



2nd Edition of Renewable Energy for Sustainable Growth RE4SG-Conference 2018



CONFERENCE REPORT



Accelerating Investment in the Clean Cooking Sector

5th – 9th November 2018



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EXECUTIVE SUMMARY

The Government of Rwanda in partnership with Energy Private Developers (EPD), and in collaboration with Clean Cooking Alliance, Africa-EU Renewable Energy Cooperation Program (RECP), the World Bank, the European Union, EEP Africa, Shell Foundation, bfc and many others has organized the 2nd Edition of the Renewable Energy For Sustainable Growth RE4SG-conference under the theme "Accelerating Investment in the Clean Cooking Sector" which falls under Rwanda Energy week, from 5th -9th November 2018 at Kigali Convention Center and which attracted more than 800 participants from all corners of the world.

The first Forum kicked off on 5th November 2018 on clean cooking solutions and is organized by the Energy Private Developers (EPD), and the Clean Cooking Alliance. It is the first-of-its-kind, private sector-oriented conference to convene more than 380 delegates from all corners of the world including business leaders, investors, donors and government representatives to collaborate on developing a renewable energy industry at scale to deliver modern technologies around the world, with a special focus on East Africa.

On 8th November 2018, the conference turned on the theme "Re-energizing Agriculture through Solar Power" a forum organized by World Bank and Energy Private Developers EPD with its partners. This forum gathered policy makers and private sector in energy and agriculture. They discussed the role and experience of solar energy, mainly the opportunities and challenges of solar for agriculture in Rwanda, solar irrigation, solar solutions for agribusinesses (drying, cold storage, processing) and financing solar solutions for agriculture (credit, leasing, microfinance).

The conference concluded on 9th November 2018 with EEP Knowledge Exchange Forum on mini-grids organized by EEP Africa in partnership with EPD and its partners. The forum mainly discussed the productive uses in mini-grids, challenges for mini-grids, regulatory framework for mini-grids and attracting financiers for mini-grid projects.

Other activities that took place in Rwanda Energy Week 2018 events. The official launched the Sustainable Energy for All (SE4all) Investment Prospectus (IP) which considers the Government of Rwanda's commitment towards sizable investment opportunities across cooking sector.



Dr. Ivan TWAGIRASHEMA,
Chairman, Energy Private Developers (EPD)

FOREWORD MESSAGE

Energy Private Developers (EPD), expresses its sincere gratitude to the government of Rwanda and organizing partners of the 2nd Edition of Renewable Energy for Sustainable Growth RE4SG-Conference 2018 for the support to its success.

Our mission of universal energy access and facilitating the environment in which private sector can innovate, grow and thrive, we are committed to become “a strong platform” coordinating private sector investment by collaborating with government in formulation of policy and practices that achieve universal energy access in the most economical way; advocating for a positive working environment for the private sector; and forging strong partnerships between the private sector and the public sector through dialogues, investment forums such as RE4SG-Conference.

We have witnessed a success to the 2nd Edition of RE4SG-Conference 2018. We highly appreciate the support of Rwandan government through MININFRA and RDB, our partners, in particular to Cleaning Cooking Alliance, World Bank, EEP, Shell Foundation and bfz, and other development partners who supported EPD on its journey, finally, a special thanks to all participants and EPD company members who participant in this mighty event.

We welcome all of you to join us again in the 3rd Edition of Renewable Energy for Sustainable Growth RE4SG-Conference scheduled in November 2019

CLEAN COOKING INVESTMENT FORUM 2018

"Accelerating Investment in the Clean Cooking Sector"

Energy Private Developers Rwanda (EPD) and Clean Cooking Alliance, Organized first-of-its-kind, "Clean Cooking Investment Forum on 5-6 November 2018" at Kigali Convention Center in Kigali, Rwanda. The Forum was a, private sector-oriented conference that convened business leaders, investors, donors and government representatives to collaborate on developing an industry at scale to deliver modern, clean cooking solutions around the world, with a special focus on East Africa.

The event was supported by the Ministry of Infrastructure Rwanda (MININFRA), the European Union (EU), Rwanda Development Board (RDB), GIZ Energizing Development programme (EnDev), SNV, Shell Foundation, BFZ, and the Africa-EU Renewable Energy Cooperation Programme (RECP) among other partners

OPENING REMARK

Hon. Gatete Claver

Minister of Infrastructure officially opened the event.



In his opening Remarks Minister Gatete mentioned that the clean cooking sector, dependence on Biomass currently stands at 83%. He noted that the Government of Rwanda is currently developing strategies to reduce this dependence by half in the year 2024. These strategies he said include "use of Institutional biogas and liquefied petroleum gas (LPG) in Prisons, Police and Military Camps, Schools especially boarding Schools, Hospitals, Hotels and Restaurants in addition to rolling out LPG in urban and peri-urban areas".

"Solar energy is expected to lead renewable electricity capacity growth over the next five years with over 580GW. With this projected expansion rate, developing countries that have the lowest levels of access to electricity are expected to capitalise on this expansion growth and accelerate the access considering the new technologies in provision of off grid solar solutions", said Minister of Infrastructure, Ambassador Claver Gatete during the opening of the forum.

He concluded his remarks with a reminder to investors, that the Government of Rwanda has ambitious targets to achieve universal access (100%) to electricity by 2024 with 52% on-grid connections and 48% off-grid. To this end, connection to solar home systems and mini-grid with appropriate high-quality material standards will be prioritized.

DAY 1

MRS. FRÉDÉRIQUE DE MAN **Netherlands Ambassador to Rwanda**

Highlighted that cooking is the most fundamental energy need that people have as everybody cooks and almost every meal has to be cooked.

“The energy needs for cooking are by far and large the most important energy need of households in developing countries. Which means that progress here can potentially have an enormous impact on the overall energy consumption and related carbon emissions of countries”, she observed.

MRS. DYMPHNA VAN DER LANS, **Chief Executive Officer of Clean Cooking Alliance**

In her remarks she said that, “cooking energy accounts for a large portion of the limited financial resources available to those living at the base of the pyramid, and this is increasing with urbanization and environmental degradation, noting that women and girls, who often spend hours cooking and collecting fuel, are disproportionately affected”.

“It is our belief that no one’s life should be limited by how they cook. And yet, globally, three billion people depend on open fires and polluting stoves to cook their food – harming their health, their livelihoods, and the environment”, she added.

DR. IVAN TWAGIRASHEMA **EPD Chairman,**

In his welcoming remarks noted that “from energy week forums, we are expecting more investments in clean cooking sector coming to Rwanda; more private sector involvement in innovative business models to power agribusiness in Rwanda; and mini-grid deployment for quick off-grid rural electrification; and more business cases and joint-venture partnerships”.

He concluded the remarks with a vote of thanks to the government of Rwanda through MININFRA and RDB for the support towards the conference and EPD. Not forgetting organizing partners including Cleaning Cooking Alliance, World Bank, EEP BFZ and Shell foundation for their support in making this event a success.



PANEL AND Q&A:

POLICY PERSPECTIVE

Innovative approaches for governments to build the clean cooking sector: policy objectives, incentives, and constraints:

Robert Nyamvumba, From MININFRA

The numbers have not been so good. There is need to work with the Rwandan entrepreneurs and private sectors to increase the numbers. We are ready to work with investors to meet the targets; this includes working with the global alliance.

ARE THE POLICIES FIT?

Lucy Ssendi

President's Office of Regional and Local Government of Tanzania:

We want to keep the world green, so we call this conference to hear better alternative on how we can burn charcoal without destroying nature.

We begin with rural areas in using biogas

Vimeslal Tefera

Ministry of Environment, Forest and Climate Change, Ethiopia

The whole activity should be held by the private sectors helped by the government by providing loans, grants finance at national level proving free land for the private sectors for carrying out the activities

Geoffrey Ssebuggwawo

Private Sector Foundation, Uganda

There is not enough budgetary locations. There is need for bringing in local context. For example in Uganda we have a project called build Uganda, buy Uganda. VAT is hitting the importers but benefits local manufacturers when competition stays down. The policy in Uganda is good, but there are still challenges like implementation, delays at the boarder and investment documents

Kenya: Energy policy, reviewed in 2015 that the key achievement bio sector given space by electricity. Cooking being given priority, removal of duty in importation of cooking stoves from 10% to 30% . Growth areas for Kenya have to grow from 5% to 20%.

Question and Answers

1. What is the government of Rwanda doing to support entrepreneurs?

Robert Nyamvumba, MININFRA: The government is limiting the imports and encourages local production while promoting the private sector and it is developing financing institutions for the private sector.

Claire Nelson, Power Africa: There has been more focus on electricity than clean cooking. But there will be a lot more from donors now, technical assistance, solutions that make sense and financial support. We have been working with GIZ: successful activities are endless, similar progress of working together to make sure targets of development sectors are met.

Project financing support for private sectors, encouraging private enterprises into clean cooking there are problems in acquiring loans than grants.

Rural areas do not have the same access to financial support. They lack of financial skills to package the project. And the problem of culture, some people do not want to shift to LPG because of the culture of force on resistant. And there is need for a frame work for cooking solutions especially by the government.



PANEL AND Q&A:

BUSINESS PERSPECTIVE

Building a scalable business delivering clean cooking solutions: challenges and opportunities

Yves Legrus CEO Societe Petroliere (SP) Rwanda: How to build a successful business module: demand is going very quickly, as we launch new products we ensure security in the market and improving the supply chain. What the private sector needs is a financial model. Today we primarily focus on urban area areas and engage in rural filling plumbs.

Peter Scott CEO Burn Manufacturing: I have made over 5,000 Stoves in Kenya and we have been working for 20 years and 10 years to get people not to use charcoal, The use stove you save 50%-60%. 800 million people rely on wood and charcoal. We want to use the clean cooking but it is going to take time. The nut to be cracked is "consumer perspective" the investment sector is ready to open up.

Seb rodriguez from Kopa gas (LPG technology company): Among 4 million people, 1 million is cooking using the stoves. It took US time to convince the investors. The key point is to switch the expenditure to something valuable.

David Small from Envirofit: There is need to "understand customers". And the key questions are; Are you solutions customer friendly?, do they meet customer needs and barriers?. Then Investment becomes a lot easier.

INVESTOR PERSPECTIVE

Unlocking International and Local investment capital; guidance for businesses and governments

Reasons why there are not enough finances:

Rosemarijn Vander Meij from FMO: We invested in 3 solar home systems but it is not working. So we need an exit plan, what we are going to be acquired for.

Leslie Labruto from Acumen: there is a bad story and a good story. The bad news is customer behavior: customers after a short a short period of time stops using the stoves (maximum of 5 months) because they are not clean any more due poor conservation. The good news is that there is patience in the cleaning cooking system and it will time to understand their end points. Companies should find the right type of capital with right valuable proposition and think carefully about the capital you need.

Brian O’Hanlon from Overseas private investment corporation: The sectors are desperate in making money rather than growth low to fix the models. We need this language.

Louis Boorstin from Osprey foundation: We need to make solid business cases. Specific challenges: the sold stoves are not consumer needs solving. We need the clean stoves to get market ready.

Develop right business fundamentals, make market studies, and know your customer is more of interest to the investors. Most companies fail on the market. Ease of access and prices is what matters to customers

QUESTION & ANSWERS.

1. How to get the cleanest cooking system

Leslie: challenge is only 15% feel safer with clean cooking solutions. So it is important to work with promoters with the companies to know the customers. What is going to make men and women buy the product

Rose marijn: For 22 years in Kenya whenever I talk to anyone they don’t think about clean cooking solutions. In Somalia, 3 Million people do not have access to clean cooking because of poor infrastructure. No investment because of war. How do you give insurance in frontier market?

Well, we love Somalia, There are some business modules which make no sense in East Africa. When infrastructure is poor but if there is need it can start to make sense

Brian: There are designed policies for those areas. You need to have business module to ensure a good investment environment.

2. What are the bigger tickets you are giving to the local producers of the Stoves?

Louis: We focus on the consumer Stoves which are rarely seen

Leslie: 50% of the entrepreneurs are local entrepreneurs

Rese: No one knows the market better than the local entrepreneurs. Improved stoves are expensive than the local stoves, what mechanism can you use to manage this?

Louis: - Financing the purchase of the stoves. Promoting the PAYGO project. Most people do not know what the investors are interested in. Any training to understand why you really want?

Leslie: What we are looking for is someone who sends us a really good project plan, historical financials and your customers. It is a long process to decide a promising proposal.

Rose: The local entrepreneurs also need to ask themselves, do you really want to give half of your company to the investors and do not be afraid of the big competition.

Brian: We have very little time, we need to change our module, we need to make the best investment to the best companies.

Louis: You need to be in contact with different people like accountants and other people that can help you with skills you do not have from the local environment and having talks with financial institutions



DAY 2

MARKET DEVELOPER PERSPECTIVE:

Building a BoP clean cooking industry; lessons learned from building the market with TA and grants

Moderator:

Linda Boll from Shell Corporation: What have you tried, any regrets or the things you cannot recommend? And what has been learned to bleach the gap between the clean cooking entrepreneurs and their investors?

Marcel Raats from Energizing Development: In 2005 we trained a lot of people in the local market and in my experience; we should try to pick those people with entrepreneur spirit who are ready to grow.

Madeleine Post-Legendre from ENEA: In order to bleach the gap, we need to answer the needs of our investors, work together with them on their investment strategies. To help companies strengthen their financial module, raise more funds and what the profitabilities will be in order to reduce costs.

What are advices to people who want to give grants?

Carlo Figa Talamanca CEO of Sustainable Green Fuel Enterprise (SGFE): In 2013, we got grants from global alliance and we were using every dollar on how to make this productive. My advice is that don't focus on grants as your business module but as something to help your business module successful. People will always tell you "you know what you should do" but they won't tell you how to do it!

How can we learn from mistakes of the solar sector?

Victor: 10 years ago there was more emphasis on the capital to start and some failed!. There was need for technical support, there was pressure to ensure clean cooking in rural areas but there was little understanding about the rural market. Income in rural areas is not very regular; portability was also a problem making it not affordable. Research has been made on clean cooking; there is need to a proper understanding of your market.

What are the things that excite an investor?

Lauri Tuomaala from Energy and Environment Partnership: Business modules and there sustainability. We are looking at those that can develop the sector as they grow.

There is need to have the donors understand the market and the customers. "Where do we deploy most of the funds" customers have to be financially sustainable and the entire objective should be "create change"

Madeleine Post-Legendre from ENEA: In rural areas we have some people that are paying for the local lighting but not paying anything in clear cooking. There is a need to make the customers understand.

Do you see how the mismatch between donors and entrepreneur can be met?

Marcel Raats from Energizing Development: The Company needs to do what they do best. We try to do our best with the business approach in rural area, in order to reach the level of the urban area. Entrepreneurs should understand their market.

QUESTION FROM THE AUDIENCE:

CEO, Grid air fire solution in Kenya

I have managed to buy the machines; the problem is people don't understand the technology. How would you help me to get finances?

Lauri Tuomaala from Energy and Environment Partnership: We are looking more at the business module. You need a well convincing and strong business module.

Victor: You don't only need money but the investment you need to convince your customers. We are starting a competition for private sectors in March 2019; we invested about 6.7 million USD in it. Look out for the competition in March 2019 to compete with other private sectors.

THE ROAD TO INVESTMENT

Stories from the region

Moderator: Kwesi sarpong from clean cooking alliance

Amaury Fastenakels from BBOXX: BBOXX started 8 years ago, we started as graduates. We had no money, no finances available, and no retail networks. We started by establishing networks, later we opened shops in Rwanda and Kenya in order to solve the finance challenges.

We deal in smaller and bigger solar cooking systems. Now we have half a million customers using our products. We did not only have customers but we had a platform.

We have over 40 people working with us in Rwanda, thus year we also entered in Congo. We always aim for investors who are patient and not too risk sensitive. We meet the challenge of customer to understand cooking with technology. The challenge is big so, we need to have more private partnerships and concentrate on finding long business modules. We need experts in the cooking field in order to convince the investors.

Sanne Castro from Sim Gas: Our teams in Netherlands and East Africa work together to design and mass produce high quality domestic biogas and bio-sanitation systems. The problems we solve: danger and difficulty of collecting fire wood, charcoal prices are also increasing. Sim Gas is here to replace this with clean cooking.

Our challenges: -bio systems are handmade so they take time. If you need to supply 200 million households, we need more investment in clean cooking. Analysis was made, in 40 customer asked an average mentioned that the use 50 dollars per month on fuel.

What you need are addresses, friends and networks that believe in solutions. Government grants also play a critical role. A challenge of a startup company is the capital. "Sometimes it is more than just building a big company" You need to focus on the markets where the customers are organized in cooperatives.

Greg Murray from KOKO networks: KOKO networks a venture-backed technology company operating in East Africa and India. Consumers safely access clean fuel, e-commerce and video content within a short walk from their homes. About 20 million dollars of equity and grants, you need to focus on the four pillars that matter; Specialized technology, specialized infrastructure, specialized capital and specialized policy.

Eric Reynolds from Inyenyeri: Inyenyeri started 8 years ago; it is one of the fastest, cleanest and most affordable ways to cook. Sticks and firewood are exchanged for pellets. Pellets cost about 30% less than charcoal. This helps people to live healthier and more productive lives, saving money and the environment.

1. Gisenyi: We have covered 100,000 of population, 20,000 households, 64.5% penetration, 96% retention after ear.
2. Kabashumba: 90% penetration, 96.8% retention after a year.
3. Kigeme refugee camp: 20,000 population, 3% adoption and 99.9% retention with 1,000 customers
4. We expect 70%- 80% penetration in urban areas.

Our customer service; listen and learn, low cost cooking, free stove training.

Question: what is your afforestation policy?

In the rural areas, most of the people use firewood so we accept the exchange of the sticks for fuel. This makes about a 90% reduction. Cutting down the trees half way the way it has been means replanting the ones that were not cut.



INNOVATIVE FINANCING

Results-based financing and other innovative financing structures to grow the clean cooking sector

Moderator: Martijin Veen from SNV

Josh Sebastian: presenter of SNV: SNV in Tanzania started in 2014, working with small local national companies with 20,000 to 40,000 USD. "If you don't do anything, you don't get anything" moving beyond ideas, opportunities that are creative. There should be exist with; sufficient private sector capacity, willing financial sector and sufficient market environment.

Judith Walker: African Clean Energy: How does RBF come in? Difficult to enter new markets, RBF helps in a lot of activities we do, accessing with kinds of customers. Keep proving customer services, work together and know what happens to the products after they are used in the long run. Where it is more difficult is where you have more impact to change.

Zijun Li: world bank Ci-Dev: We have 12 programs worth above 74 million USD to benefit 3 million people. RBF is a good financing mechanism to international donors to help reach a financial gap. 40,000,000 USD from the commercial bank to help the small and medium enterprises especially in cleaning cooking

Jeroen Blum: BIX capital: RBF helps to get to the next stage of your business in a limited period of time. The objective of RBF is the reduction of administration burden and irrevocable advert.

CONCLUDING REMARKS:

Dymphna Van der Lans CEO Clean Cooking Alliance

It has been terrific despite the challenges; a conference becomes successful when people attend, we appreciate 364 registers, Sponsors, investors and well as entrepreneurs.

We learnt to continue growth to be committed to the entire sector, ensure equal system building efforts and we're working in the USA and London in 2019.

We all deserve to live in a world where no one is endangered due to the way we cook.

Sanday kabarebe CEO of Energy Private Developers EPD

Without a proper frame work this would be difficult. We ask the government, investors and the private sectors to work together to ensure clean cooking.

Let's keep this world a green planet.



DAY 3

Re-energizing Agriculture through Solar Power

"Rwanda solar energy market is not yet developed but there is potential for development. The purpose of this forum is; to get the private sector and the public sector to work together on getting to the market".

A forum organized by World Bank and Energy Private Developers EPD with its partners. This forum gathered policy makers and private sector in energy and agriculture. They discussed the role and experience of solar energy, mainly the opportunities and challenges of solar for agriculture in Rwanda, solar irrigation, solar solutions for agribusinesses (drying, cold storage, processing) and financing solar solutions for agriculture (credit, leasing, microfinance).

In his opening remarks; **Mr. Jean Claude MUSABYIMANA:**

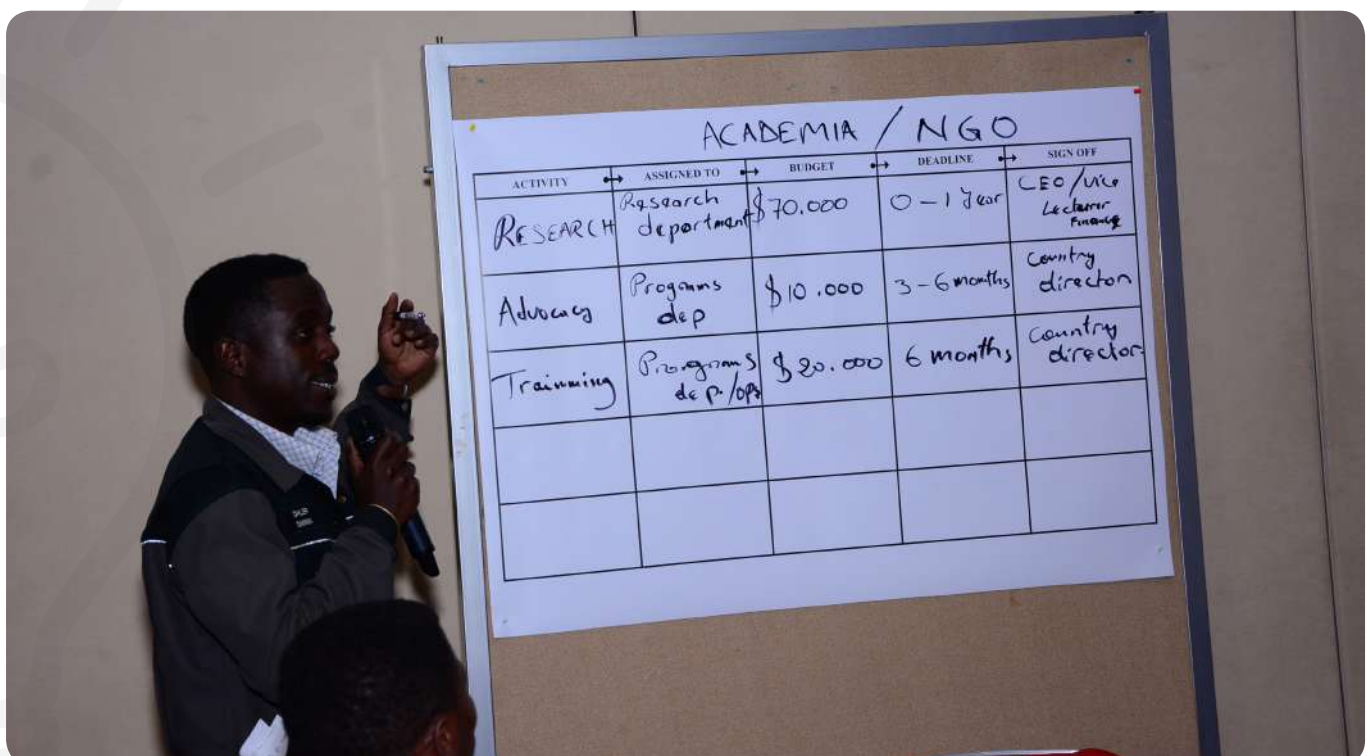
Permanent Secretary of Ministry of Agriculture

The purpose of this forum is to work on sharing and changing knowledge, show-casing of international solutions of solar energy. Agriculture is a significant contributor to Rwanda's economy. And the sector is growing at a 5.3% rate per year.

We are aiming to reach universal 52% on grid and 48% off grid connection.

We need to use this forum to discuss impactful ideas and use it mainly to make partnership.

PLENARY PRESENTATION



Agriculture-Energy Nexus

The role and experience of solar energy in agriculture in Africa

Puri Manase, PhD. Sustainable energy in agriculture expert, FAO

We thank the organizers of the forum, EPD and World Bank.

The presentation focused on the following;

1. How are energy and Agri-Food system linked?
2. How does access to energy impact the Agri-Food system?
3. Why solar energy?
4. Key challenges

Agri-food: is the set of process that take place in the food produced and the food consumed and we need to note that Agri-food is energy intensive.

The international challenge is Agri-food based on fossil fuels, in production about 25 tractors use gasoline and at the consumption stage in cooking; package and heat also need access to energy, 30% of the energy is used at the consumption stage. Areas with low access to energy have low access to Agri-food system but access to energy is about to increase.

Food losses:

1. 1.3 billion tons of food are lost or wasted globally (32% by weight)
 2. 1 out of every 4 calories grown is not ultimately consumed by humans (24% by calories)
 3. Around 821 million undernourished people globally (FAO 2018)
1. 45% of fruits and vegetables
 2. 45% of roots and tubers
 3. 35% of fish and seafood
 4. 30% of cereals
 5. 20% of dairy

Causes of food losses;

At the consumption stage food is lost due to consumer wastage because of tastes and preferences. At the processing stage lost due to poor storage and packaging.

Reasons for difference in energy consumption are income insufficient and limited consumer income and level of development of the Agri-food chain: there is not enough space for energy storage

Lack of access to energy will lead an amount of food losses because it leads to reduction of a number of things including; less mechanism, low processing level and low food diversity

It always leads to increase of; high food losses, high social cost and high vulnerability to climate change

Why solar energy?

1. The cost is going down
2. Helps to de cap the Agri-food chain from fossil fuel use
3. Reduce impact of Agri-food systems on climate change
4. Low cost affordable energy for agriculture

Why Africa?

There is potential in Africa and the cost of energy is going down. Solar energy is used for production, storage and processing. But why has it not scaled up?

1. It is intermittent: solar goes up at sunrise
2. Batteries are expensive
3. Cost of financing: there is lack of financing mechanism
4. Local capacity: if the investment does not work the locals do not trust in the technology anymore.
5. Awareness: not enough resources are spent on creating awareness

Panel discussion (moderated by World Bank)



BISANGWA Innocent (Ministry of Agriculture): Policies of improvement as the ministry of agriculture. We are targeting to have 100 hectares by 2024

1. Affordable equipment of irrigation technology
2. With the help of energy policy and strategy we have hope that the government will put emphasis on energy
3. We have good policies in increasing production

Challenges:

1. Access to affordable energy
2. Once we are investing there are things we cannot consume but we need to process
3. We need energy in the agriculture process
4. Climate change: two years ago, we experienced drought in the eastern province.

BIHINDA Steven (Ministry of Infrastructure): Policies as the ministry of infrastructure, we looking at mechanization in farming, ensure proper strategies; all projects can be developed by supporting the private sector

NDAYISABA Eduard (EPD): From the private sector, we have companies working in solar energy. We need to think about other areas like milk chilling to reduce food wastage. The survey of ministry of agriculture has shown that 50% of harvested products are being wasted due to lack of proper conservation.

Due to climate change, from private sector perspective we thought on how affordable this technology is. In July, as EPD we worked on a mobile solar kit used for agriculture that can serve many farmers in a region.

We are thinking of a technology to pump water from rivers and lakes to the hill, so thought of the kit. We also thought of milk conservation: solar technology to help local farmers in cold conservation of milk to help generate income.

However the challenges:

1. Awareness of the technology
2. Radiation of solar is not promising
3. Affordability by users (farmers)

As we are working together thus will give the opportunity to reach a point where everyone is happy.

MWISENEZA Rosine (Agriculture youth forum): As the youth from my personal experience, for one year and a half I worked with ZORA. Working with Rwanda Youth Forum, We teach the youth to use ICT to make projects work.

We are 156 employees working as consultant in cooperatives in need of the solar system. As youth, we project for the future and we are eager to learn and add to their production.

LUCY David. My personal experience, when we started, we went bankrupt due to food loss because on poor public sector. 97% of fresh food should be refrigerated

Challenges:

1. Inadequate and unsuitable technology
2. Public sector with the solar energy, there is need to discuss on how to raise the gap between the technology and the public and private sector
3. Challenge of understanding and financing this technology.

PANEL SESSION; Solar Irrigation

Micomyiza Hanson from Rwanda Agriculture Board (RAB): Irrigation milestone, we are aiming on 102 hectares of solar irrigation by 2024. Irrigation in Rwanda, most of the potential areas are in eastern and southern provinces. 900 to 1000mm per year.

The types of sources of energy available are Gasoline by smaller farmers, mechanical energy for small scale irrigation, electricity for bridge system and solar powered irrigation

We are not yet well adopted, how the project is implemented mostly government sponsored, some part subsidized and partnerships with NGOs, we need to see how we can work with the financial institutions.

Opportunities available are:

1. Geographical location of the country (equatorial)
2. Saving operation costs
3. Emerging technology
4. Decreasing of SPIS from 76 USD to 10.3 USD for 1 watt
5. Long life span
6. Green and renewable energy
7. Government subsidized up to 50%

Challenges are;

1. High initial investment
2. Quality control of products
3. Master plan: to know that an area has potential
4. Level of optimal risks
5. Topography, the project is applicable for only gentle slopes which is the opposite of Rwanda.

ERIC Ruzigamanzi: Solar Irrigation Project Manager at Energy for Impact is a two years project for improving small farmers. It started this year and it has almost 20 months to go, it's being implemented in 5 districts in eastern and 3 districts in western Rwanda

The project creates awareness, training and supporting farmers on agronomic activities, knowledge management and we have selected suppliers; -BUNGA partner in Gisagara, four demonstration sites, as we are targeting on having ten. Farmers financial institution local economies, innovertex by solatic and Kirehe LORENTS, In a couple of months we shall have six more, and we have a future pump in Nyagatare

We have designed models;

1. Farmer's equipment finance facility
2. Supplier's inventory
3. RAB receivable facility
4. In order to overcome financial barriers focus on small pumps to reduce costs we exploring pay as you go (PAYGO) and financing options in partnership with ignite power

Lessons so far learnt;

1. Getting the right side each component has to be well designed
2. Farmers should purchase the right pumps.
3. Need of awareness for financial institutions
4. Need for enough data for institution to provide loans
5. PAYGO becoming a possibility collaborates and make sure it is presented.

EUGENE Faison, CEO of Dgridenergy: Think of us as an agriculture solving company. We started in 2008. 40% of crops harvested are lost, here is how we work; experiment and research with products we are producing.

www.epdrwanda.com

We have learnt that; Countries can grow crops with capacity, land and technology, but without how to restore the food it is not possible to feed the people as needed.

Challenge is not just having the technology, but the education, training and support of understanding the chain.

Work that is being done is important in the economy. People do not really understand the importance of not just looking at cost Economic impact that can be made is real. We are hoping that dialogs can really make a difference. We want to think through what you need and how to use it and incurring financial solutions on both sides.



DAY 4

EEP Knowledge Exchange Forum (KEF)

EEP Africa in collaboration with Energy Private Developers (EPD) hosted the 7th Knowledge Exchange Forum (KEF) of Rwanda and as part of the 2nd Edition of Renewable Energy for Sustainable Growth RE4SG-Conference.

The full day event focused on exchange of knowledge on mini-grids with a combination of interesting presentations and casual networking i.e;

1. Experts shared lessons learned by a successful solar PV project developer, who offer key insights into project development in Rwanda
2. A session with investors, who will shared their perspectives on what they are looking for in renewable energy projects and companies
3. Roundtable discussions during which participants shared their own successes and challenges
4. Presentations by the shortlisted candidates for the **EEP Project of the Year 2018**. The winner was announced at the end of the day.

Mr. Tom Rwahama from Ministry of infrastructure:

Thank you to the organizers, experts and colleges for taking part in the forum. The objective of this forum is sharing and exchanging knowledge into project investment in Rwanda. Learning what investors are looking for in energy cooking.

The government has set 48% of electricity connection to be through off grids. By 2024, the government has plans to reach universal access and to expand off grid connections including solar energy.

Dr. Ivan Twagirashema Chairman of EPD

It is my pleasure to welcome you in this forum organized by EPD and EEP under the support of the government of Rwanda, EPD is a private sector with more than 100 companies registered

We do advocacy with our partners promoting and attracting investment in energy and promoting the use of energy. This with the help of the government in those policies, this forum has attracted different stakeholders in energy from rural offgrids in the country with more than 800 delegates.

We thank the partner and hope that we learn from the rest of the forum.

Charles Wetherill
Manager of EEP Africa

The objectives of EEP are to sponsor innovative clean energy in the southern and east Africa. We are also near to new donor contribution. We designed knowledge program, what can we lift up from our portfolio. Sometimes achieving this clean cooking can be a little challenging to work through.

We have incredible resources and donors and as financiers it is and honor and we are privileged to be part of this forum.

The EEP program started in 2010 in collaboration of the government of Australia. Now we are in 13 countries in southern and East Africa. We intend to support the sector in reaching a stage; Over 200 projects, providing services to 5 million people in 900,000+ households with improved clean energy access with 14 different CE technologies and creating 8000 jobs with a mandate to looking into climate change.

EEP Innovation, Improve investment readiness among the supported projects, we see why investment is needed by investors lack access to finances and match making initiative brings together project developers and investors

It is not us on our own to change the energy sector but with partners like EPD, we provide evidence based energy to policy makers, collect information and put it together in articles

This is not a work shop but a forum that we would like to collect and exchange knowledge. We put a panel to reach what we have seen. There are over 200 projects and today there will be an awarding of the winner as we look into different perspectives of finances.

Lauri Toumaala,
EEP Africa Head of portfolio and finance

The kind of proposal we had that over 200 projects spread in southern and East Africa. Rwanda is coming to the next that has received support. Countries like Zambia are also

developing. We are open to all technologies of renewable energies. With clean cooking solutions, we are trying to support innovative ideas, feasibility studies and startups.

The question is what do you want to achieve and why should EEP support you?

There are 14 projects supported in Rwanda with about 5 million €. Solar is one of the sectors we have been supporting as well as hydro.

EEP portfolio in Rwanda, over 100,000 households will access clean cooking energy. More than 1,000 jobs were created. EEP success stories in Rwanda, Giga watt global, Inyenyeri, Practical action and East African power

At the end of June in Rwanda we got a total budget of 80 million, 500 application, Rwanda has a 7% application with significant share of women involved in projects: 30% of projects has 50% of female employment and 34% of projects has 50% of women in management

Average expected households will enhance access to clean energy (21,800 per project) and average expected job creation (408 per project)

Chaim Motzen.

Founder of Izuba and Co-Founder and Former Managing Director Giga watt Global

In 2012 we entered the solar space, our first project was in South Africa and we learn by doing

We chose Rwanda because; we got partners in Rwanda, 11 million people in need for additional quick energy, the government has quick interest and lack of corruption in the country.

It took us 4 months for studies, had 7 months to reach financial close and 2 months and 20 days to reach final close.

Structure of deal; our idea from scratch EEP gave us partnership and the government took the earliest risk. We got equity from the government development fund. On 22 July 2013 we got a signing.

How do you look for partners; real operation competence, land is a free factor in Rwanda. There is need to do things right, no issues of displacing people makes the project fast, strong partners which is very important to have (Ministry of Infrastructure, Utility), strong legal council and the tax system is speedy. In terms of partners: It should not be based on the price but strength, ability to move quickly, knowledge and experience. With success factor of the government that has good partners.

Question & Answers:

1. What is the mechanism to be used in the situation when the solar system shuts down at night?

The project was only created for the day. Shutting down depends on the peak of the country (5 hours of evening). As we move forward the project will take that into account

2. Do you see potential in merging with bio mass to solve the night problem?

That is something to explore.

3. Is there a program put in place for locals interested in solar?

Apparently there is not but there are former project in place but in the project there are 300 local employers that do technical learning.

PANEL SESSION: Challenges for the mini grids:

What is the relationship between the private and public sectors

Liz Pfeifer from SAEP: There are opportunities in Southern Africa, the environment is critical. Companies are opening up to use of mini grids. If mini grid operators feel like they have opportunities for growth, Southern Africa has to open up.

It is a push by the government that creates new business modules of mini grids. There is different market dynamics in East Africa and need of different business modules.

Martijn Veen from SNV: We work in energy, agriculture. We also want an increase. What we can offer is that we can provide opportunities for where people are looking for facilities.

I would like to stress that production should be considered in the early stage. We need to shift in business modules beyond energy provision. There are basic needs that are key interests for mini grids. I think profitability of mini grids can increase a lot indeed.

How much should the promoters be involved in mini grids?

Aaron Cheng from Powergon: You can go in communities and there is need for agri processing. if you build in a mini grid you with a distribution there is need for balancing general capacity.

Martijn Veen from SNV: It will not work with one company in balancing different sets of needs in a community. Combination of different domestic companies is not an easy job, there is need for stability in conditions with in the country.

How can you support mini grids?

Jessica Stephens from AMDA: Engagement policy of nationals working with internals and stake holders on mini grid space. The last six months, we understood that the people had no understanding on what mini grid is and how it supports them to deal with access to energy. People need that teaching

Martijn Veen from SNV: Challenging to work in an environment where promises are being made, being international not in the best position to influence. There is need to encourage the nationals. We need to localize this much more. As an international, I am not the right person to influence in Tanzania but the local companies that can adjust the change.

PROJECT PRESENTATION:

There is need to recognize the knowledge of the project.

EEP will provide ticket to the winner to get to talk at the African utility week in Cape Town.

There are two candidates; One with a project in Rwanda and another from Zambia.

FIRST PROJECT PRESENTATION:

Rich Moany, CEO of Mesh Powers from Rwanda

We started in 2012 at imperial college in London to develop technology for low cost DC mini grids. In 2014 we launched Mesh Powers in Rwanda; in 2016 we started the EEP project; in 2017: focus on productive use in partnership with Colorado state university. Now we have 70 solar mini grids installed, 10,000 Rwandans served with electricity

Timeline: From July 2015 to December 2016 we installed 45 solar DC mini grids that serve over 1000 families and businesses. We created 37 lasting green jobs. The project generates 65MWH per year

Lessons learnt:

There is a need to prove low cost DC mini grids model. The goal is to be viable without anchor loads. We were targeting on 5 USD per month as customer revenue.

Challenges:

1. Low energy demand ie 1.8kwh per month
2. Low revenue ie 2 months per connection
3. Low economic growth without intervention
4. Few viable mini grid sites for ABC model

Path forward:

1. Depth of impact through strategic partnerships that will grow incomes and stimulate demand, develop anchor loads
2. Hybrid AC/DC mini grids with a low costs DC for households and high power AC for business
3. Broader range of services, starting with internet

FIRST PROJECT PRESENTATION:**1. VITALITE Ltd from Zambia**

We thank EEP for providing grants to scale up our project. 96% of rural household are not being served by electricity. So we saw the need to bleach the gap by solar energy system.

We started in 2014 with 7 members of staff and now we have 85 members. Our team when we started, there were 3 directors and 3 managers. To date we have 85 full time employees in which 33 of them are female as well as 330 agents.

Our products: Are lighting and phone charging. 2.5 cents of daily payment and cooking stoves, working on pay as you go policy among 20,000+ house holds

2018 to date : we covering 8 regions, 21 service hubs, 330+ active agents and 20,000 households

In 2020: we are aiming at covering 10 regions, 40 service hubs , 800 agents and 100,000 households

Why should we picked for project of the year?

1. We are founders of PAYGO in Zambia
2. Paved the way for the sector
3. Originators of community distribution service
4. Financial viability and quality portfolio

Attracting Financiers for Renewable Energy Projects

Key success factors and challenges in accessing finance.

Butare Kayitare from Grid connect projects: We worked with a local team of engineers in need for early stage financing.

Dan Klinck from EPD: If you talk to many developers you will choose not to be one because there are a lot of challenges. There is enough money but you cannot find bankable companies. If you can do it and show what your gaps are you can get the money.

You need to know which capital you are looking for. Do not waste time looking for banks before you have all your documents. You need patient capital.

Sarah Alexander from blue haven: The sector has matured and investors matured with it. Investors are looking for entrepreneurs that fall in love with the problem than the solution to it and entrepreneurs with deeper understanding focus on technology. On the financier side: there is a need of good mind towards growing, we want to know your vision for growth (how you want to scale up) and the vision you have in the future.

Mitali innocent from Rwanda Development Bank (BRD): We understand the problems our developers face. We look at both sides of the equation so that the developers won't feel like there are put in a trap. And we also look for guarantee funds

Laura Sundblad from GOGLA: As we have GOGLA large membership, we work on three places; policy, quality and access to finance, providing guidance to our developers and creating connections. This has been operational for six years; a lot are still in the early stage so there is need for early stage financing and patience. What we do: we help members to achieve success which comes from partnership.

What is your risk appetite?

Dan Klinck from EPD: It is difficult to know. Developers assume that they know the risk appetite and sometimes find out that they are wrong and there is a need to come in a development of the early stage.

Sarah Alexander from blue haven: We want to know if the technology works, we want to see the level of adoption by the people. We also want to know the large market risk and the talent risk.

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Mitali innocent from Rwanda Development Bank (BRD): With risk comes reward. Identify the risks then look for mitigation measures. Look at the side of the client in order now to make them the victim. We do not leave it to the developer alone, we go with them step by step.

Ntare Ntore from HUBOKA Ltd: As developers we are always in the optimistic side. When they reject you, it puts you to think outside the box. What are we doing as mini grids? We put up the infrastructure; we work with the NGOs to boost up the production. We push ourselves harder and to partner with other experts, you need to get the local deck.

Question and Answers:

1. Can you guarantee grants for the young entrepreneurs?

Mitali Innocent from Rwanda Development Bank (BRD): We partner with guarantee funds we don't give guarantees

2. Are the developers indicators clear enough and do you look for the early stage.

Dan Klinck from EPD: We are focusing on universal access, improving income as well as lives. In this journey you need to get in with the business matrices and looking at consumption levels to make it work. As developed in Rwanda we are trying to tackle the "umudugudu" with many households.

Laura Sundblad from GOGLA: The challenging path; the idea was it is easier to get information from investors if you are speaking the same language. There is still so much diversity, need to scale up the matrix that solve specific problems. A company management will look for indicators to show them where they want to grow. Are you looking for growth, maximize impact and have the need to know what you are looking for. Be transparent as a business and as what you want as an investor.

Announcement of the winner of EEP project of the year

VITALITE LTD from Zambia emerged as a winner of EEP project of the year.

OUR PARTNERS

