

**East  
Africa  
Launch**

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## **Workshop Report**

**14<sup>th</sup>-15<sup>th</sup> May 2019**

**Strathmore University Energy Research Centre  
Nairobi, Kenya**

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# MECS East Africa Launch

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## Acknowledgements

This workshop was funded by UK AID from the UK government; however, the views expressed do not necessarily reflect the UK government's official policies.

## Disclaimer

This report summarizes discussions held in an informal workshop setting. The views expressed are those of the individual participants who took part, and do not necessarily reflect those of their respective organizations or their funders.

## Executive summary

This report summarises the discussions and conclusions from the Modern Energy Cooking Services East Africa Launch workshop, held on 14<sup>th</sup>-15<sup>th</sup> May 2019 at Strathmore University Energy Research Centre. The workshop was jointly organized by Loughborough University, African Centre for Technology Studies, CLASP and Gamos.



1.8 billion people have access to electricity but still cook with biomass. Load shedding, weak grids, affordability of electricity, accessibility of liquid petroleum gas (LPG), tradition, perceptions, and a lack of suitable cooking appliances all act as barriers to scaling up the use of electricity or gas for cooking – clean cooking.

Renewable energy generation is increasing access to affordable and reliable electricity and opening new windows of opportunity. Meanwhile, new business models and smart monitoring are improving the reliability of LPG distribution; appliances can be made more energy efficient but still cook popular foods, so they taste right.

MECS will build on these opportunities and by applying the new knowledge emerging from the programme to break out of business-as-usual approaches and rapidly accelerate the transition from biomass to clean cooking on a global scale.

The £39.8 million MECS programme, run by Loughborough University and ESMAP of the World Bank, will:

- Create a Challenge Fund for tech companies, research institutions and NGOs to apply for funding to invent alternatives to the use of traditional biomass fuels used in cooking. This fund will ask researchers to consider energy storage options, the impact on grid and infrastructure and alternative fuels such as LPG, ethanol and biogas all as possibilities for modern energy cooking services;
- Develop new technologies that make electric and gas cooking appliances more efficient, practical, desirable and affordable for poorer households;
- Work with the private sector to develop business models and financing methods that will help get electric and gas cooking appliances onto the market; and
- Provide evidence and insights on how and when countries can transition to modern energy cooking services.

The 2-day launch event featured live cooking demonstrations, panel discussions, presentations and a technical roundtable. An array of experts from the clean cooking and electrification sectors across East Africa were invited to share their experiences and set the foundation for the MECS programme, which aims to bring together these two formerly disconnected sectors.

The event featured an array of practical cooking demonstrations, allowing participants to see, smell and taste for themselves just how easy and delicious cooking with modern, energy-efficient electric cooking appliances is. The demonstrations featured ultra-efficient appliances such as the Electric Pressure Cooker (EPC), which mesmerized the delegates with its speed and convenience. With a live commentary on the units consumed and



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therefore cost of cooking, many were shocked at just how cheap cooking with electricity can be.

Electric Pressure Cookers (EPCs) have been identified as a strategically important technology for enabling the transition to modern energy for cooking, however, today they are barely present in the East African market. The second day featured a technical roundtable to support a forthcoming Global LEAP competition for EPCs.

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## About the MECS programme

**Modern Energy Cooking Services (MECS) is a five-year research and innovation programme funded by UK Aid (DFID).**

MECS hopes to leverage investment in renewable energies (both grid and off-grid) to address the clean cooking challenge by integrating modern energy cooking services into the planning for access to affordable, reliable and sustainable electricity.

Existing strategies are struggling to solve the problem of unsustainable, unhealthy but enduring cooking practices which place a particular burden on women. After decades of investments in improving biomass cooking, focused largely on increasing the efficiency of biomass use in domestic stoves, the technologies developed are said to have had limited impact on development outcomes. The Modern Energy Cooking Services (MECS) programme aims to break out of this “business-as-usual” cycle by investigating how to rapidly accelerate a transition from biomass to genuinely ‘clean’ cooking (i.e. with electricity or gas).

Worldwide, nearly three billion people rely on traditional solid fuels (such as wood or coal) and technologies for cooking and heating<sup>1</sup>. This has severe implications for health, gender relations, economic livelihoods, environmental quality and global and local climates. According to the World Health Organization (WHO), household air pollution from cooking with traditional solid fuels causes to 3.8 million premature deaths every year – more than HIV, malaria and tuberculosis combined<sup>2</sup>. Women and children are disproportionately

<sup>1</sup> [http://www.who.int/indoorair/health\\_impacts/he\\_database/en/](http://www.who.int/indoorair/health_impacts/he_database/en/)

<sup>2</sup> <https://www.who.int/en/news-room/fact-sheets/detail/household-air-pollution-and-health>  
[https://www.who.int/gho/hiv/epidemic\\_status/deaths\\_text/en/](https://www.who.int/gho/hiv/epidemic_status/deaths_text/en/), <https://www.who.int/en/news-room/fact-sheets/detail/malaria>, <https://www.who.int/en/news-room/fact-sheets/detail/tuberculosis>

affected by health impacts and bear much of the burden of collecting firewood or other traditional fuels.

Greenhouse gas emissions from non-renewable wood fuels alone total a gigaton of CO<sub>2</sub>e per year (1.9-2.3% of global emissions)<sup>3</sup>. The short-lived climate pollutant black carbon, which results from incomplete combustion, is estimated to contribute the equivalent of 25 to 50 percent of carbon dioxide warming globally – residential solid fuel burning accounts for up to 25 percent of global black carbon emissions<sup>4</sup>. Up to 34% of woodfuel harvested is unsustainable, contributing to climate change and local forest degradation. In addition, approximately 275 million people live in woodfuel depletion ‘hotspots’ – concentrated in South Asia and East Africa – where most demand is unsustainable<sup>5</sup>.

Africa’s cities are growing – another Nigeria will be added to the continent’s total urban population by 2025<sup>6</sup> which is set to double in size over the next 25 years, reaching 1 billion people by 2040. Within urban and peri-urban locations, much of Sub Saharan Africa continues to use purchased traditional biomass and kerosene for their cooking. Liquid Petroleum Gas (LPG) has achieved some penetration within urban conurbations, however, the supply chain is often weak resulting in strategies of fuel stacking with traditional fuels. Even where electricity is used for lighting and other amenities, it is rarely used for cooking (with the exception of South Africa). The same is true for parts of Asia and Latin America. Global commitments to rapidly increasing access to reliable and quality modern energy need to much more explicitly include cooking services or else household and localized pollution will continue to significantly erode the well-being of communities.

<sup>3</sup> Nature Climate Change 5, 266–272 (2015) doi:10.1038/nclimate2491

<sup>4</sup> <http://cleancookstoves.org/impact-areas/environment/>

<sup>5</sup> Nature Climate Change 5, 266–272 (2015) doi:10.1038/nclimate2491

<sup>6</sup> <https://openknowledge.worldbank.org/handle/10986/25896>

Where traditional biomass fuels are used, either collected in rural areas or purchased in peri urban and urban conurbations, they are a significant economic burden on households either in the form of time or expenditure. The McKinsey Global Institute outlines that much of women's unpaid work hours are spent on fuel collection and cooking<sup>7</sup>. The report shows that if the global gender gap embodied in such activities were to be closed, as much as \$28 trillion, or 26 percent, could be added to the global annual GDP in 2025. Access to modern energy services for cooking could redress some of this imbalance by releasing women's time into the labour market.

To address this global issue and increase access to clean cooking services on a large scale, investment needs are estimated to be at least US\$4.4 billion annually<sup>8</sup>. Despite some improvements in recent years, this cross-cutting sector continues to struggle to reach scale and remains the least likely SE4All target to be achieved by 2030<sup>9</sup>, hindering the achievement of the UN's Sustainable Development Goal (SDG) 7 on access to affordable, reliable, sustainable and modern energy for all.

Against this backdrop, MECS draws on the UK's world-leading universities and innovators with the aim of sparking a revolution in this sector. A key driver is the cost trajectories that show that cooking with (clean, renewable) electricity has the potential to reach a price point of affordability with associated reliability and sustainability within a few years, which will open completely new possibilities and markets. Beyond the technologies, by engaging with the World Bank (ESMAP), MECS will also identify and generate evidence on other drivers for

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<sup>7</sup> McKinsey Global Institute. *The Power of Parity: How Advancing Women's Equality can add \$12 Trillion to Global Growth*; McKinsey Global Institute: New York, NY, USA, 2015.

<sup>8</sup> The SE4ALL Global Tracking Report shows that the investment needed for universal access to modern cooking (not including heating) by 2030 is about \$4.4 billion annually. In 2012 investment was in cooking was just \$0.1 billion. Progress toward Sustainable Energy: Global Tracking Report 2015, World Bank.

<sup>9</sup> The 2017 SE4ALL Global Tracking Framework Report laments that, "Relative to electricity, only a small handful of countries are showing encouraging progress on access to clean cooking, most notably Indonesia, as well as Peru and Vietnam."

transition including understanding and optimisation of multi-fuel use (fuel stacking); cooking demand and behaviour change; and establishing the evidence base to support policy enabling environments that can underpin a pathway to scale and support well understood markets and enterprises.

The five-year programme combines creating a stronger evidence base for transitions to modern energy cooking services in DFID priority countries with socio-economic technological innovations that will drive the transition forward. It is managed as an integrated whole; however, the programme is contracted via two complementary workstream arrangements as follows:

- An Accountable Grant with Loughborough University (LU) as leader of the UK University Partnership.
- An amendment to the existing Administrative Arrangement underlying DFID's contribution to the ESMAP Trust Fund managed by the World Bank.

**The intended outcome of MECS** is a market-ready range of innovations (technology and business models) which lead to improved choice of affordable and reliable modern energy cooking services for consumers. Figure 1 shows how the key components of the programme fit together. We will seek to have the MECS principles adopted in the SDG 7.1 global tracking framework and hope that participating countries will incorporate modern energy cooking services in energy policies and planning.

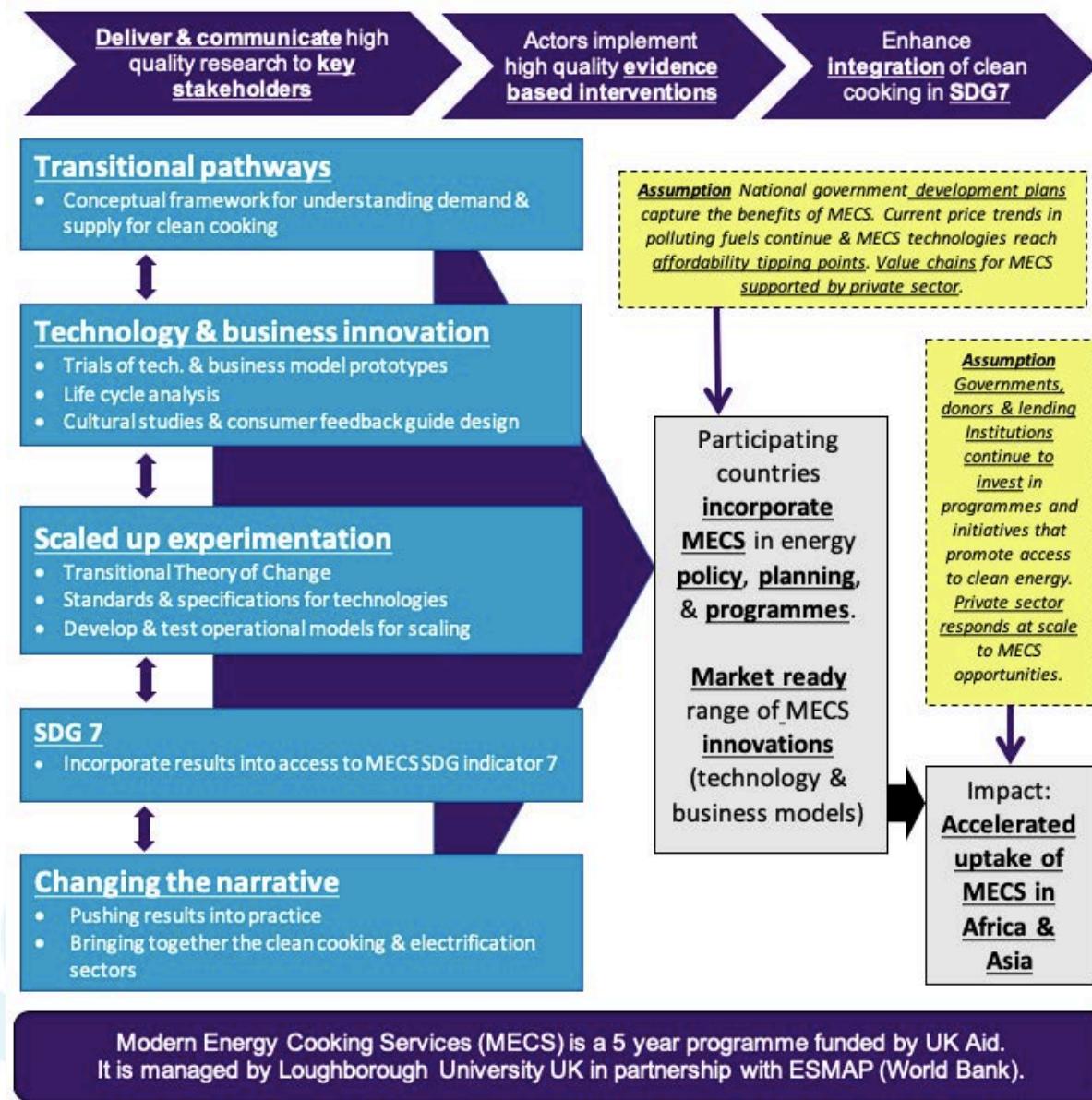


Figure 1: Overview of the MECS programme.

The concepts, data and key learning points on which the MECS programme is based result from a series of inter-related projects:

- [Gamos Ltd.](#)'s early conceptual work on eCook [5].
  - The key [CONCEPT NOTE](#) can be found here.
- Initial technical, economic and behavioral feasibility studies on eCook commissioned by [DfID \(UK Aid\)](#) through the [CEIL-PEAKS Evidence on Demand](#) service and implemented by [Gamos Ltd.](#), [Loughborough University](#) and [University of Surrey](#).
  - The key [FINAL REPORTS](#) can be found here.
- Conceptual development, stakeholder engagement & prototyping in Kenya & Bangladesh during the "[Low cost energy-efficient products for the bottom of the pyramid](#)" project from the [USES](#) programme funded by [DfID \(UK Aid\)](#), [EPSRC](#) & DECC (now part of [BEIS](#)) & implemented by [University of Sussex](#), [Gamos Ltd.](#), [ACTS \(Kenya\)](#), [ITT](#) & [UIU \(Bangladesh\)](#).
  - The key [PRELIMINARY RESULTS](#) (Q4 2018) can be found here.
- A series of global & local market assessments in Myanmar, Zambia and Tanzania under the "[eCook - a transformational household solar battery-electric cooker for poverty alleviation](#)" project funded by [DfID \(UK Aid\)](#) & [Gamos Ltd.](#) through [Innovate UK's Energy Catalyst](#) Round 4, implemented by [Loughborough University](#), [University of Surrey](#), [Gamos Ltd.](#), [REAM \(Myanmar\)](#), [CEEEZ \(Zambia\)](#) & [TaTEDO \(Tanzania\)](#).
  - The key [PRELIMINARY RESULTS](#) (Q4 2018) can be found here.

FUNDERS	LOW COST TECHNOLOGIES KENYA, BANGLADESH	E-COOK EVIDENCE ON DEMAND GLOBAL	E-COOK MARKET ASSESSMENTS GLOBAL + ZAMBIA, MYANMAR, TANZANIA
	IMPLEMENTING PARTNERS		
  	   		  

Figure 2: Funders of the preliminary research that paved the way for the MECS programme.

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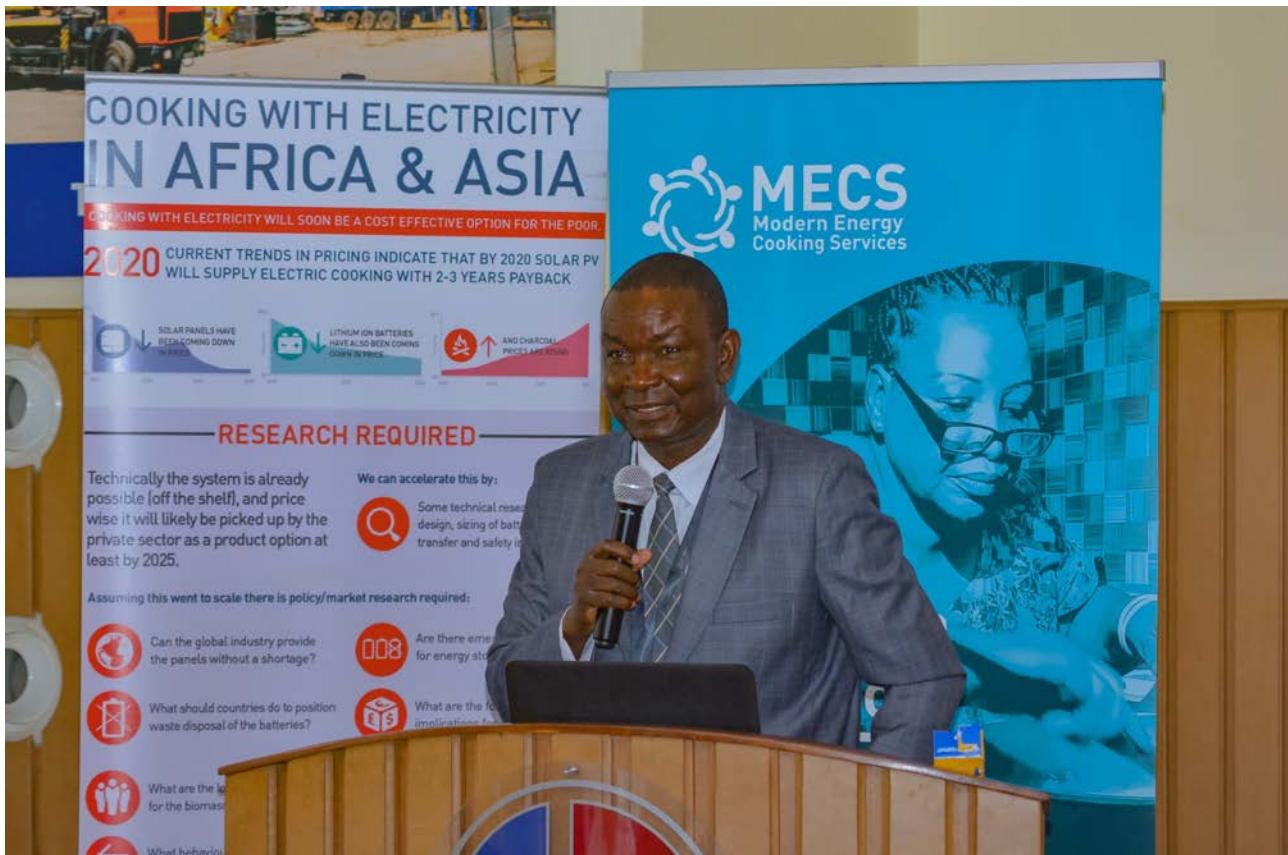
### Objectives of the launch event

This event was designed to bring together key regional stakeholders to look at the opportunities that the MECS Programme could create in East Africa. Specific objectives include;

- The unique opportunities and challenges in each national contact
- The crossover space between the electrification and clean cooking spheres
- How MECS ties into what is already going on in the region

### Day 1: Opening session

Dr Rebecca Hanlin moderated the opening session and welcomed all participants in the room. She invited Prof. Tom Migun Ogada to represent ACTS with welcoming remarks. The executive director from African Centre for technology studies Prof. Tom Ogada, also welcomed all participants to the launch of the Modern Energy Cooking services event. He recognized participants who came from other countries and welcomed them to Kenya. He acknowledged and congratulated the key institutions who have been involved in the Modern Energy Cooking Services project, mentioning that ACTS is delighted to be part of the consortium. Prof. Ogada said that ACTS was well placed to implement the MECS Project as it has handled over 15 research projects that directly deal with clean cooking and clean energy in the last decade. He has been involved in the energy sector for over 20 years: taught renewable energy in Moi University and has also been involved in establishing a master and PhD programmes on energy studies in the same university. He also briefed that participants about ACTS mentioning that it has launch a 3-year strategic plan and it is celebrating its 30<sup>th</sup> Anniversary this year.



Ms. Beverly Migani, DFID Kenya was happy to participate in the event and mentioned that they as DFID are happy to support not only direct climate change interventions but also attracting the private sector with innovative models and technologies to help in pushing these ideas closer to the end users. Beverly mentioned that they recognize the global population cause, directly affecting our health and the climate and that with the right technologies, right ideas and the right research this can be tackled.



Simon Batchelor gave a history of the MECS, and with evidence from his grey hair, he proudly mentioned that he has been involved in the sector from the 80's when he was teaching on solar PVs. The drop-in prize on the PVs made him think through bringing in the cooking component to the solar system. Simon carefully explained that in 2013, the eCook concept survey done in another project suggested that by 2020 it would be cost effective to cook with a Solar PV Battery combination, and that research on eCook has generated evidence that the concept is sound, created concept prototypes, undertook a global market assessment, undertaken trials and evidence gathering on behaviour in Zambia, Myanmar, Kenya and Tanzania and consulted policy actors about the concept. The concept has been expanded to include variants that draw energy from different sources (Solar, Hydro, Wind),

at various scales (Home systems, off-grids, and National grid) and utilise existing technology in new configurations as well as developing new technologies.



Prof. Ed Brown mentioned that MECS programme revealed that there was a multi decision criteria scan of the world to identify potential markets for transition and beginning a more coherent integrated multi-year research programme on Modern Energy Cooking Services (MECS). He mentioned that MECS is broader than electric cooking and also includes work on new approaches to other fuels such as biogas, ethanol and LPG. Prof Ed emphasised on the programme's deliverables being;

- Evidence, research and insights into the drivers and pathways for economies to transition to modern energy cooking services (households, institutions and industry).

- New technologies that make using electricity and gas more efficient, more practical, more desirable and affordable for poor households.
- Innovations in business models, financing and private sector delivery of modern energy cooking services (drawing on deep local understandings of cooking practices).
- SDG global tracking that includes modern energy cooking services.
- Inclusion of modern energy cooking services in World Bank International Development Assistance programming and lending (as well as drawing in funding from other institutions for taking to scale).
- Collaboration with Governments seeking to embed MECS approaches within their electrification policies and clean cooking strategies.
- A changed narrative on cooking for those involved in wider energy access policy and programming.
- Strong UK leadership and support in delivering the vision behind this new narrative.

## Day 1: Cooking demonstrations by Jikoni Magic

Spiced rice and chicken were cooked by Jikoni Magic food blogger and the participants were given the cooked food to taste.



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[Day 1: Panel Discussion: What is already happening in East Africa and how does MECS fit in?](#)  
A panel discussion explored some of the issues to consider when designing and implementing the MECS programme, drawing examples from existing clean cooking and energy access initiatives in East Africa and what could be learnt from them. The session was introduced by Joanes Atela (ACTS) and moderated by Rebecca Hanlin (ACTS). The panellists were given five minutes, with time afterwards to respond to initial comments, followed by a question & answer session.

Besnik Hyseni (Energy Specialist, World Bank - ESMAP)

Besnik Hyseni emphasized that we've come a long way with this important topic, and this has been reflected at the World Bank. There have traditionally been challenges getting governments to acknowledge that clean cooking is a real issue beyond featuring as part of the wider narrative around energy.



There has been progress breaking down silos, where electrification programmes have traditionally taken precedence over clean cooking. Equally there has been progress with regards to lending to countries to support clean cooking, as a distinct and important part of energy access, or health, or environment programmes. This allows different sort of business models and enterprises that support solutions to tap into a range of support. For example, clean cooking can perhaps be integrated into mini-grid design. And for some projects a clean cooking aspect has started to be embedded into lending and financing facilities around energy access.

Mr Hyseni gave an overview of the work of ESMAP: a multi-donor trust fund - one of which is DFID – that is fully integrated into World Bank operations and can provide technical support and team members to sit in on projects. ESMAP is pushing topics that have been

traditionally on the periphery, such as off-grid power, renewable energy and clean cooking, into the mainstream of Bank operations.

Daniel Wanjohi (Clean Cooking Alliance)

Daniel Wanjohi introduced the Clean Cooking Alliance (CCA), a global initiative that focusses on supporting and advancing the adoption of clean and modern cooking services through a market-based approach by supporting both demand side and supply side and policy frameworks. Mr Wanjohi congratulated MECS for this ambitious and visionary programme before outlining some of the grounds for optimism and some of the difficulties in converting people to clean cooking, highlighting the heavy reliance in Kenya on solid biomass and limited uptake of electricity. He highlighted that we are at a time where we are able to break new ground to advance the agenda of clean cooking solutions.





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One of the main challenges has been getting clean cooking as a central part of the development equation. There have been problems with a lack of funding and an understanding of clean cooking which have hindered the growth of the sector due to a lack of research and development. By the year 2030, the aim of the CCA is to have universal access to clean and modern cooking. The MECS programme was commended for offering a new approach that complements other initiatives in the equation. Innovation is key in order to progress the clean cooking programme, as well as making initiatives scalable, affordable and taking into account the needs of the BOP.

Jechonia Kitala (Practical Action & Chair of CCAK - Clean Cooking Association of Kenya)

Mr Kitala gave an overview of Practical Action as a global innovator seeking to inspire people to adopt practical solutions. Practical Action facilitate access or provision to clean renewable power that is locally sourced and sustainable. Their aim is to help people to harness the transformational power of clean and affordable energy in order to reduce avoidable deaths, to provide sustainable solutions to those who need them most, and to assist the choices made by energy providers and decision makers, particularly to those in rural communities and with displaced people. With cooking it is a case of looking at the current systems and see what changes can be made in order to facilitate universal access to clean and modern energy cooking services.



Given the maturity of the private sector, PA is less involved in the technological innovation but looking rather at business models. Mr Kitala suggested we cannot achieve scale until there are deliverable models, not just business models but ones that integrate community engagement, gender and social inclusion. Ones that fit into the value systems of people and address the needs of communities. Inclusive financing is another important factor to consider, with taking into account means and ways to address the needs of all, especially those of BOP. Awareness and behaviour, especially convenience, is a major consideration to people embracing new technologies. And finally, a conducive policy environment is required for clean cooking to take hold, especially with issues such as tax and standards. Mr Kitala closed his comments by highlighting that the MECS programme is suited to bringing together key actors, innovators and users in order to bring forward solutions that are practical, desirable and affordable.

Anna Ingwe (EnDev)

EnDev is a global energy partnership. The EnDev Kenya programme mainly focusses on clean cooking and lighting. For some time, the focus has been on artisanal stoves, from production to delivery. Over time, there has been a gradual realization that cookstoves can only be improved so much, especially when using solid biomass. The MECS engagement to move the discussion away from solid biomass is an important development.



Anna Ingwe highlighted some of the major challenges. Firstly, raising sufficient awareness and getting the right messaging in order to get new technologies into the hands of those targeted groups: awareness creation and sensitization is an often overlooked but critically important part of clean cooking. Another challenge for MECS and other actors is to take this topic from a donor driven initiative to one where the government takes the lead. How can the government and those whose needs must be addressed act in this space? And how can we work with a united voice? MECS has a unique opportunity to work with a range of actors across different platforms in the sector.

#### Elizabeth Muchuri (Global LPG Partnership)

Elizabeth Muchuri began by welcoming the incorporation of LPG into the clean cooking agenda. After an overview of the GLPGP, which supports large scale expansion of initiatives that support the SDG7, the rate of uptake of LPG in Kenya compared unfavourably with the experience of Bangladesh over the same period. There remains room for massive improvement for LPG uptake. Growth can be accelerated by working with the different Ministries and state-owned enterprises and working with local banks and microfinance institutions.



The most popular LPG cylinders were introduced around twenty years ago. Once a cylinder has been purchased it is an investment and the LPG cylinder user is protected. There have been gaps in regulation that do not protect the investor and that have impacted the market. Illegal refilling has also been a problem proper regulation is needed to deal with this. LPG is a fuel that can be rapidly scaled up. We need to protect the consumer and the investor by protecting the brand and the cylinders. Further development is also necessary, in order to develop cookers that cater to more than one meal at a time and have more flame control. They need to be affordable. One of the challenges is to come up with a better product.

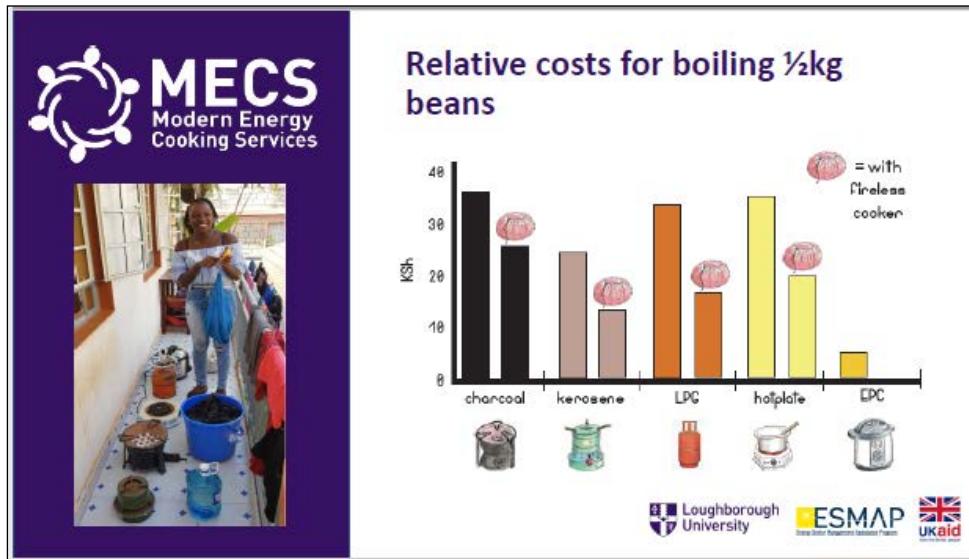
## Day 1: The crossover between clean cooking and electrification in Kenya

The session was moderated by Dr. Simon Batchelor from Gamos, began on a high note with emphasis on the need to sensitize the general public, from the top to bottom societal

hierarchies, on the need to adopt modern and clean energy cooking techniques. Murefu Barasa from EED/CCAK informed the participants that they had conducted National cooking survey in Kenya in collaboration with other interested partners such as Practical action and SNV where they focused on both the demand and supply perspectives. The use of LPG is common and the three peaks in energy demands at the household level are witnessed due to the three-meal pattern in most Kenyan cultures.



Dr. Nigel Scott from Gamos also reiterated the above findings in their cooking diaries data collection in Kenya. The study sought to find out how Kenyans cook and whether it's compatible with electricity. The per capita consumption of cooking energy is high on charcoal and the cooking patterns and cultures in Kenya are highly compatible to electricity since over 40% of the low-income earners in Kenya have Electricity appliances in their homes.



Jacob Fodio Todd from the University of Sussex and Dr. Jon Leary, Loughborough University also demonstrated to the participants on how the adoption of e-cooking can save time and energy to the users hence most efficient in the modern times.

The session concluded by a panellist discussion where it was recommended that MECS should not only focus on the accessibility of e-cooking technologies but also its adoption for use amongst the locals. The conditions that enabled LPG to penetrate the Kenyan markets (e.g. favourable policies, market incentives, innovations for use in diverse cooking cultures) can be explored and used to enhance e-cooking adoption in Kenya. The cooking diaries and e-cooking books can be translated into local languages capturing local menus. MECS was also advised to consider using images, illustration videos and any other technique to capture those with disabilities in the society to enhance its adaptability and capture a wider market niche.

## Day 1: Experience drawn from different countries

Tanzania: Estomih Sawe, TaTEDO

The session kicked off with Estomih Sawe, Director of TaTEDO (Tanzania Traditional Energy Development Organisation). Sawe noted that in Tanzania, only 33% of the

population have access to electricity (just 15% in rural areas) and 85% of primary energy consumption is biomass. He presented key findings from the Innovate-UK and UKAid funded eCook Market Study in Tanzania that TaTEDO, Gamos and Loughborough University carried out in 2018, which included cooking diaries, focus groups, choice modelling surveys, prototyping and stakeholder engagement.



The cooking diaries showed that cooking on charcoal and LPG is more expensive than on efficient electric appliances and that cooking with electricity save time, which can be used for other income generating and social activities. However, the use of electricity for cooking is still low due to low awareness, affordability and availability of appropriate appliances. Most households can cook with less than 2kWh/day and that cooking with charcoal uses 5 times as much energy as LPG and 10 times as much as efficient electric cooking appliances. The

Dar es Salaam stakeholder workshop featured live cooking demonstrations by everyday Tanzanian cooks and that some people said that food cooked on the efficient electric cooking appliances tasted even better than food cooked on charcoal or LPG.

TaTEDO have already developed some of the opportunities identified by the eCook Market Study, by carrying out a number of follow-up activities, including a series of EPC training workshops supported by WWF-SIDA, which have resulted in 40 HH now acquiring EPCs. They plan to continue with awareness raising and training on eCooking, advocacy for increased political will and favourable policies. This is in parallel with supporting the development viable business models to market electric cooking appliances through networks of dealers and agents in partnership with local MFIs, leveraging storage facilities at their sustainable energy business park.

Zambia: Nancy Serenje Ng'oma, CEEEZ

Nancy Serenje Ng'oma from CEEEZ (Centre for Energy Environment and Engineering Zambia) summarised a comparable market study for eCook, which took place in Zambia in 2017. The stakeholder workshop highlighted that paying in instalments would be a key enabler, whilst the Design Challenge enabled users to give feedback directly to entrepreneurs from the utility, solar lighting and cookstove spheres. The focus groups featured practical Electric Pressure Cooker (EPC) demonstrations and identified shared electricity meters as a major issue, as these individuals do not have control over their electricity supply.



Nancy also recounted her own personal experience as a participant in the cooking diaries study. She used to stack charcoal with electricity, but now stacks LPG and efficient electric cooking appliances, with LPG just for blackouts and big things that don't fit in the EPC. She spends 9-10 USD per month on roughly 240 units of electricity and refills her LPG every two months, for about US\$10-12. Her husband likes to cook and fully supports use of LPG and efficient cooking appliances.

#### Ideas for developing the Cooking Diaries Methodology & eCookBook

The session closed by seeking input from the audience on which directions to take the Cooking Diaries Methodology and the eCookBook in next. The best ideas for Cooking Diaries 3.0 included exploring the weak-grid, mini-grid and off-grid sectors, developing a digital platform for data collection and carrying out further exploration into fuel stacking &

alternatives for when grid is down. For the next eCookBook, the best ideas were exploring the cultural dimension of cooking, for example by creating a catalogue showing eCooking solutions and how well they match with each cultural cooking portfolio, investigating how to involve men in cooking and a sensory panel to carry out blind taste tests. More ideas can be found in the Appendix.

## Day 1: Closing session

Prof Ed Brown Ed's closed the first day by reiterating that if we continue with 'business as usual' in the cooking sector, we'll never make SE4All/SDG7 targets for 2030. One way to break out of this cycle is to leverage product quality, financing, governmental support from the electrification sector to drive forward cooking sector. In particular, the innovative marketing strategies and business models, plus standards and quality assurances from solar sector. However, the cooking sector also has a lot of important lessons to teach the electrification sector. In particular, the solutions developed in each country are likely to be different, as each cultural context unique and there is a need to engage biomass sector to find alternative livelihoods for those involved across the value chain. The MECS programme can support this by bringing people from both sectors together to collaboratively work out how change might happen and communicating this to different parts of society.

## Day 2: Technical Roundtable Discussions

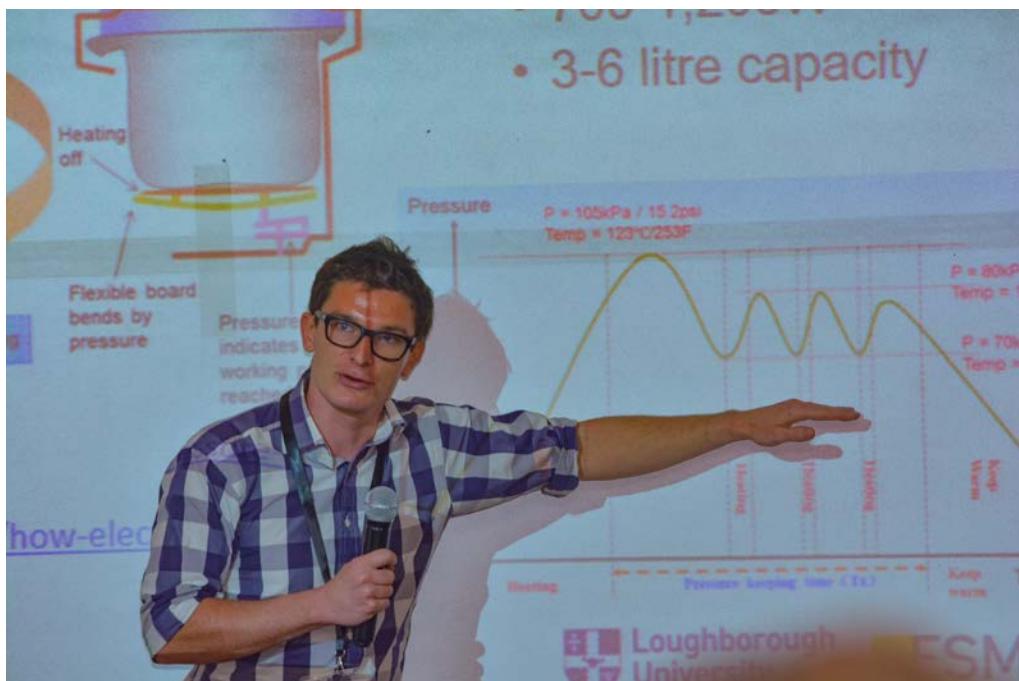
The technical roundtable was designed to convene a broad range of stakeholders to identify the challenges that lie ahead and prioritize the strategic actions that the MECS programme and the Efficiency for Access Coalition (EforA) can take to support the sector to overcome them. Small groups were formed and the following themes for discussion were set;

- Consumer & Market Intelligence
- Research, Design & Development
- Testing & Quality
- Policy Environment
- Distribution, Warranty & Service
- Environmental Sustainability
- Financing, Business Models, & Applications
- Behavioural change
- Safety

Day 2 also featured a live cooking demonstration by cooks from the recently published Nairobi eCookBook. This offered a practical demonstration of the opportunities and challenges that await for EPCs and other energy-efficient electric cooking appliances in Kenyan kitchens.

A full report will be published on [MECS.org.uk](http://MECS.org.uk).

# MECS East Africa Launch



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## Appendices

### Annex 1: Agenda

DAY 1 – 14 <sup>th</sup> May 2019 – MECS East Africa Launch			
TIME	ACTIVITY	SPEAKER(S)	FACILITATOR
08:00	<b>Registration &amp; Coffee</b> Technology exhibition set up for participants to explore	Efficiency for Access Challenge Fund Winners	Registration team – Victoria & Mourine
08:30	<b>Opening Session</b> <ul style="list-style-type: none"><li>• Welcome addresses</li></ul>	<ul style="list-style-type: none"><li>• Prof Ogada (ACTS)</li><li>• Ministry of Energy?</li><li>• DfID Kenya?</li></ul>	MCs: ACTS (Dr Joanes Atela or Dr Rebecca Hanlin)
09:00	<b>Introductions</b>	All participants	
09:15	<b>Introduction to the MECS Programme</b> <ul style="list-style-type: none"><li>• What is MECS?</li><li>• What opportunities does it create?</li><li>• How can East African organisations engage?</li></ul>	<ul style="list-style-type: none"><li>• Loughborough University (Ed Brown)</li><li>• Gamos (Simon Batchelor)</li></ul>	
10.00	<b>eCookBook Launch Part I</b> <ul style="list-style-type: none"><li>• What is the eCookBook?</li><li>• Food blogger live cooking demo</li></ul>	<ul style="list-style-type: none"><li>• Jikoni Magic</li></ul>	Loughborough University (Dr Jon Leary) & University of Sussex (Jacob Fodio Todd)
10:30	<b>COFFEE BREAK &amp; GROUP PHOTO – Tour of technology exhibition</b>		
11:00	<b>MECS in East Africa</b> Panel discussion: <ul style="list-style-type: none"><li>• What is already happening in EA &amp; how does MECS fit in?</li></ul>	<ul style="list-style-type: none"><li>• ESMAP (Besnik Hyseni)</li><li>• CCA (Daniel Wanjohi)?</li><li>• Practical Action (Jechonia Kitala)?</li><li>• SNV (Timothy Ranja)?</li><li>• GLPGP (Elizabeth Muchuri)?</li></ul>	ACTS (Dr Rebecca Hanlin)
11:45	<ul style="list-style-type: none"><li>• Plenary: Q &amp; A</li></ul>		
12:00	<b>LUNCH – Technology exhibition</b>		

13:00	<b>The crossover between clean cooking and electrification in Kenya</b> Presentations: <ul style="list-style-type: none"> <li>• Ministry of Energy</li> <li>• Kenya Cookstoves market study</li> <li>• Cooking diaries Kenya</li> <li>• eCookBook Launch Part II – Key findings</li> </ul>	<ul style="list-style-type: none"> <li>• Ministry of Energy?</li> <li>• EED/CCA (Murefu Barasa)</li> <li>• Gamos (Dr Nigel Scott)</li> <li>• University of Sussex (Jacob Fodio Todd) &amp; Loughborough University (Dr Jon Leary)</li> </ul>	Gamos (Dr Simon Batchelor)
14:00	Small Group Discussions	<ul style="list-style-type: none"> <li>• What should we capture in Cooking Diaries 3.0?</li> <li>• What should we include in the next edition of the eCookBook?</li> <li>• What further research needs to be done?</li> </ul>	
14:30	Plenary: Feedback from small groups & Q & A		
14:45	<b>COFFEE BREAK – Technology exhibition</b>		
15:15	<b>Experiences from different countries</b> Presentations on the market for eCook in: <ul style="list-style-type: none"> <li>• Tanzania</li> <li>• Zambia</li> </ul>	<ul style="list-style-type: none"> <li>• TaTEDO (Estomih Sawe?)</li> <li>• CEEEZ (Nancy Serenje)</li> </ul>	Strathmore University Energy Research Centre (Anne Wambugu)
15:45	<b>Small Group Discussions</b> <i>Key opportunities and challenges in East African nations</i>	<ul style="list-style-type: none"> <li>• What are the key opportunities and challenges in each national context?</li> <li>• What role should MECS play?</li> </ul>	
16:15	Plenary: Feedback from small groups & Q & A		
16:45	<b>Closing session</b> <ul style="list-style-type: none"> <li>• Key learning points from today</li> <li>• Agenda for technical roundtable</li> </ul>	<ul style="list-style-type: none"> <li>• Loughborough University (Prof Ed Brown)</li> </ul>	MCs: ACTS (Dr Joanes Atela or Dr Rebecca Hanlin)
17:00	<b>Networking reception</b>		

DAY 2 – 15 <sup>th</sup> May 2019: Technical Roundtable on Electric Pressure Cookers (EPCs)		
TIME	ACTIVITY	FACILITATOR
08:45	<b>Registration</b> Technology exhibition set up for people to explore - Efficiency for Access Challenge Fund Winners	Registration team – Victoria & Mourine
09:00	<b>Opening Session</b> <ul style="list-style-type: none"> <li>• Review agenda</li> <li>• Participant introductions</li> <li>• Efficiency for Access Coalition overview</li> <li>• Review work activities related to efficient electric cooking appliances</li> <li>• Market overview: segmentation, opportunity and challenges</li> <li>• Q&amp;A</li> </ul>	CLASP (Sam Grant) & EST (Theo Schumacher)
9:30	<b>Design Goals – Define &amp; Agree Objectives</b> Technical presentation & panel discussion with users <ul style="list-style-type: none"> <li>• Efficiency, quality, reliability &amp; durability</li> <li>• Price &amp; features</li> <li>• Inclusiveness (disabled people, marginalised groups, etc.)</li> <li>• Design for service / repair / recycle</li> <li>• Communication / remote monitoring</li> <li>• Interoperability (power supply, connection, etc.)</li> <li>• Commodity components &amp; subsystems</li> <li>• Modular / scalable design</li> </ul>	MECS (Dr Jon Leary)
11:00	<b>COFFEE BREAK – Technology exhibition</b>	
11:30	<b>eCookBook Launch Part III</b> Live cooking session with eCookBook cooks preparing Kenyan dishes with a range of EPCs	Jon Leary & Jacob Fodio Todd
12:30	<b>LUNCH &amp; Cookbook launch – Technology exhibition</b>	
13:30	<b>Breakout sessions</b> <ul style="list-style-type: none"> <li>• Consumer &amp; Market Intelligence</li> <li>• Research, Design &amp; Development</li> <li>• Testing &amp; Quality</li> <li>• Policy Environment</li> <li>• Distribution, Warranty &amp; Service</li> <li>• Environmental Sustainability</li> <li>• Financing, Business Models, &amp; Applications</li> <li>• Behavioural change</li> <li>• Safety</li> </ul>	CLASP/EST & MECS to assign one person each to facilitate each session. 4 in parallel for 45 mins, then another 4.
15:00	<b>COFFEE BREAK – Technology exhibition</b>	

15:30	<b>Prioritizing Objectives &amp; Action Planning</b> <ul style="list-style-type: none"> <li>• Prioritise concepts from breakout sessions</li> <li>• Identify “Top 5” opportunities for Efficiency for Access Coalition to pursue to advance the market</li> <li>• Next steps</li> </ul>	CLASP (Sam Grant)
16:45	<b>Closing session</b> <ul style="list-style-type: none"> <li>• Key learning points from the two days</li> <li>• How to stay engaged with the MECS programme</li> </ul>	Loughborough University (Ed Brown) & Gamos (Simon Batchelor)
After 17:00	<i>Delegates leave at their own pleasure</i>	

## Annex 2: Ideas for Cooking Diaries 3.0 & the next eCookBook

Ideas for Cooking Diaries 3.0:

- Quantitative measures of customer satisfaction with each cooking appliance
  - Rating from cook on ease of cooking each dish
  - Sensory dimension – taste of each dish
- Development of a digital platform for data collection
- Appliances
  - Key design features
  - Most important potential modifications
  - Opportunities for the local manufacture
  - Policies, regulations & standards
- Further exploration into fuel stacking & alternatives for when grid is down
- Cost comparisons between
  - On- & off-grid, weak & strong grid, mini-grid
  - Cost of energy
  - Cost of cookstove
- Utensil ownership - spatulas, etc.
  - How does this change over time?
- Comparing between
  - On grid & off grid
  - Income groups
  - Ethnicities
  - Regions
  - Household & institutional
  - Age
  - Gender
  - Level of education
  - Special needs/disabilities

Ideas for the next eCookBook:

- More dishes: Cakes, githeri, ugali, chips
  - EPC cooking times for different foods
- More info on hardware
  - Where to find appliances
  - Key variations between models
  - Spare parts
- Market research & business models
- Different settings
  - Mini-grid & off-grid cooking
  - Humanitarian settings
  - Rural dishes, rural prices, rural fuels (firewood)
  - Other languages: Swahili, Bemba, Nyanza, Lozi versions
  - Other fuels: LPG, ethanol, biogas
- Cultural dimension on the role of cooking
  - Catalogue showing eCooking solutions and how well they match with each cultural cooking portfolio
  - How can men be involved in cooking?
  - Sensory testing panel – blind taste tests
- Nutritional value of foods
- Dissemination methods
  - Videos
  - Facebook group
  - Informing demonstrations
  - Jpegs to share on WhatsApp
  - PDF
  - Inclusive methods: more pics for illiterate people
  - Cooking field days



## MECS East Africa Launch

- Different types of training offered

## Annex 3: List of participants

NAME	ORGANIZATION
Ann Wambugu	Strathmore University
Beverly Migani	DFID, Kenya
Joanes Atela	ACTS
Jon Cloke	Loughborough University
Louise Medland	Loughborough University
Nigel Scott	Gamos
Rebecca Hanlin	ACTS
Sophie Wangungu	Mediae
Agnes Kalyonge	Jikoni Majic
Aisha Abdulaziz	World Bank
Alexander Clayton	M-Kopa Solar Kenya
Aloys Ntihemuka	Neseltec
Ann Songole	Clean Cookstoves Association Of Kenya
Béatrice Despioch	Eco-Charcoal Limited
Besnik Hyseni	World Bank
Beverly Migani	DFID Kenya
Binde Mohamed	A2EI
Brian Omenyi	Green Africa Foundation
Carol Langat	Clean Cookstoves Association Of Kenya
Catrine	Mwangaza Light

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Charity Wanjiku	Chief Operations Officer Strauss Energy Ltd.   Kenya Climate Innovation Center (Kcic)
Charles Kinyanjui	Global LPG Partnership
Charlotte Magayi	Mukuru Stoves
Chilombo Chila	Ministry Of Energy - Energy Officer Invite To Be Addressed To:
Christine Joy	Ecoookbook Cook
Claris Mcharo	
Consolata Wambui	KOKO Networks Kenya
Daisydaria Mkandawire	Zesco
Damaris Wangui	Ecoookbook Cook
Daniel Abonyo	Improved Stoves Association Of Kenya
David Ndinya Yuko	Executive Director, Institute For Research In Sustainable Energy
David Campbell	Mediae
Diana Jue-Rajasingh	
Diana Muraya	KOKO Networks Kenya
Dorothy Otieno	Nyalore Impact
Dr James Nguzo	Kilifi County
Edwin Kwesiga	Fenix
Eliud Munji	Powergen
Elizabeth Muchiri	Clean-Air(Africa), Nihir Global Health Research Group
Elsie Onsongo	CFIA
Estomih Sawe	Tanzania Traditional Energy Development Organisation (Tatedo)
Evan Kimani	The Greennearthcitizen



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Fausto Marcigot	Paygo Energy
Francis Songela	Snv – Re-Advisor, Snv Tanzania
Francis Gitonga	SCODE
Francis Maingi	Improved Stoves Association Of Kenya
Geoffrey K, Yegon	Technotec
Grace Gitonga	Ensoimpact
Habel Mwarabu	Kilifi County
Hilawe Lakew	Hotplate Factory
Isaac Kiva	Ministry Of Energy & Petroleum
Isaac Mwangi	Practical Action
Ivy Biwott	
Jacob Fodio-Todd	University Of Sussex
Jane Spencer	MECS
Jechoniah Kitala	Manager Practical Action Ea
Jemutai Biwot	Enterpreneur
Joane Kayibanda	Bboxx Capital Kenya
John Maina	SCODE
John Kiruri	Natural Charcoal Energy
John Odida	Mwangaza Light
Jon Ridley	M-Kopa
Judith Mutea	Ecookbook Cook
Juliet Kyayesimia	Center For Integrated Research And Community Development Uganda



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Kaluhi Adagala	Kaluhi's Kitchen
Kanyiva Kahare	Kenya Power
Karen Chepkurui	Ecoobook Cook
Katheu Kimolo	Kenyatta University
Kevin Schreiber	Powergen
Lydia Mrutu	Envirofit
Mary Abbo	CREEC
Mary Mutemi	Green Africa Foundation
Mary Oula	Mukuru Cookstoves
Maryanne Kiseru	The Property Show With Nancy
Mercy Kamau	SCODE
Meron Tesfamichael	ACTS
Mourine Chepkemtoi	National Electrification Directorate At The Ministry Of Water, Irrigation And Energy.
Ms Tsigereda Atnafu	
Ms. Salome Kisenge	Envirocare
Murefu Barasa	EED
Nancy Ng'oma	CEEEZ
Nickson Bukachi	ERC
Nyongesa Leon	
Philemon Ayebare	Fenix International
Philomena Mitalo	CCAK
Prof Ed Brown	Loughborough University



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Prof Tom Ogada	ACTS
Purity Kimani	Mwangaza Light
Russell Lyseight	Vitalite
Sam Grant	CLASP
Sammy Mwiti	PowerforAll
Simon Batchelor	Gamos
Theo Schuhmacher	Leia (Low Energy Inclusive Appliances) Project
Tom Randa	UON
Tsigereda Atnafu	Ethiopian National Electrification, Ministry Of Water, Irrigation And Energy
Venessa Mollah	SERC
Veronique Renard	Engie Eastern Africa
Victor Akim	UNIDO
Victoria Chengo	ACTS
Wetaba Okinda Fredrick	SCODE
Wilfred Baya	Kilifi County
Winfred Kaol	M&E Researcher
Yvone Wambui	SCODE
Zulfiqar Wali	Envirofit