cookstoves and fuels sectors in Ghana will do to catalyze a thriving market for clean cooking solutions and how it will go about doing it. This Country Action Plan is intended to make the case for taking action immediately towards achieving the global goal of 100 million households adopting clean cooking solutions by 2020.

The Global Alliance for Clean Cookstoves Secretariat catalyzed the CAP development process in potential priority countries by hosting stakeholder consultations and strategic planning workshops. These meetings were part of the Alliance’s broader process to convene partners and other key stakeholders in order to discuss the draft strategic business plan, identify and better understand the positive ongoing work in the cookstove and fuels sector, and detect key barriers and intervention options in the country. In each instance, the workshops also sought to understand the potential unique role the Alliance could play as a coordinated, cohesive global network of partners. Input from the workshops has been incorporated and expanded upon through the process of developing and implementing the Country Action Plans.

In the case of Ghana, the promotion of clean cooking solutions is one of the prioritized interventions under its Action Plan for “Sustainable Energy for All (SE4All)” championed by the United Nations. Thus this Action Plan catalyzed by Global Alliance for Clean Cookstoves Secretariat harmonizes with Ghana’s Action Plan for SE4All.

The CAPs identify key barriers to the adoption of clean cookstoves at scale, the desired outcomes if these barriers are removed, and potential intervention options and mechanisms for quickly and effectively taking action in a specific country. CAPs focus on the value-add role an Alliance (as opposed to a patchwork of individual organizations) can potentially contribute, while recognizing that each Alliance partner has its own objectives, priorities and ways of working. In-country partners and stakeholders will develop a CAP that is specific to their nation’s cookstoves market, social customs, infrastructure, and challenges, and will lead in the implementation of the CAP.

Summary of Priority Interventions and Opportunities: Ghana

While the overall goal for Ghana in order to achieve its goals around development must be complete sustained adoption of clean cookstoves and fuels for all of its people, in order to effectively and efficiently reach that goal, the sector must begin to look at how it can strategically target different segments initially and then build off of its own momentum in order to reach scale.

The current consumer segmentation in Ghana, broadly divided into urban and rural users, provides a potential framework for action by following the example of other successful household products such as mobile phones in looking to target the most easily reachable groups first while setting up the market to reach the more challenging populations in a second phase of coordinated action. The two consumer segments can be delineated as follows:

- **Urban and peri-urban consumers:** more than half of Ghana's population resides in urban or peri-urban areas and over 75% of these urban dwellers use solid fuels such as charcoal for cooking. While incomes are generally higher than the rural areas, fuel can be a significant and growing household expense, leading to a greater willingness to pay for increased efficiency and reduced emissions stoves which would allow income to be spent on other activities or goods. By targeting urban solid fuel users who currently have access to LPG, over 1,650,000 households could be easily reached in the next few years.
- **Rural consumers:** More than 95% of rural Ghanaians are reliant on solid fuels for cooking, and in regions where incomes are generally much lower, significant amounts of time is spent collecting fuel wood in increasingly degraded forests. Time saved through increased efficiency cookstoves would bring greater freedom and opportunities to the cookstove user, however there are currently no improved cookstoves in the market that cater to the needs of rural populations, namely wood stoves at lower price points.

Following this framework, the key challenges that have limited acceleration of access to improved cookstoves in Ghana, as well as potential intervention options highlighted below each barrier, are highlighted below. They have been divided into two separate groups:

- 1 • **Phase I Actions:** actions that will help urban, low and middle income families move from charcoal dependence to clean fuels such as LPG and/or from moderate efficiency, high emissions cookstoves to high efficiency, low emissions cookstoves. Action during this phase will also prime the market for reaching other populations during phase two, including strengthening the manufacturing base and raising interest of the technologies in country through increased market activity.
- 2 • **Phase II Actions:** actions that will build upon the work done in Phase I to set the stage for actions in reaching rural, low income families who are currently dependant on collected fuel wood for cooking and transitioning this population to increased efficiency wood cookstoves and, dependant on the success of Phase I, moving this population towards the adoption of cleaner fuels.

In the following section, these actions have been laid out along a comprehensive value chain, which includes all steps from product design to adoption and after sale services, in order to map where specific action is needed. The intervention options listed below come from a variety of sources, including Alliance stakeholder consultations, the World Bank West Africa Regional Consultation, the Sustainable Energy for All Accelerated Framework, and the Ghana Alliance for Clean Cookstoves' plan. Additionally, the Alliance has taken an initial attempt at looking at what type of group might be best suited to take on each task, given the experience and expertise of the different stakeholder groups in Ghana and international groups interested in working in Ghana.

Overall Improved Cookstove Sector:

- 1** • Developing a national policy, strategy and coordination framework for the cookstoves sector

 -  →Develop a national strategy and country action plan agreed to by all stakeholders
 -  →Work with the Renewable Energy Directorate at the Ministry of Energy to include the promotion of improved cookstoves as a key part of its program of activities.
 -  →Create a representative body that will raise the profile of improved cookstoves as well as provide bargaining power for the industry with regard to government policy and national strategies surrounding improved cookstoves.

- 1** • Building the evidence base to support clean cookstove interventions.

 -  → Close key research gaps, such as health implications of household air pollution, by funding research to build the evidence base for health interventions.

- 1** • Building the capacity of those organizations, all along the value chain, which have potential to go to scale up production.

 -  →Improve access to capital through a fund to help cookstove manufacturers produce at greater scale and lower cost, including potentially opening additional manufacturing facilities to increase distribution throughout Ghana.
 -  →Gather experts in areas across the cookstoves value chain, including design and manufacturing, and make them available to provide strategic advice to partners and stakeholders as needed.

- 2** • Fostering a more collaborative environment in which each stakeholder can learn about the other's efforts and there is open sharing of best practices.

 -  → Create an easy to access portal to share information such as project statuses, best practices, and valuable information for the Ghanaian cookstoves market.

Regulatory Framework:

- 1 • Introducing incentives that promote the cookstoves sector – for example, import duties and taxes on technologies, and regulation of raw material inputs so that additional technologies can be tested in the Ghanaian market and so that local cookstove producers can produce significantly greater quantities of their existing improved cookstoves.



→ While the government has prioritized addressing this issue and has shown key actions to support reaching scale of clean cookstoves and fuels in Ghana, it would be useful for an advocacy strategy for the government to be developed, including advocating for cookstove specific government policies, better coordination among ministries, as well as reducing duties for an initial period on clean cookstoves, clean fuels, and related products such as metal (such as creating a new classification number and an associated tariff for clean cookstoves) and providing incentives at different stages along the value chain for those involved in the clean cookstove sector in order to open up the market to international cookstove players and improved availability of materials for local manufacturers.

- 2 • Enhancing regulation in the cooking sector, including regulation of the charcoal and woodfuel supply chain.



→ Work with academic institutions in-country to understand the opportunities for clean fuel, in particular improved charcoaling techniques, biochar, and liquid petroleum gas distribution, as well as ensure best practices are readily available to implementers.

Interventions at Various Stages of the Cookstove Value Chain:

Product Design:

- 1 • Improving quality of cookstove designs to ensure products of higher quality, performance, and durability in the market.

Ghana Specific
Public Good



→ Commission cookstove technology experts to partner with Ghanaian cookstove manufacturers to improve the quality of their products through existing technology retrofits.

Ghana Specific
Public Good



→ Pilot a technology improvement training program using the models of past successful trainings in Ghana in order to move the whole market towards producing cleaner and more efficient cookstoves.

Global Public Good



→ Fund regional testing center to additionally act as a regional knowledge center to provide services and be responsive to the needs of Ghanaian organizations. Trained technical staff should be capable of providing testing services (including efficiency, emissions, safety, and

in the future, durability), analysis, and strategic technical advice with regards to cookstove performance, design, and manufacturing.



→ Adopt ISO International Workshop Agreement (IWA) guidelines for cookstoves performance and any future international standards, as well as develop strategy in Ghana to report, certify, or label stoves based on their performance, and enforce these standards using a system that is harmonized with the international reporting framework.



→ Coordinate organizations in reporting cookstove performance, in line with ISO IWA and with international partners, in a standardized and transparent way so that results could be made accessible to stakeholders and donors to allow optimum funding allocation.

1

- Increasing the number of consumer choices with regard to both cookstoves and fuels that meet the unique needs of Ghanaian consumers, including cookstoves that can accommodate large, round bottom pots.

Global Public Goods



→ Encourage innovation and the development of new locally produced technologies, developed with women to ensure that the technologies meet the needs of end users, in order to increase consumer choice through an innovation fund.



→ Hold a country-wide competition for new or adapted clean cookstove technologies that cater to the needs of different consumer segments in Ghana, for example, low-cost wood or crop residue fueled cookstoves, medium cost charcoal cookstoves, commercial scale wood cookstoves for kenkey vendors, LPG systems that allow the cylinders to be stored outside of the home, and others with the winners receiving technical and financial support to begin or enhance production of the technology.



→ Advocate for reduced import tariffs on improved cookstoves and fuels to allow international cookstove manufacturers to test their products in the Ghanaian market in order to adjust their technologies to better suit the needs of Ghanaian consumers and explore local production of their technologies.

Ghana Specific Public Goods



→ Encourage international manufacturers to partner with Ghanaian organizations to manufacture technologies with improved performance.

2

- Enhancing number of options of cookstoves to meet the needs of rural, woodfuel users.



→ Advocate for reduced import tariffs on improved cookstoves and fuels to allow the market to vary in products and allow consumers more choice in their purchases.



→ Incentivize local cookstove manufacturers to design low cost, woodfuel improved cookstoves for rural users.

2

- Engaging end users in design and development of improved cookstoves.

Global Public Good



→ Develop toolkit on incorporating user preferences in technology design as it specifically relates to cookstoves.

Global Public Good



→ Collect best practices in end user involvement for different types of stakeholders and make available to sector at-large.

Financing for Small and Medium Enterprises:

- 1 • Enhancing access to finance for producers to improve, strengthen, and expand production capacity (leading to low economies of scale and high cost of the improved cookstoves compared to the traditional cookstoves), improve quality of the cookstoves, and decentralize production and distribution of cookstoves.

Global Public Good



→ Improve access to capital through a working capital fund, an innovation fund, or government matching schemes to help cookstove manufacturers produce at greater scale and lower cost, innovate around quality improvements, and reach greater segments of the population.



→ Build the capacity of organizations to present their businesses for financing by pairing consulting groups (paid on results) with Ghanaian businesses.



→ Develop a fundamental business skills class for basic skill development, writing an investor ready business plan, ensuring proper documentation, and understanding the financial landscape.

- 1 • Increasing involvement of banks in formulation and implementation of cookstove programs;



→ Develop advocacy strategy for banks to loan to improved cookstoves and clean fuels projects at lower interest rates.



→ Mitigate risk for banks by increasing knowledge of cookstove and fuel sector, potentially through successful track records.

Global Public Good



→ Mobilize additional capital to incentivize lending in the sector.

- 1 • Understanding the potential role for carbon financing to assist microenterprises and small/medium enterprises in Ghana to receive long-term financial support and potentially bring down the cost of the technology for consumers.

Global Public Good



→ Develop a step-by-step toolkit to educate stakeholders and help businesses understand the potential of carbon financing and how to receive it.

Global Public Good



→ Share best practices from successful PoAs throughout Africa.

Production and Supply:

- 1 • Enhancing access to raw materials both in terms of quantity and quality.



→ Advocate for reduced import tariffs on raw materials such as scrap metal as a means for increasing production of clean cookstoves.



1

- Increasing efficiency and regulation for small scale production of charcoal.
 - Conduct a study or review to survey best practices for increasing efficiency of this type of charcoal production, as well as examining the role of other types of charcoal production such as the development of woodlot plantations or briquette production, and disseminate results widely through a toolkit or manual distributed by the government.



→ Coordinate design of study with the Energy Commission to ensure that the work currently being done to improve production of charcoal is incorporated.

Distribution:

1

- Addressing problems with distribution and unreliability of LPG to increase the utilization of the government LPG in households.



→ Work with international organizations to identify barriers in ensuring a reliable supply of LPG for cooking and in expanding the distribution of LPG beyond urban and peri-urban areas, including performing a technical study that examines the challenges with the current LPG subsidy and provides clear policy guidance to the government.

2

- Examining the lack of any true cookstove market activities in Northern Ghana, including the absence of a cookstove technology which meets user needs.



→ Pilot studies to understand and address the issues with previous improved wood stoves in the Northern regions. Work closely with women in the community, as the Ministry of Energy highlighted the need to take local customs/preferences into account.



→ Initiate improved cookstove business in Northern Ghana by providing key resources required to scale production (i.e. kiln, machinery) as well increase demand through innovative purchasing options e.g. distributing carbon finance revenues and subsidizing the stoves.



→ Improve last mile distribution by coordinating the local NGO, gender, and faith-based networks to distribute within rural communities, as well as sharing lessons learned from similar last mile distribution schemes in country such as Freedom from Hunger Ghana.

Financing for Consumers and Microenterprises:

1

- Addressing underutilized government LPG subsidy due to upfront and overall cost of fuel.



→ Advocate for a modification of the LPG subsidy, including transitioning the subsidy into a small canister model which would be more feasible for families to purchase and would prevent misuse of the subsidy.

- 1 • Improving access for end users to finance for upfront costs.



→ Advocate for microfinance institutions as well as NGOs or other networks to loan to improved cookstoves and fuels projects at lower interest rates.



→ Educate general population on the opportunities presented by using microfinance and how microcredit works at a regional level.



→ Explore options around bundling energy or household products in order to meet consumer needs and satisfy microfinance lending requirements.

Global Public Good



→ Gather best practices in consumer financing models globally to find the most appropriate financing options for the Ghanaian context.

Adoption:

- 1 • Increasing awareness of health problems associated with household air pollution.



→ Conduct a study to identify the most effective messaging and awareness raising techniques for the Ghanaian consumer base, including potentially mapping and identifying the most effective messaging channels that could be utilized to reach a broad consumer base.



→ Implement a large scale awareness raising campaign similar to the government campaigns run to raise awareness of HIV/AIDS or the campaigns to improve maternal and child health such as at ante-natal and post-natal clinics.

- 1 • Increasing consumer research and input from end users to prevent supply-driven promotional projects.

Ghana Specific Public Good



→ Commission market intelligence and consumer preference studies, including consumer segmentation, identifying needs around the commercial use of traditional cookstoves, and how labeling about performance and quality can impact consumer choices, and make available publically to better inform stakeholders in order to tailor products and marketing to consumer needs and preferences.

- 1 • Expanding menu of options of cookstoves to support local needs and varied consumer segments.



→ Advocate for reduced import tariffs on improved cookstoves and fuels to allow the market to vary in products and allow consumers more choice in their purchases.

- 2 • Focusing attention to long-term marketing and sustainable value-chain development.
 → Compile best practices and lessons learned in long-term awareness raising, social marketing, and traditional marketing practices from both the clean cooking solution sector as well as other related sectors.

Maintenance/After Sales Services:

- 2 • Lengthening the life of improved cookstoves in current market and satisfaction of consumer with increased knowledge of how to use and care for a cookstove, as well as after sales maintenance.
 → Develop network of maintenance technicians to test after-sales service model in replacing the ceramic liners and other malfunctioning parts of the improved cookstoves.
 → Explore different methods to train end users in how to properly use and care for the improved cookstoves in order to increase the performance of the cookstove and prolong its productive life, including longer term messaging through means such as mobile messaging.

Conclusions and Next Steps

It is critical that the sector come together around one robust, comprehensive, and above all coordinated plan to work towards achieving complete sustained adoption of clean cooking solutions in Ghana. After a plan is agreed to by all relevant parties, including the public sector, private sector, civil society, and academia, the sector must then transition from planning to action.

The next steps focus on execution of the plan, including the development of the key performance indicators and targets, developing an implementation plan with roles and responsibilities, a timeline for completion, and a process for evaluating progress towards the ultimate goal of total adoption of clean cookstoves and fuels throughout Ghana.