









Clean and Efficient Cooking Energy for 100 Million Homes

Results from the Bonn International Cooking Energy Forum 26–28 June 2013

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Preface

On behalf of the German Federal Ministry for Economic Cooperation and Development and the Global Alliance for Clean Cookstoves (Global Alliance), it is our great pleasure to present within this publication the relevant outcomes of the Bonn International Cooking Energy Forum. We are delighted that more than 130 participants from government ministries, the private sector, investors and non-governmental organisations from around the world participated in the Forum, which took place in Bonn, Germany, from June 26 to 28, 2013.

The often gender-specific hazards to health, and the threats to the economy and the environment caused by cooking on open fires or inefficient cookstoves with wood, charcoal, dung, and coal are some of the most burning issues that the international community needs to tackle in order to enable the poor all over the world to improve their living conditions.

Therefore, the aim of the Forum was to strengthen the existing partners' commitments and build new partnerships within the framework of the Global Alliance for Clean Cookstoves, and further the goal of spurring the adoption of clean cookstoves and fuels for an additional 100 million households by 2020.

The fruitful discussions held during the Forum provided an excellent opportunity to learn from each other; this is fundamental for scaling up successful interventions to create change on a grand scale. We are aware that boosting sustainable markets for modern cooking energy from fuel production to energy use is still a challenging task. Public-private partnerships like the Global Alliance are vital if we want to overcome the current challenges and advance the clean cooking sector.

The Forum has also shown different national and global approaches that allow us to better engage

in the sector, so that we can reduce deaths and disease from the use of solid fuels for household cooking and heating. Important topics discussed at the Forum included the significance of a coherent monitoring of the contributions made by Global Alliance stakeholders in order to reach the "100 million by 2020" goal; options for the private and public sectors to join forces to create vibrant markets for clean cookstoves; and the emerging opportunities in the field of cooking fuels and stove usage.

We are confident that the recommendations developed by participants on these topics will contribute to improving access to clean cooking energy for millions of people worldwide. Germany, as a long-term donor and mover in this sector, is very pleased about how the issue of cooking energy is gaining importance on the international agenda, and about how efforts to tackle the issue are becoming visible and cost-effective solutions are being found.

We encourage everyone to join forces – for a better life for the three billion people who lack access to clean cooking.



State Secretary, Federal Ministry for Economic Cooperation and Development



RADHA MUTHIAH Executive Director, Global Alliance for Clean Cookstoves

Challenging but Solvable – The Cooking Energy Situation



Worldwide, 3 billion people depend on firewood, charcoal, dung, and coal for daily cooking and heating. Most of them use traditional cookstoves and open fires. In Sub-Saharan Africa, for example, more than 90% of the rural population cooks with firewood.

This has dramatic consequences both for the quality of life, health, education and income generation opportunities of those affected as well as for the environment. "Household air pollution causes 3.5 million premature deaths a year according to the 2010 Global Burden of Disease report. Globally, it is the fourth largest risk factor for disease," Dr. Maria Neira, director of Public Health and the Environment at the World Health Organisation (WHO), reported. "Household air pollution from unacceptable cooking places accounts for 50% of childhood pneumonia deaths, which is the largest cause of death in children under five". Women and children are not only the most affected by the health impacts, but the reliance on woodfuels forces them to spend hours collecting firewood. This time could be better used for education or income-generating activities instead. Furthermore, more efficient and clean cooking solutions help families save money, prevent deforestation and protect the climate.

Despite its relevance for development and even though the problems associated with traditional cooking have been well known for decades, cooking energy has often been neglected. Radha Muthiah, executive director of the Global Alliance for Clean Cookstoves, explained why this topic has been sidelined in the past. "It's not a sexy topic to focus on, that's the challenge," she underlined.

However, it is the Global Alliance which is now changing this point of view of many actors in donor and development organisations, the private sector, and developing countries. The Global Alliance for Clean Cookstoves is an innovative public-private partnership, hosted by the United Nations Foundation. Its goal is to enable 100 million households to adopt clean and efficient cooking stoves and fuels by 2020.

"Following the creation of the Global Alliance in 2010, the topic of clean cooking gained tremendous momentum and its importance on the



DR. FRIEDRICH KITSCHELT

Director General, Africa and Latin America, global and sectoral affairs; German Federal Ministry of Economic Cooperation and Development



JÜRGEN NIMPTSCH

Lord Mayor of Bonn

international agenda grew," German State Secretary Hans-Jürgen Beerfeltz praised the work of the Global Alliance in its first three years.

In fact, in the last few years, non-traditional stove actors and investors have become increasingly interested in the subject. This new interest is also due to a shift of approaches in development cooperation. Whereas cooking energy interventions in the 1980s were niche projects focused more on aid aspects, in recent years they have turned into more successful market-based approaches, said Cornelia Richter, managing director of the Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ), providing a historical perspective. Together with the activities of the Global Alliance and the acknowledged relevance of cooking energy for achieving the Millennium Development Goals, the attractiveness of clean cooking has increased. "We are now given a second chance to get active, which we should not miss," Cornelia Richter pointed out.

Important lessons learnt from the past show the relevance of involving the private sector. Pointing out that German development cooperation has "many years of experience in the implementation of projects to improve energy access", Dr. Friedrich Kitschelt, Director General of the Department for global and sectoral affairs at

BMZ, stressed that "the sustainable introduction of clean cookstoves is only possible through the creation of vibrant markets".

Experience also shows that not every trained and skilled small-scale cookstove producer is an entrepreneur. Furthermore, changing cultural habits can be quite difficult and challenging for the establishment of clean cookstove and fuel markets. Finally, ensuring stove quality and sustainability of market interventions are key to making a lasting change in the sector.



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"There are many key points for success," said Luis Miguel Imaña, executive director of the National Training Service for the Construction Industry (Servicio Nacional de Capacitación para la Industria de la Construcción, SENCICO), within the Ministry of Housing, Construction and Rehabilitation in Peru. "To ensure technical quality, stoves have to be certified. If this is done by a public organisation this is even better. However, we also have to make sure that the stoves are installed and maintained properly," he explained, sharing his experience.

Nevertheless, there is no single approach but many, depending on the different national and local contexts. "Sharing failures is important for expanding success stories," said Cornelia Richter, highlighting the importance of a free and open exchange and learning process.

The almost 3 billion people who still lack access to clean cooking solutions, represent "a viable market of individuals and households that are already starting to purchase things that, in the past, people would not have thought they had the purchasing power for," Radha Muthiah stated. The Global Alliance welcomes large, medium and small size companies to engage in the sector. "There is space in the market for a variety of different private actors," she stressed. "The products are there, and with some support from governments and international development cooperation, and through driving investors into this field, we can actually scale up many of these small scale entrepreneurs that are producing these clean and efficient stoves. And with scaling up comes the reduction of price and increase in affordability for many of these households as well."

Some of the most important challenges facing the sector include access to finance for both consumers and manufacturers; a lack of product standards; and lack of awareness at all levels – from households to the governmental and the international level.

To support the creation of clean and efficient cooking energy markets, the Global Alliance together with its 800 partners, is seeking to address these challenges. So far, some activities undertaken include: market information research, support for the development of even cleaner cookstoves and fuels, development and implementation of clean cookstove standards, establishment and support for stove testing centres worldwide, mobilizing investor and donor resources, research into impacts and benefits of the cookstove issue, and awareness-raising and advocacy at all levels for moving to clean cookstoves and fuels.

Radha Muthiah concluded: "There has been a lot of progress in the last few years. We have a number of new partners, who have never thought about stoves before and who are now actively engaged in the stove sector. This is extremely positive. The sector is ready to take off."



RADHA MUTHIAH Executive Director, Global Alliance for Clean Cookstoves



DR. MARIA NEIRA
Director, Public Health
and the Environment
Department, World
Health Organisation
(WHO)



Going to Scale – The Case of Kenya



A high dependency on woodfuels characterises the growing cooking energy sector in Kenya. While wood provides 88% of energy supply in rural households, it accounts for 10% in urban areas. Charcoal is used by almost every third household in towns, yet only by 8% of households in rural areas. Half of the charcoal stoves can be considered as more or less improved; this, however, applies to only 4% of the woodstoves in use, according to Laura Clough, technical specialist from the Global Village Energy Partnership (GVEP) Kenya.





Several experts from Kenya shared their experience and their views on the growing Kenyan cookstove market during the Forum.

The main challenges for the cooking energy sector were seen in a lack of finance, infrastructure and poor distribution of stoves and fuels, and a lack of awareness within society. Furthermore, current challenges include improving the quality and design of locally accepted stoves, increasing dissemination of improved woodstoves in rural areas, and more use of Liquefied Petroleum Gas (LPG) in urban areas.

However, Peter Odhengo from the Office of the Deputy President in Kenya stated that the momentum for action is strong, as the topic of cooking energy has gained attention in Kenya.

After 30 years of improved stove activities in Kenya, recent developments reveal a very high level of interest of enterprises and organisations to engage in the growing stove market, noted Sarah Butler-Sloss, Founder Director of UK-based Ashden. Besides a wide range of locally produced improved cookstoves, international manufacturers are increasingly entering the Kenyan market.

Anna Ingwe from GIZ, representing Energising Development (EnDev) Kenya, stressed the difference in development cooperation between the 1980s and today: shifting away from government-driven approaches to business models based on the producers. "Do not give stoves for free or put direct subsidies on prices," she strongly recommended. Instead, the public sector should promote clean cooking and raise public awareness, as has been done previously with regard to HIV/AIDS.

Coming from the private sector, Peter Scott, Executive Director of Burn Design Lab shared his experience with setting up an industrial production facility for efficient charcoal stoves, which currently assembles around 2000 stoves per month. Bringing investors from outside Africa in as well as strengthening the distribution chain were two challenges he highlighted.

"Do not give stoves for free or put direct subsidies on prices..."

> Anna Ingwe, Energising Development (EnDev) Kenya

"There is an enormous potential for LPG in Kenya, especially in rural areas," Michael Kelly from the World LPG Association reported. He said, however, the industry was still struggling with transporting the fuel in remote areas and is also working to allay fear of explosions and other prejudices against LPG.

Both experts emphasised the need for more support of investors and entrepreneurs by the financing sector. They also asked the public sector to improve the infrastructure for reaching people even in remote areas with clean cookstoves and gas.



Peter Odhengo noted that the Kenyan government's role for a growing market is in removing barriers, stimulating the private sector to get engaged, and setting standards for clean cookstoves. Further, he called upon the private sector to come up with concrete and sustainable projects for supporting the Kenyan cooking energy market.



Joining Forces to Create Vibrant Markets



Strengthening supply, enhancing demand, and fostering an enabling environment are the three core elements to spur clean cookstove and fuel markets. Players involved come from the private as well as the public sector and development organisations. According to Lucy Stevens from Practical Action "vibrant cookstove markets can be defined as markets where numerous consumers buy products of a wide selection.

They are also characterised by growing volume and increasing access, also for the still underserved poor. Such markets have several subsectors, such as charcoal, liquefied petroleum gas stoves and woodstoves. They can also be regional or country wide".

Going to scale – how can private and public sectors join forces to create vibrant markets for clean cookstoves, while taking up the support of development cooperation and financing institutions? Representatives of Ugastove (stove producer in Uganda), Envirofit (multinational stove manufacturing company) and the Ministry of Energy in Ghana shared their views and experience on this question with the participants. The supply chain

model of stoves provided the basis for discussion and analysis of roles, potentials and limitations of the different market actors with regard to national and local production as well as with regard to multinational and global production. Relevant issues are policy instruments, regulatory framework conditions and financing instruments.

All in all, similar challenges and needs apply to both national and global producers, summarised Jeroen Blum, Deputy Director of Shell Foundation and Manager of the Breathing Space programme. These are: access to finance, lack of public awareness, and the issue of standards as top priorities for developing large-scale cooking energy markets.



NATIONAL AND LOCAL PRODUCTION

Among the main challenges for national or local production, lack of awareness about clean cookstoves – not only among potential users but also in all other sectors of society and government – and access to finance for small manufacturers are prime challenges. Furthermore, the technical and business skills of local producers are often insufficient. Based on this analysis of national and local production characteristics, the following key recommendations were developed during the Forum:

Support local producers in enhancing product design

Very often, local producers don't have the technical equipment and know-how to develop and test new stove models or improve existing ones. Thus, the public sector should support local producers in product design by spreading new technologies and locally initiate produce development. Development organisations should support and encourage stove development and testing centres closer to where the markets and entrepreneurs for clean cookstoves reside.

■ Distribution to last mile/poorer customers

Due to last mile distribution still being a challenge in some places, it was recommended that private sector players should develop links with existing distribution networks in order to combat problems of irregular availability of stoves in more remote areas. In this vein it was also deemed necessary that the private sector develop associations to support regional distribution and sales centres.

Develop standards and train producers accordingly

The public sector should develop global and national stove and fuel standards, also taking into account the input from other industry actors and the end users. In addition, the public sector should then enforce those standards in country. Development organisations should train and support producers to meet these standards.

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Jeroen Blum, Shell Foundation

Offer tailored financial facilities

The public and the development sector should offer tailored financial facilities with appropriate metrics for the local and national stove industry, especially for small and medium size loans. This needs to be considered on a country by country basis.

Increase localised market awareness

The public sector should raise the profile of clean cooking and create more localised market awareness through existing public awareness channels (as has been done for HIV/AIDS) as well as new channels such as clean indoor air campaigns. The development sector should include the topic of household air pollution in, for example, health awareness programmes.

Development organisations should provide facilitation to the sector

As an overarching principle, development organisations should only be involved in facilitation and capacity building of the various players in the stove market. They should not market clean cookstoves themselves.

GLOBAL AND MULTINATIONAL PRODUCTION

The main challenges for global and multinational production experienced by the participants are access to finance, and logistics and distribution issues in reaching very high numbers of users efficiently. Furthermore, freely available detailed market data and information on successful business models are insufficient, yet both are necessary to manufacture and distribute clean cookstoves and fuels on an international level.

Based on the identified needs of global and multinational production, the following core recommendations have been elaborated:

Make more finance available

More working capital is needed for the entire cooking energy market chain, from sustainable fuel production, product research, development, distribution to consumer adoption. The Global Alliance should help to combine financial resources from donors, the private sector and carbon funding and make them accessible in such a way as to derisk investments. Public and private funding should work together towards a common goal.

Advocate for favourable frame conditions

The Global Alliance should advocate for governments to create an environment favourable to industry and sector growth. Examples of short term measures to grow the sector include lower taxes and import duties as well as investment in road infrastructure for getting stoves and fuels out to the last mile.

Raise public awareness

Governments and the Global Alliance should continue and increase efforts to raise public awareness on improved cookstoves and clean and sustainable fuels.





■ Enforce standards and protocols

Development cooperation organisations as well as the Global Alliance should enforce standards and protocols along the whole supply chain. Furthermore, they should ensure that consumers are aware of these standards.

Provide country data

Governments should provide non-aggregated country data. The Global Alliance should support vibrant markets by aggregating and consolidating data on markets and business models and make this information available. All players along the supply chain should share their experiences more openly.

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Valuing Solid Biomass Fuels and Understanding Cooking Behaviour The relevance of solid biomass energy and its improved us

The relevance of solid biomass energy and its improved usage was highlighted at the Forum. Presentations by private enterprises, research institutions, and implementing organisations included both best practices of sustainable wood energy production and processing as well as experience and research in changing the cooking habits of users.





Major challenges and research needs identified for moving from emerging to scalable opportunities were the following: a) lack of data on fuels, especially on feedstock, processing and appliance options, b) established interests in fuel chains which could hamper enhancing value along the entire supply chain.

Recommendations derived from the discussion on cooking fuels include:

Consolidate fuel data

Integrate data on fuels as the basis for a future decision support tool for practitioners and policy-makers. As a first step toward compiling a comprehensive database a plan for data collection among Global Alliance partners should be made.

Enhance value of biomass fuels across the value chain

Breaking down vested interests in fuel supply to enhance value across the value chain by:

- Ensuring that all types of biomass fuels (solid, liquid, gaseous) are a priority in national policies. To this end, participants proposed the Global Alliance initiate discussion among relevant partners on how governments can best be supported to prioritise biomass fuels in planning and programming.
- Strengthening civil society and community networks to ensure that fuel producers have a voice.
- Bringing women and the whole household into the value chain.

In order to reflect approaches to understand usage patterns, local culture and social interaction should be considered as a central aspect in stove design processes. "It's not enough if a stove is perfect in terms of emissions, it needs to be aspirational to the household," Fiona Lambe, research fellow from the Stockholm Environment Institute, summarised the discussion on user behaviour and acceptance of improved stoves. "Though this seems to be obvious, it still is not always the case."

"It's not enough
if a stove is perfect in
terms of emissions,
it needs to be
aspirational to the
household..."

Fiona Lambe, Stockholm Environment Institute

Furthermore, there is an urgent need for the development of methods and tools for better understanding user behaviour and broader sociocultural contexts. A strong involvement of i.e. anthropologists, product designers and the households themselves was considered key for scaling up clean and efficient cooking energy.

Consequently, a recommendation was made to:

Develop an "universal methods toolkit"

Participants called upon the Global Alliance and its research partners to commission the development of a toolkit to understand and incorporate user behaviour in the design of appropriate household energy interventions. The toolkit could be used by stove designers, entrepreneurs and policy-makers in various contexts.



Workshop participants discussing the emerging opportunities in cooking fuels and in changing cooking habits.

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From Cookstove Sales to Adoption – Monitoring Success



Given the goal of the Global Alliance of "100 million households adopting clean stoves and fuels by 2020," monitoring results is vital. "We need to know which measures should be rolled out on a larger scale and which ones are not helping us reach our goals," German State Secretary Hans-Jürgen Beerfeltz emphasised. "This is a major task, if we want more people to cook their food in the future without risking their health and without wasting energy."

Forum participants discussed intensively questions such as: How can the partners of the Global Alliance contribute to the goal of "100 million households adopting clean stoves and fuels by 2020"? Is this goal achievable, over- or under-ambitious? What are the requirements upon the data to be collected? For improving data collection and monitoring of the Global Alliance the following recommendations were elaborated:

Define "adoption of clean stoves"

Up to now, Global Alliance partners are asked to report stove sales/production figures of improved stoves. However, there is still no way to get from this data to the number of households that really adopt the stoves for daily use and a generally accepted definition of the term "adoption" was found to be missing. Participants recommended that the Global Alliance secretariat and the members work jointly to agree upon a definition and to transfer this to the reporting procedure.

Make aspirational goals compatible with minimum standards for all

The Global Alliance Secretariat was requested to clarify how to make aspirational goals compatible with minimum standards for all. It should be a priority to improve the cooking options for everyone, at the same time as promoting the development and use of the cleanest and most efficient stoves.

Review monitoring structures and develop guidelines

The participants also recommended reviewing existing monitoring structures of different partners, and developing a document or toolkit that gives guidance on monitoring for all Global Alliance members. As far as possible, Global Alliance's reporting should be compatible with the existing monitoring structures of stakeholders in the stove sector.

Establish national databases

Last but not least, the establishment of national databases on cooking energy was proposed. Such databases could help avoid the double counting of clean cookstoves and provide guidance for investors, programmes and governmental activities. The participants suggested piloting these databases in some of the priority countries of the Global Alliance or of the World Bank. It was recommended that decisions upon who should host such a database or be responsible for data collection should only be taken after considering the respective country's situation.

Clean Cooking in Times of Climate Change



Transforming the way people cook relates closely to meeting the challenges of climate change. Traditional cooking methods cause deforestation and erosion, hinder productivity potentials and education, and also emit dangerous greenhouse gases such as CO₂, methane and black carbon.



DANIELE VIOLETTI PHD

Chief of Staff, United Nations Framework
Convention on Climate Change (UNFCCC)

During the Forum, Daniele Violetti from the United Nations Framework Convention on Climate Change (UNFCCC) emphasised the recent progress that has been made to move to a low-carbon future. Firstly, the private sector invests increasingly in clean energy. Secondly, more and more countries address climate change as a crosscutting issue in their national policies. And last but not least, on the international agenda, there is a commitment for the Kyoto Protocol until 2020 and also to a new climate agreement by 2015 to get into effect from 2020.

However, this progress is not sufficient. The International Energy Agency anticipates a 3.6 to 5.3 degree warming by the end of this century. "We may even see a 2 degree warming in our lifetimes," Violetti warned.

Thus, there is need for much more urgent action, especially regarding the global energy system.

"UNFCCC sees the transformation to clean cooking as an integral part of a comprehensive response to climate change," Daniele Violetti said. It therefore supports clean cooking under the Clean Development Mechanism by quantifying and verifying the emissions reductions from improved cookstoves. Furthermore, UNFCCC showcases projects on the ground, which are already making a difference. "We strongly want to encourage more engagement in the clean cookstove sector," Violetti called everybody to action. "Climate change is the great challenge of this generation and every piece in the puzzle is essential to solve it."



Shaping the Future of Cooking Energy



Cooking energy has come a long way from the initial small-scale local aid programmes to the present large-scale market approaches. Once a side-lined niche topic, it has now reached the international development agenda. More and more development organisations, enterprises and governments realise the challenges of traditional and at the same time the benefits of clean and efficient modern cooking energy.

"Energy is a key task for German development cooperation" State Secretary Hans-Jürgen Beerfeltz affirmed. He also called for better coordination between not only the private and the public sector but also with civil society in future.

Looking ahead at the position of the Global Alliance, Radha Muthiah identified, inter alia, the following steps as key priorities for the future:

- Building awareness amongst investors to ensure a strong flow of investment and financing in the clean cookstove and fuels sector
- Implementing quality checks and consistent testing of stoves worldwide
- Piloting tools and processes for monitoring and evaluation at the global level and also in each of the Global Alliance's priority countries.

In shaping the future of clean cooking energy solutions, it is a positive indication that two current major debates acknowledge the relevance of clean cooking in the development process.

Firstly, cooking energy is a focal area of the United Nations Secretary-General's Sustainable Energy for All Initiative (SE4All), which aims to provide universal access for all by 2030. Forum participants emphasised that partner countries of the Global Alliance need to include cooking energy on their agenda rather than focusing exclusively on electrification.

Secondly, the United Nations Secretary-General's High-Level Panel on the Post-2015 Development Agenda recently presented the panel's report proposing 12 universal goals. Goal number 7 "Secure Sustainable Energy" is focused on doubling the share of renewable energy and ensuring universal access to modern energy services, including cookstoves.

"We have reached a tipping point," Radha Muthiah reflected upon the momentum cooking energy has reached. However, she stressed that there is still a need to continue shining a spotlight on the issue of clean cooking to make it an even more integral part of the international development agenda, because "cooking shouldn't kill." State Secretary Beerfeltz emphasised that "people in developing countries are the most important players in their own development."



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