Climate

Environment

Health

Gender

Stove*Plus* Positioning & Advocacy

Women in Bamako selling improved cookstoves and pottery

Who We Are & What We Believe

Stove*Plus* is a global initiative of the international NGO GERES that facilitates access to improved cooking solutions. We bring over 20 years of field experience from Asia and Africa to help support and build up clean cooking projects worldwide.
Our support to project holders plays an important role in improving energy access to those at the Base of the Pyramid (BoP), the world's poorest and most vulnerable populations, and contributes to the goals set out by the Global Alliance for Clean Cookstoves (GACC) and the United Nation's (UN) Sustainable Energy for All (SE4ALL) initiative.
Our actions are shaped by our values and beliefs in knowledge sharing and exchange, building long lasting partnerships, technological innovation as a driver for change, adapted solutions, local participation and ownership and holistic interventions. We uphold and advocate these core beliefs on the field, among our partners and in the international cookstove community.

Contact us!

+ **info@stoveplus.org**
+ **stoveplus.org**
+ **@StovePlus**

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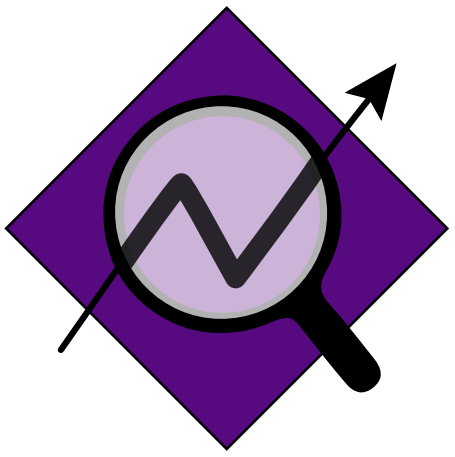
BIOMASS

Stove*Plus* Positioning &

Knowledge Sharing and Exchange

Providing access to relevant information, tools, skills and expertise, and facilitating the exchange of experiences among actors in the clean cooking energy sector.



Technological Innovation for Change

Protecting natural resources, improving human development and encouraging women's empowerment through accessible technological advancements in energy.

Building Partnerships

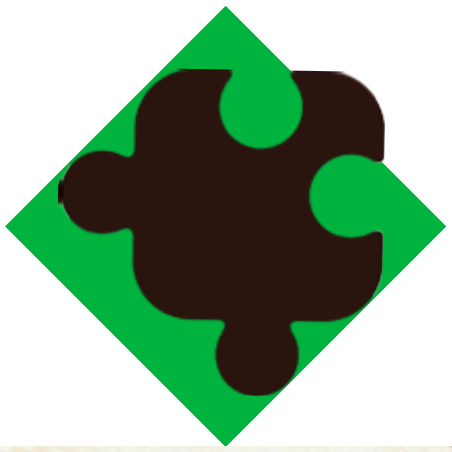
Developing partnerships with local, regional and international sector stakeholders and connecting them to other relevant actors and opportunities.

Local Participation & Ownership

Engaging local communities, businesses, organisations, government and civil society groups for local ownership and long-term success of clean cooking energy projects.

Adapted Solutions

Developing solutions that are adapted to the local context, consider existing technologies and cultural practices, and encourage the use of local materials and skills.



Holistic Interventions

Analyzing entire cooking value chains from supply to demand, and taking a kitchen perspective to energy access issues and inefficient cooking.

One of our local partner in Indonesia, Yogyakarta (2015)

Where We Stand on Biomass Energy

A Relevant Energy for Households in the Least Developing Countries

Energy access has become one of the most important and challenging development issues of our time, affecting our capacity to improve global health, education, climate and livelihoods. Today, an estimated 2.7 billion people rely on biomass for cooking and its use will remain significant over the next few decades. For these populations, solid biomass including wood, charcoal and agricultural residue, is essential for meeting basic living needs. In some areas of the world and in particular Africa, the use of solid biomass is expected to increase due to high population growth and urbanization.
Improving energy access is essential for the well-being of people and ecosystems around the world. We support improved access to more advanced fuels; however we also recognize that for the world's poorest populations these resources are often unavailable, inaccessible or too costly and it will remain the case for many years to come. We also believe that going directly to advanced fuels may exclude the poorest, creating a larger energy gap in developing countries. Therefore, in order to reach those at the Base of the Pyramid[1] we advocate for more efficient and cleaner use of biomass energy as a compliment to other measures that facilitate access to energy.

Young boy gathering wood in Mali, Siby (2015).

[1] Refers to the 4 billion people who live on less than 8 USD a day in Purchasing Parity (PPP) or who lack access to basic goods, services and income generating opportunities. http://www.ifc.org/wps/wcm/connect/377ce0804cef73e491abd5f81ee631cc/IFC+Issue+Brief_AM12_Inclusive+Business.pdf?MOD=AJPERES

A Sustainable and Modern Energy through Technological Innovation

Biomass energy has often been labeled as "dirty" and "out-dated", especially when compared to Liquid Petroleum Gas (LPG). We recognize that LPG is a cooking fuel with higher potential to reduce Household Air Pollution (HAP). Indeed, we would need significant advancements in science and technology to make solid biomass a clean and modern energy. However, we believe that technological innovation can drive change and that this locally relevant and renewable energy can be used in a more sustainable and modern way.
We strongly believe that it is the inefficient transformation and use of solid biomass, coupled with unsustainable forest management practices, that contributes to adverse effects on human health and the environment, such as Household Air Pollution (HAP) and forest degradation.

Where We Stand on Improved Cookstoves

Saving woodfuels and reducing pressure on local forest resources

Biomass cooking uses wood resources, yet recent research has shown that it is not a main driver of deforestation. While there have been localized cases of deforestation linked to biomass cooking, as seen in some parts of Africa and Asia due to scarce wood resources and inefficient charcoal production, the main driver of deforestation remains land clearing for agricultural production.
In certain areas and especially in tropical regions, the use of solid biomass for cooking may put pressure on local forest resources and in this context improved cookstoves (ICS) can provide an effective solution. ICS technologies have demonstrated their ability to increase energy efficiency and significantly reduce the amount of fuel needed for cooking. Our field experience has shown this capacity and we firmly believe that improved cookstoves can save fuel and reduce pressure on local resources, helping communities to lower their consumption of woodfuels and potential impacts on forests.

A Valuable & Profitable Sector for the BoP

The energy sector plays a very important role in the economies of the Least Developing Countries (LDCs). Though mostly informal, the biomass sector has a high economic value and contributes significantly to local employment. Global woodfuel and charcoal production activities generate about US$ 33 billion per year[2]. In Kenya alone, charcoal production generates US$ 450 million per year and employs over 500,000 people[3].
Biomass use in the LDCs is not only a reality, but an important source of income and opportunity for local populations. We recognize that there are many market actors in biomass value chains and that its organizational structure may not always profit or empower the most vulnerable. However, we still believe it is an important source of income for the Base of the Pyramid and one that should not be disregarded.

[2] Food and Agriculture Organisation of the United Nations (FAO). (2014). "State of the world's forests". http://www.fao.org/3/a-i3710e.pdf
[3] Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ). (2014). "Wood Energy: Renewable, Profitable and Modern". https://cleancookstoves.org/binary-data/RESOURCE/file/000/000/289-1.pdf

Mali, Bamako, 2015

& Advocacy

Yayasan Dian Desa Laboratory, Yogyakarta, Indonesia, 2015

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A Shea butter producer in Mali, Dioïla (2015)

Fighting Climate Change

Cooking with solid biomass over open fires or on efficient stoves releases an array of air and climate pollutants, such as Carbon Dioxide (CO2), Methane (CH4), Black Carbon (BC) and other fine particles. Burning biomass currently represents 2% of global Greenhouse (GHG) gas emissions[4]; a relatively small amount but one that can still be further reduced.

Recently, improved cookstove projects have been receiving and selling carbon credits for their capacity to reduce CO2 emissions; one of the largest contributors of climate change. While these projects have demonstrated significant CO2 reductions, recent research has found some weaknesses in carbon monitoring methodologies and discrepancies between the amount of woodfuels saved and real impacts which depend on deforestation and forest degradation dynamics[5]. As a result, it remains unclear to what extent improved cookstoves can reduce GHGs and mitigate climate change impacts originating from the use of biomass for cooking.

However, methodologies are being discussed and improved, with better assessment of the fraction of non-renewable biomass used to calculate the impacts of reduced woodfuel consumption on forests or by linking improved cookstove projects to REDD+[6] methodologies which could provide more accurate and locally relevant estimates of CO2 savings. In addition, research looks promising on the subject of Black Carbon; a short-term but potent climate pollutant recognized as the second largest contributor of climate change. Recent studies and laboratory tests have shown an ability to significantly reduce BC emissions through improved cookstove technologies. However, more research is needed as the scientific community is still learning much on the nature of Black Carbon and its interaction with other pollutants.

Reducing Household Air Pollution (HAP) and the Global Burden of Disease

Inefficient biomass cooking releases large amounts of Carbon Monoxide (CO) and Particulate Matter (PM) which lead to respiratory, cardiovascular and eye diseases, especially in women and children. The World Health Organisation (WHO) estimates that 4.3 million premature deaths per year occur due to inefficient biomass cooking. Exposure to these pollutants depends on a number of factors, such as kitchen space, ventilation, cooking habits, fuel type and stove characteristics. Recent studies have shown that improved cookstoves have a high capacity to reduce HAP. For example, the recent RESPIRE study[7] demonstrated large reductions in CO exposure in women and children (91% and 61 %, respectively) when using an improved wood stove with chimney. Such studies that evaluate real time exposure to health pollutants not only before and after the introduction of an improved cookstove, but also across control and intervention groups are essential for proving health impacts. However, they are also few and far between.

We believe that improved cookstoves stand to play a significant role in reducing HAP; however more exposure studies are needed to validate such reductions and especially in field settings. In addition, considerable research is needed to better understand the interplay between HAP reductions and reduced health risks. The relationship between these two factors is not proportional and as a result it is unclear how much HAP reductions are needed to significantly reduce health risks related to biomass cooking.

Creating Positive Social Impacts & Improving Women's Safety and Livelihoods

Women are the most affected by inefficient biomass cooking and stand to gain the most from improved cookstoves, including reductions in Household Air Pollution (HAP), fuel savings and time savings. In some cases and especially in refugee settings, reduced consumption of woodfuels may also protect women against violence experienced during wood collection. While we recognize the high potential to improve women's safety and livelihoods through the use of improved cookstoves, there is very little quantitative evidence to support it. More research is needed in this area, in particular investigating whether or not fuel and time savings actually lead to increased safety, income generating opportunities and empowerment.

Around the world, improved cookstove initiatives have demonstrated their social added value and ability to create positive social impacts, such as developing skill sets, creating employment opportunities, inspiring entrepreneurship and stimulating local markets. However, much like gender impacts, it is an area with little quantitative evidence. Claims made on the subject are mostly project specific and anecdotal. Our own experience working on improved cookstoves in South-East Asia and West Africa leads us to believe that it is possible to create positive social impacts and improve the lives of women and their households; however more research is needed to validate these experiences.

[4] *Bailis et al. (2015). "The Carbon Footprint of Traditional Woodfuels" Nature Climate Change 5: 266 - 272.*
[5] *Ibid.*
[6] *REDD+ is a United Nations global programme that aims to put a financial value on carbon stocks from forests in order to incentivize emissions reductions*
[7] *Smith et al. (2010). "Personal child and mother carbon monoxide exposures and kitchen levels: Methods and results from a randomized trial of woodfired*

& Advocacy

5 minutes with Tina on developing evidence based advocacy messages

What were your hypotheses before beginning your research on ICS impacts?

"Before I carried out the research, I had heard many claims about the environmental, climate, health and socio-economic impacts of improved cookstoves which led me to believe that there was a high impact potential and much evidence to support it. However, what I found was a tendency to exaggerate impacts, misunderstand findings and a general lack of rigorous, quantitative research to back up claims. On the subject of forests, researchers are still trying to understand the complex interactions between woodfuel use and forest dynamics. While improved cookstoves have shown significant fuel savings, there is strong evidence showing that improved cookstoves cannot save the world's forests. This is because the main driver of deforestation remains the clearing of land for agricultural purposes, although there are certainly localized cases linked to biomass use. However, as highlighted in GERES' recent FloWood study, improved cookstoves can play a role in reducing pressure on forests in areas where a large proportion of the woodfuels used for cooking are coming directly from forested lands and not as a by-product of other activities. This is an area where impacts may have been overestimated and so the focus has shifted onto improvements in health.

On Household Air Pollution (HAP), there is much more evidence showing that improved and advanced cookstoves can reduce pollutants like Particulate Matter and Carbon Dioxide. However, there is much work to be done in understanding to what degree pollutants must be reduced to achieve actual improvements in health. As it turns out, exposure to HAP and health risks do not have a linear relationship, but a very complex one that has even been shown to plateau as the body tries to adapt to very high levels of pollution. Researchers must continue to conduct rigorous health exposure studies while considering the other factors and sources of pollution within a household.

On gender and livelihoods, many believe that ICS projects can empower women and communities and while we are eager to claim this as well, there is a huge lack of quantitative evidence to support it. We often see project specific results and usually in the form of stories or testimonies. Thankfully there are many studies currently under way that aim to build more quantitative evidence on this. So after all this research, I have definitely taken a more cautious approach to ICS impacts and the research that exists on it. I still believe that improved cookstoves have an important role to play in improving health and livelihoods, protecting natural resources and empowering women, but we must continue to build evidence in order to demonstrate actual impacts.

Tina Marie Marchand, StovePlus Advocacy & Research Officer

What are the main statements made today on biomass as a clean energy?

"During my research, I came across two major perspectives on biomass energy; the first being that biomass energy is dirty and out-dated and the other stating that it is a relevant and optimal energy source for the BoP. I have noticed that many researchers and practitioners with a background in health tend to agree with the first perspective as advanced fuels, such as LPG, can achieve significantly greater health impacts. On the other hand, those with an environmental, climate or social background seem to agree more with the second perspective, highlighting its renewability, availability, accessibility, affordability and role in stimulating local jobs and markets.

Where does StovePlus stand on the biomass energy debate?

"We certainly feel that biomass energy is relevant for the people that we work with, that is to say those who are at the Base of the Pyramid who lack access to cleaner energy, skills, tools, opportunities etc. We always take into account the reality and the social context. We do not position ourselves against LPG, but focusing on LPG alone tends to exclude the poorest who cannot access this type of fuel due to their geographical location or financial situation. In this context, we believe that biomass can complement other efforts, helping to close the energy gap and reaching those living in remote and rural areas. Those interested in the studies we used for our research and evidence building efforts can contact our team for more information.

To get a deeper understanding of these topics, which resources would you recommend?

"I would begin by looking through the studies and reports that have been compiled and made available to the public on the Global Alliance for Clean Cookstoves' website (cleancookstoves.org). Also, you can explore studies on partner websites such as GERES, ENERGIA, GIZ, SNV and Practical Action. Unfortunately, many NGOs and local organisations are not able to access the latest scientific journals as they are quite expensive. However, some local libraries may grant access to electronic journals and some researchers also make their studies available on their own websites, such as Kirk Smith's webpage (kirksmith.org)."

from forested lands and investment into low carbon growth.
chimney cookstoves in Guatemala (RESPIRE)" Journal of Exposure Science and Environmental Epidemiology 20 (5): 406–416.

Business Development

Ensure a sustainable market-based approach

Access to Finance

Explore financing opportunities, including carbon finance

Quality Assurance & Quality Control

Assure high quality stoves production processes

Monitoring & evaluation

Implement stove monitoring and evaluation tools

Research and Advocacy

Increase knowledge and promote evidence-based solutions

Standards & Labelling

Integrate improved cook-stoves standards and labels

Testing and R&D

Enhance testing capacities and Stove design

Baseline Assessment

Understanding local context and cooking energy sector

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