USAID
FROM THE AMERICAN PEOPLE

WINROCK INTERNATIONAL

CLEAN AND EFFICIENT COOKING TECHNOLOGIES AND FUELS

1. INTRODUCTION

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1. INTRODUCTION

WHO SHOULD USE THIS TOOLKIT?

This toolkit can be used by various stakeholders, but is primarily aimed at bringing USG staff and external project developers and implementers up-to-speed on significant developments in the cookstove sector in recent years. The goal is to showcase, through accurate and up-to-date information and links, the way cookstove projects can achieve impacts across a range of sectors, from forestry, energy and environment to livelihoods and income generation, not to mention health, school feeding, and women's empowerment. The toolkit provides an overview of how the cookstove sector is evolving, best practices, and key challenges. When designed and implemented well, cookstove programs have the potential to improve the health, livelihoods, and environment for the 3 billion people who still rely on traditional stoves and solid fuels to feed their families.

WHY FOCUS ON COOKING TECHNOLOGIES AND FUELS?

Everyone cooks. It's a fundamental, universally-shared practice that's part of every family's daily routine. However, for nearly half the world's population, the simple act of nourishing their families can also be deadly, and harmful to the local and global environment.

Cooking with traditional biomass fuels (i.e., wood, charcoal, animal dung) on rudimentary stoves or an open fire results in:

- 3 times the annual number of deaths compared to HIV/ AIDS -- more than tuberculosis, malaria and HIV/ AIDS combined;
- Consumption of 500 million tons of non-renewable wood every year;
- Greenhouse gas emissions equivalent of 170 million passenger vehicles;
- Lost productivity, time and income-generation opportunities for women;
- As much as 30-50% of household incomes being spent on the purchase of cooking fuel; and
- Safety and security concerns when people must walk long distances to gather fuel – especially in humanitarian settings where displaced populations are particularly vulnerable to assault and gender-based violence.

"I HAVE SEEN FIRSTHAND THE IMPORTANCE OF ACCESS TO ENERGY AND CLEAN COOKSTOVES, ESPECIALLY IN HUMANITARIAN SETTINGS. **THIS IS AN ISSUE THAT IMPACTS MULTIPLE SUSTAINABLE DEVELOPMENT GOALS** AND IT MUST PLAY A CENTRAL ROLE IN OUR WORK TO ENSURE THE REALIZATION OF HUMAN NEEDS AND FUNDAMENTAL RIGHTS."

ANTÓNIO GUTERRES, SECRETARY-GENERAL, UNITED NATIONS

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SECTOR EVOLUTION AND SCALE

The idea of 'improved cookstoves' (ICS) as a development issue area has been around for more than 40 years. The word "improved" tends to refer to two key areas of potential reductions – fuel use and toxic emissions - although the potential benefits extend well beyond, and can also include safety, time savings, financial benefits, and others. Early cookstove efforts primarily targeted fuel savings as a means to reduce deforestation, with a heavy focus on developing the technology, and less of a focus on meeting user needs. In these early days, stove developers didn't rely enough on technology testing, and assumed benefits that in some cases never materialized. Early stove projects typically were also isolated donor or government-led efforts, and lacked the longer-term funding, planning and coordination needed to develop sustainable local markets.

In the past 15 years, greater efforts have been made to coordinate and share knowledge amongst a growing global partnership of governments, private-sector enterprises and non-profit institutions working in the clean cooking sector. In 2002, at the World Summit on Sustainable Development, the United States government launched the Partnership for Clean Indoor Air (PCIA), led by the US Environmental Protection Agency (US EPA). PCIA was a collaborative effort to join together hundreds of global stakeholders to reduce smoke exposure from cooking and heating practices in households around the world. The launch of PCIA marked a shift from looking at the impact of cooking primarily on the environment to an equal or greater focus on how cooking impacts human health. PCIA grew from a handful of founding partners, including USAID, to a network of over 590 organizations 10 years later.

Looking for ways to increase the potential impact of PCIA through greater private-sector engagement, the US Government, including US EPA, Department of State, USAID and others worked to help transition PCIA into what is now the Global Alliance for Clean Cookstoves (the Alliance). The Alliance, launched in 2010, built off the groundwork of PCIA, integrating the existing partnership in 2012. With over 1700 registered partners by 2017, the Alliance commissions important research and assessments, provides grant funding, and plays an important advocacy role, increasing visibility of cookstove issues among governments, the global donor community, academia, and the private sector.

According to the Global Alliance for Clean Cookstoves 2016 Progress Report, partners globally reported distributing an **estimated 53 million** clean and/or efficient cookstoves and fuels between 2010 and 2015.

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IMPORTANT TRENDS

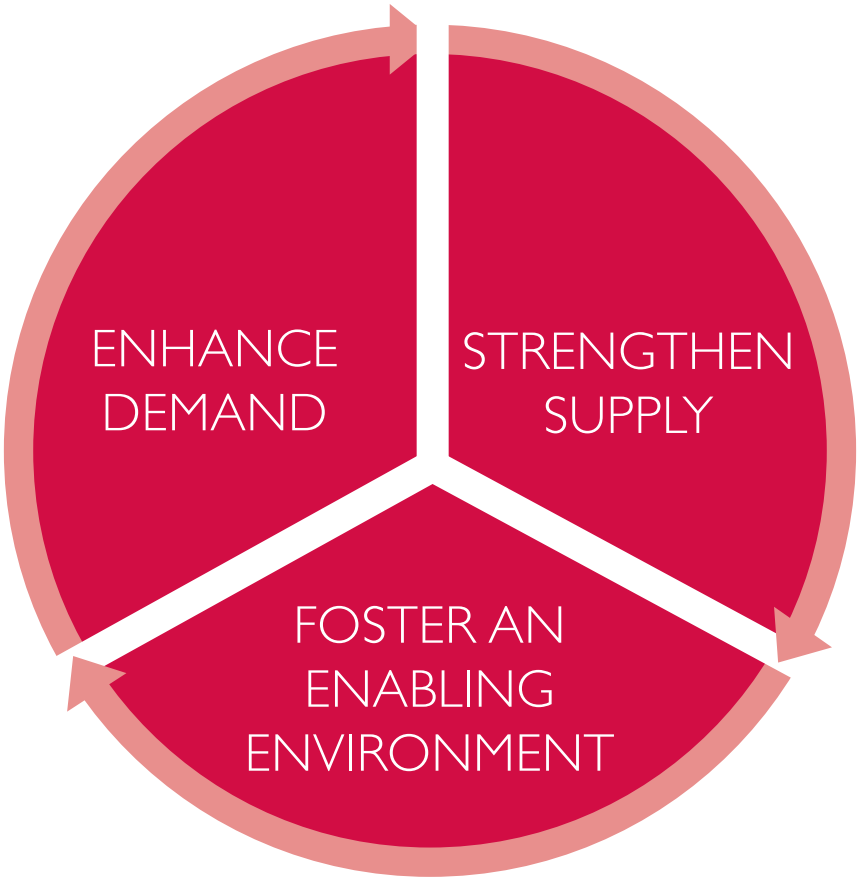
While cooking technologies and/or fuels programs may allow an implementer to address multiple development issues simultaneously, cookstove projects can be successful only if sufficient resources are dedicated to addressing each issue area with thoughtful, well-informed, well-planned interventions. Experience in the sector shows that stove/fuel programs are labor intensive, especially in the early stages, and often are understaffed and/or underfunded—especially when conducted as a smaller component of a larger program. The resources in this toolkit can help project developers think through what's needed to craft high-quality projects with the most potential for impact. Sometimes trade-offs will be required in order to achieve primary objectives, but technological innovation is driving development of new and better technologies, locally-based manufacturing capabilities are improving, availability of hard data and monitoring tools is increasing, and commitment to developing sustainable, market-based interventions is growing.

Key trends that have emerged over the past 5-10 years include, but are not limited to:

- A global effort (with participation from 40 countries) towards creation of international voluntary standards for cookstoves
- A better understanding of the burden of disease attributable to household air pollution, and the emissions reductions needed to have significant impacts on health, which has become a driver of technology development for cleaner, higher-quality stoves and fuels
- New partnerships and platforms developed to bolster consumer and enterprise financing

- Improvements in in-country and regionally-based manufacturing capabilities, bringing quality products, at scale, closer to the end user
- The ability of stove projects to receive carbon financing; and
- Increased focus and ability to test stove performance and monitor stove usage, thereby ensuring that products meet user needs and projects attain desired outcomes.

This toolkit addresses each of these trends. For each thematic area, you'll find a highlighted section at the beginning that explains "Why it matters" and lists best practices to avoid common pitfalls. These best practices will help you design programs with the greatest potential for long term, sustainable impact.



BUILDING BLOCKS FOR DEVELOPING SUSTAINABLE PROGRAMS

What are the important considerations that need to be addressed before developing a new cooking and fuels program? These are most easily organized around three main elements of market development – supply, demand and enabling environment. All three have to be addressed adequately to achieve sustainable impacts. The sequencing of activities that will occur within each "building block" is important, and each block can impact outcomes in the others. Any cookstove program, therefore, must have a flexible design that allows the stakeholders to adapt to new data and emerging market forces. A discussion of core activities that should be planned under each building block follows. The research activities identified will help prospective program implementers to identify gaps and issues their programs must address. Because of its cross-cutting nature, monitoring and evaluation (M&E) is not listed under any specific subsection in the tables below, but critical tools for M&E can also be found in this toolkit under that section heading.

STRENGTHENING SUPPLY

KEY ELEMENTS	TECHNOLOGIES	DISTRIBUTION CHAINS	ENTERPRISE DEVELOPMENT
TAKE ACTION	Find out what technologies are currently available in your target market, and if they have been tested.	Assess local distribution chains.	Determine levels and potential for private sector growth.
ASK YOURSELF...	• Is there sufficient supply to match the proposed increase in demand from project activities? • Has this technology and/or fuel been tested by a reputable testing lab? • Has this technology and/or fuel been tested with my target consumers? NOTE: If the answer to any of the above questions is "no" these must be addressed before launching any demand building activities.	• Does the physical infrastructure exist to roll out a new product or fuel? • Can my target consumer easily access this new fuel on a regular basis? • How will this new technology or fuel impact traditional stove or fuel sellers? • Is there a market/provision for replacement parts, warranty fulfillment and repair? • Are there opportunities to provide income sources for women?	• Are stove manufacturing and distribution enterprises at a nascent stage in need of significant financial and capacity building support? • What type of enterprise financing is available and how accessible is it to cookstove and fuels companies?
WHERE TO FIND INFORMATION	**Technologies and Fuels:** Includes descriptions of the main stove / fuel types and links to a catalog of available technologies. **Standards and Testing:** Provides information on testing protocols and resources available. **Health:** Includes important considerations for technology selection in health-focused programming.	**Market Development:** Describes important considerations for stove and fuels distribution. **Cross Sectoral Collaboration:** Includes best practices for integrating women into cookstove and fuels value chains.	**Market Development and Finance:** Helps you navigate strategies for strengthening supply chains and determining appropriate financing options.

ENHANCING DEMAND

KEY ELEMENTS	MARKET IDENTIFICATION	CONSUMER PREFERENCES / MARKETING	GENDER DYNAMICS
TAKE ACTION	Know your market. Identify the most likely customers/users of cooking technologies and fuels where you're working.	**Determine consumer preferences and willingness to pay** for the technologies and fuels you are proposing to promote. **Use the 4 "Ps" of the classic marketing matrix:**	Identify relevant local gender roles and norms in the area where you are working, and potential impacts.
ASK YOURSELF…	• What are the users' primary cooking needs? • How can a new fuel/technology help them meet those needs? • Can they afford to pay upfront or will they need financing? • What financing options do they have?	**Product:** • What are the current cooking habits or customs and is this technology or fuel compatible with those? • Will users need multiple devices to meet their cooking needs? • Is there significant behavior change required? • How interested is the target population in alternative fuels? • What features/ attributes do they value most? **Price:** • How much do people currently spend on cooking technologies/ fuels? • Can consumers afford the upfront or ongoing maintenance/ fuel costs? • Will they need support for these costs? **Place:** • In what region or with what consumer group is this initiative most likely to succeed? • Where should marketing or consumer awareness efforts be focused? **Promotion:** • What marketing messages or strategies have the most potential to resonate? • Cooking techniques, cultural practices and fuel sources are unique – marketing efforts need to match!	• Does the proposed activity or technology require cooks to spend more or less time tending the fire? • Could the new fuel/technology free up resources or time for cooks (primarily women) to engage in other activities? • Who is the likely purchaser vs. user and what are their different needs and priorities?
WHERE TO FIND INFORMATION	**Market Development and Finance:** Includes links to consumer segmentation studies from dozens of countries.	**Consumer Preferences and Adoption:** Provides information on strategies for getting consumer feedback on preferences and willingness to pay, which can also influence marketing strategies. **Market Development and Finance:** • Includes examples of consumer financing strategies. • Links to consumer studies that will help you choose the best location for stove / fuels promotion activities.	**Cross Sectoral - Gender:** Links to helpful resources on gender strategies and considerations for your program.

FOSTERING AN ENABLING ENVIRONMENT

KEY ELEMENTS	GOVERNMENT CAPACITY AND INVOLVEMENT	FINANCING CHANNELS (INCLUDING CLIMATE FINANCE)	GLOBAL PARTNERSHIPS	RESEARCH ON HEALTH / ENVIRONMENT
TAKE ACTION	Understand the context in which you're working. Determine what opportunities and barriers exist for scaling clean stoves and fuels.			
ASK YOURSELF…	**Government regulations** around things like import tariffs and fuel subsidies have huge impacts on potential for sustainable market success. Beyond regulation, **enforcement capacity** is also critical, especially when it comes to introducing new fuels that may have potential impact on public safety (e.g., handling and storage of LPG). **Governments can also support markets** through standards development, national level awareness campaigns, investments in critical physical infrastructure (e.g., for LPG or ethanol), and provision of incentives and/or financing.	**Available financing channels for consumers and enterprises.** Find out: to what extent are financial institutions willing to lend to cookstove and fuel companies, or to consumers? How affordable is financing from formal channels? Is mobile money available? Are there MFIs, cooperatives, table banking groups or other networks in place and willing to provide financing support? **Applicability of climate finance.** It takes significant effort and planning to develop appropriate carbon finance programs for cookstoves. There are many challenges in making these programs sustainable, but they can provide an important source of revenue.	The **Global Alliance for Clean Cookstoves** provides up-to-date information, tools and support for the clean cooking sector, and also provides in-depth sector support and awareness raising in key focus countries.	New information is continually emerging about health and environmental impacts, and several studies and trials are currently underway. The results of this research will be important to take into account in any future programming efforts.
WHERE TO FIND INFORMATION	**Market Development and Finance:** includes links to country-level market assessments that look at the macro environment. **Standards and Testing:** Includes information on international and national level standards for cookstoves and fuels.	**Market Development and Finance** Includes an overview of the types of institutions and strategies that might be available to provide critical capital to consumers or enterprises. **Climate:** Describes the types and sources of climate financing available for cookstoves and fuels, as well as challenges to consider upfront.	**Sector Evolution and Scale:** Includes more background on the Alliance and other partnership efforts. See also Cross-Sectoral Collaboration.	**Health and Climate** provide information on key research efforts, and links to sites where new research will be posted as it becomes available.

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