Report:

National Workshop on Sustainable Energy Solutions for Livelihoods & Productive Uses in Sierra Leone

Theme: Building coalitions for the energy ecosystem in Sierra Leone

Date: Thursday 8th July 2021

Location: Family Kingdom, Aberdeen, Freetown, Sierra Leone

Purpose:
The Energy Nexus Network (TENN), a global knowledge hub for sustainable energy solutions, organized a national workshop on sustainable energy solutions for livelihoods and productive uses in Freetown, Sierra Leone. The workshop was organized in partnership with SELCO Foundation, a collaborative that strives to inspire and support champions of sustainability across the world. The workshop facilitated dialogue between participants and cross-learning on the key enabling conditions required for scaling sustainable energy solutions for improved livelihoods and productive uses in Sierra Leone. Participants from various energy-enabling sectors (e.g., education, health, agriculture, fisheries, water and sanitation, manufacturing) shared practical experiences in delivering sustainable energy solutions that are scalable and cost effective. The goal of the workshop was to initiate a coalition of local stakeholders across the energy ecosystem (enterprises, innovators, sector champions in health, education and livelihoods, financing institutions and policy) who will shape the enabling conditions for sustainable energy solutions that are scalable and cost-effective.

Key Outputs:

i) Participants formed thematic working clusters to identify shared opportunities and took initial steps to develop a joint strategy to work on specific project areas of interest on the energy ecosystem in Sierra Leone.

ii) Participants took the initial steps to build a coalition of energy ecosystem practitioners in Sierra Leone in support of the **Global SDG7 Hubs,** a practitioner-driven, knowledge exchange and implementation platform to improve development outcomes using sustainable energy as a critical catalyst.

Participants:
Participants were carefully selected from key government agencies, NGOs, the private sector, as well as representatives from the donor/development community in Sierra Leone. A list of participants at the workshop is provided in Annex III of this report.

Session I:
Inter-sector dialogue and exchange of experiences on the energy ecosystem for value chains & productive uses (challenges & opportunities)

Moderated by Professor Kelleh Mansaray, Dean of Engineering, Fourah Bay College, University of Sierra Leone

Challenges affecting the sustainability of energy interventions

- It is difficult to understand that Sierra Leone lacks a coherent national **Energy Policy** to holistically address the energy challenges. There are a few policies like the renewable energy policy and the energy efficiency policy developed jointly with SEforALL. But it is not clear whether anyone is guided by these policies.
- There are no coherent national plans for electrification and most of the mini grids installed in the country have not been sustainable. For example, a seven-million-dollar project by PRESSD that built three mini-grids has gone down the drain because the enabling environment for the sustainable operations of these mini-grids was not ensured.
- Collaboration between industries, implementing organizations and universities is lacking. There are many good players operating in the energy sectors, but their efforts are disjointed and uncoordinated.
- The problem is not just about installing energy technology but how to ensure that people are able to pay for energy services. The earning power of people is very low. They cannot afford the rising cost of electricity tariffs.

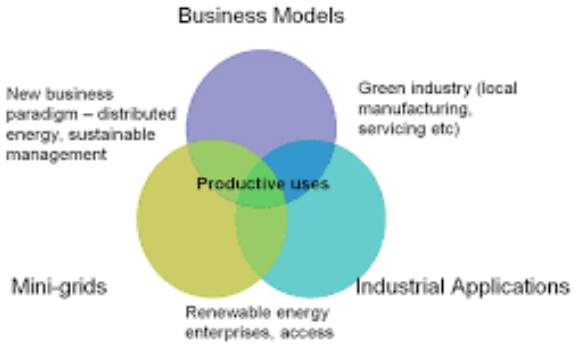
- **Electricity Tariffs** from mini grids installed around the country is very high, about 0.80 USD/KWh. In comparison, the cost of electricity supplied by EDSA (energy regulator in Sierra Leone) is 0.16 USD/KWh. This brings into question the goal of wealth creation through mini-grid installations. Some villagers end of using generators for productive uses because they are cheaper than the mini grid. A UNOPS project provided appliances to rural communities, but they are not using the appliances because electricity is expensive.

- Installing a solar system and electrifying a village without considering **Productive Use** affects the sustainability of such projects.
- Most of the installed mini grids become faulty after 2-3 years, especially the batteries, inverters, charge controllers, etc.

❖ Mini-grid customers are still using old and **Inefficient Appliances** which consume more electricity.
❖ Energy efficient appliances are expensive and unaffordable. For example, incandescent bulbs are cheaper (0.4-0.5 USD per piece) compared to LED bulbs which are expensive (1.5 USD per piece).

- ❖ The mini-grids that are installed throughout the country are using inverters that cannot be repaired in Sierra Leone because the spare parts and skills required to repair them are not available in Sierra Leone.
- ❖ It takes long time for a private investor to get a generation license to operate a mini grid. This is affecting private sector confidence and participating in the renewable energy space in Sierra Leone.

Experiences/recommendations on solutions that work:



❖ It very important to solve energy issues in a more integrated way through a national approach. There should be collaboration between the government, through the Ministry of Energy, the private sector and other sector actors to form coalitions on the energy ecosystem in Sierra Leone.
❖ **Inclusive approaches** towards value chain development with increased collaboration between different stakeholders and relevant organizations.

- ❖ Communities should not only use energy for lighting but also for productive uses. The only sustainable mini grid model in Sierra Leone is the Yele mini grid model, which includes some carefully thought through productive use components.

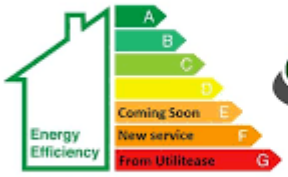
- ❖ **Productive Uses** (e.g., agri-value chain, MSMEs, small manufacturing, etc.) in rural communities, compliment energy for lighting households and public services. The basic income of people must increase. For sustainable solutions to emerge, thorough assessment of potential livelihood activities such as agricultural activities, and location of agri-processing industries in rural communities is needed before installing mini grids.
- ❖ There must be a combination between producing electricity and developing industries, agriculture while will employ people so that people can pay for energy services

- If we want to get the rural poor to benefit from mini grids, the costs must be subsidized because renewable energy products like efficient bulbs are more expensive.
- There is an ongoing project on the identification of areas for mini-grid installation around the country using appropriate software. Forty-five (45) sites have been identified, including some economic activities in places where the mini grid is to be installed.
- The importation of inefficient appliances can be stopped. In Ghana, the government intervened in 1998 with a popular policy to stop the importation of all incandescent bulbs. The government provided each household with four energy efficient bulbs. The Ministry of Energy and the parliament can take similar actions in Sierra Leone.

Ministry of Energy
Sierra Leone

- Get the Ministry of Energy to develop an integrated energy action plan that clearly maps out which community is suitable for mini-grid installation based on productive use of energy in those communities.
- The Ministry of Energy should work closely with the private sector to come up with vibrant business models. A more holistic and nationally coherent approach that incorporates the private sector and various elements of the energy ecosystem is urgently needed.
- The government needs to subsidize renewable energy investments. In Canada, for example, the local government provide renewable energy investors with 10% of initial investment costs and the federal government pays 25% of the initial investment costs.
- In Sierra Leone, the government has introduced some incentives in terms of duty wavers on renewable energy components and appliances. As a result, the price of solar panels and other appliance is lower.

- Establish **Energy Standards** for the importation of renewable energy products - the Faculty of Engineering & Architecture and the Sierra Leone Standard Bureau are working together to establish standards on renewable energy products.
- Importation of rugged inverters that can be repaired by local technicians in Sierra Leone for mini grids. Or even better, pivot to using inverters that are built in the country.
- Solar panels imported into the country should be able to capture enough sunlight and convert it into electricity



- **Energy Efficiency** awareness campaign for end users of energy technology and innovation, especially for healthcare workers who use renewable energy products.
- The Ministry of Energy is looking into energy efficiency issue. There is a renewable energy directorate component of the ministry which works on energy efficiency for equipment and efficiency of energy systems in general.
- Mini grid operators should be trained to perform routine and periodic maintenance on the systems like checking the battery levels, cleaning the panels.

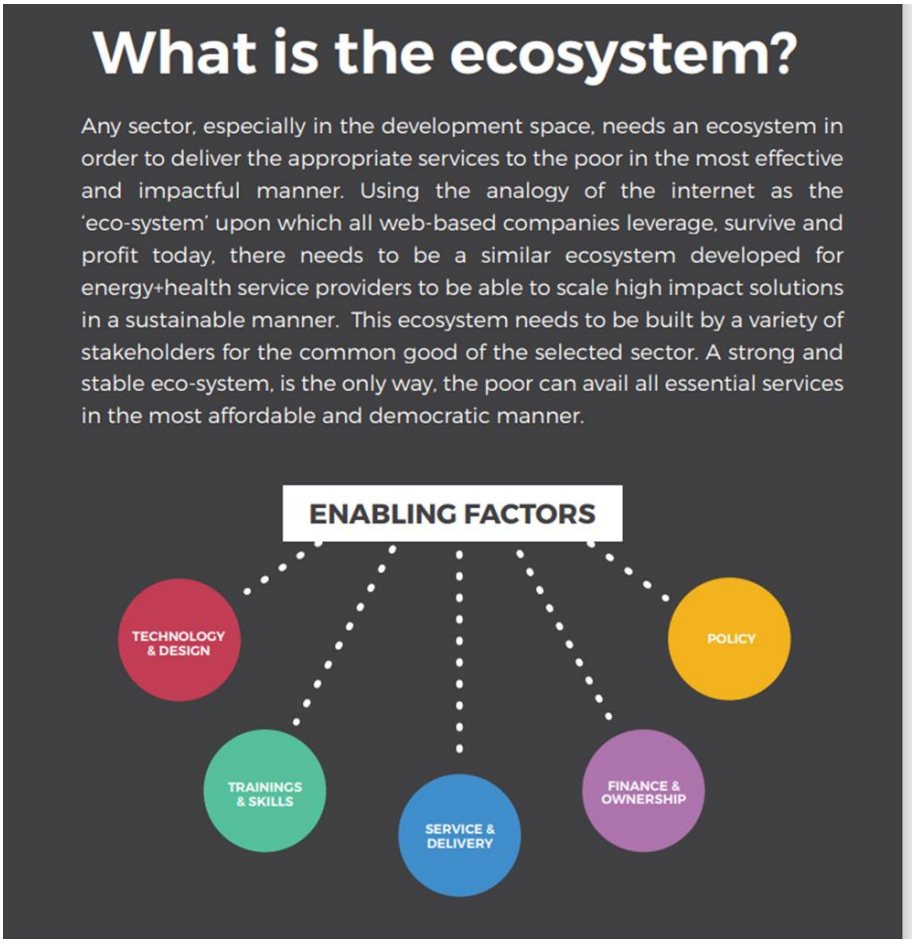
Table 1: Workshop participants characterize their organizations into key energy ecosystem elements

Participating organization	Ecosystem elements of interest
FINIC	Technology; innovation; skills development
GIZ/EnDev	Technology; skill development; finance; market linkages
ILEM	Policy; human capacity development
REACHOUT SALONE	Service delivery; human capacity; local ownership
ADONKIA Community Health Post	Service delivery; human capacity
REASL/SEWA ENERGY	Policy; human capacity
WELTHUNGERHILFE	Innovation; human capacity; market linkages
EASY SOLAR	Innovation; human capacity; market linkages
UNDP	Human capacity; market linkages; policy; finance
ECOSYS SL Ltd.	Market linkages; policy; human capacity
SOLAR ERA HOLDINGS	Technology; innovation; human capacity; policy
GTI- Renewable Energy Centre	Human capacity; technology; policy
AMAZING ENERGY	Market linkages
FLS Power	Technology; human capacity; market linkages
University of Sierra Leone, FBC	Human Capacity Building, Technology, Policy
TENN	Innovation; finance; policy; linkages; skills development
WESTWIND SL	Technology; human capacity; market Linkages
Ministry of Energy, Sierra Leone	Policy; market linkages, human capacity; finance; technology

Session II:
Building coalitions for the energy ecosystem in Sierra Leone

Moderated by Dr Paul T. Yillia, Technical Advisor, TENN

In the first part of Session II, which was held in plenary, participants were introduced to the "BREAD for Life" initiative (**B**uilding **R**esilient **E**nergy **E**cosystems **A**round **D**ecentralized Renewable Energy for livelihoods and improved wellbeing), a program initiated by TENN and SELCO Foundation through the Global SDG7 Hubs initiative. The "BREAD for Life' initiative has two main components. The "software" part involves specific studies to understand the energy ecosystem and strategic actions to build partnerships in Sierra Leone. The second part, the so-called "hardware" component will entail the installation of physical infrastructure to respond to some of the needs and intervention areas identified during the "software" phase.



Participants were then grouped into thematic working clusters to identify common areas of interest for intervention and initiate a framework for form coalitions around the energy ecosystem in Sierra Leone. Three clusters were identified: i) Energy for Productive Use; ii) Energy for Health; iii) Human Capacity/Skill Development.

Participants then broke up into the three ecosystem clusters to discuss specific intervention areas of interest and project opportunities within each thematic cluster and initiated actions for developing a joint strategy to work together in future as an energy ecosystem coalition to address some of the challenges identified.

In the second past of Session II, rapporteurs representing the three working ecosystem clusters presented a summary of the issues discussed:

Cluster I - Energy for Productive Use:

Challenges identified:

- Lack of electricity/energy for cooling and preservation of agricultural products in rural areas leads to rapid deterioration of agricultural products
- Most mini-grids lack a productive use component and high tariffs from mini-grid operators unaffordable by rural communities targeted by mini-grids
- Most mini-grid focus mainly on lighting homes and healthcare facilities, with little attention to energy for productive use (agri-chain value addition and MSMEs).
- Sustainability of mini-grid projects is challenging due to lack of maintenance (for batteries and inverters) and a general lack of qualified mini-grid engineers maintain mini-grids.

Specific areas identified for intervention: productive use in agriculture

- Poultry farming – renewable energy for lighting, incubators, and heaters
- Cool storage – solar facility for improve preservation and storage of agricultural products
- Energy efficient agri-processing machines run by renewable energy
- Farm irrigation – solar water pumps for surface water and groundwater abstraction
- Energy for agricultural waste to value – adding value to agricultural waste
- Affordable and sustainable clean cooking solutions – extending mini-grids for clean cooking

Recommendations

- Background studies/surveys to identify potential productive uses/industries in designated areas/locations for mini-grid intervention.
- Government and private partners implementing mini-grid projects should ensure that they apportion part of their grants on min-grids to establish industries, factories and improve agri-value addition and increase employment opportunities for local populations.
- Government should enact policies that set standards on the kinds of electrical products that enter the country.
- Private sector organizations in charge of mini-grids should ensure that mini-grid components imported into the country can be repaired by locally trained staff in Sierra Leone.

Cluster II – Energy for Health:

Challenges identified:

- Lack of electricity at most healthcare facilities around the country, including surgical rooms, labour rooms, childcare, and maternal units.
- Most healthcare facilities lack cold-chain storage for vaccines and other medical supplies – in some facilities, the equipment is present but not functioning
- Lack of electricity/energy to sterilize medical equipment

Specific areas identified for intervention: solarization of healthcare facilities in Sierra Leone

- Needs assessment on energy access at healthcare facilities and data base of medical equipment in health care facilities (freezers for vaccine storage, sterilizing equipment etc.)
- Lighting up healthcare facilities to improve healthcare service delivery in Sierra Leone
- Sustainable cold-chain storge for healthcare facilities in Sierra Leone

Recommendations:

- Ensuring that all healthcare facilities have solar energy systems with backup electricity generation.
- Allocation of funds for maintenance and repair of energy systems at healthcare facilities and train users to use equipment/technology.
- Importation standards on renewable energy appliances to ensure that quality and user-friendly equipment are imported into the country.

Cluster III – Human Capacity/Skill Development:

Challenges identified:

- Off-grid solar home systems (SHS) are an emerging solution to provide access to electricity in Sierra Leone. But most off-grid solar home systems solutions are often deployed in rural and remote areas where it can be even harder to attract and retain skilled labour for repairs and maintenance.
- Hiring and retaining qualified employees has been challenging for many companies and related government departments. Challenges include lack of candidates with appropriate technical and "soft skills," lack of relevant and context-based curricula on off-grid systems at the certificate level, the inability of the sector to compete for fresh graduates with higher-paying established companies, high-performing employees are being poached by competitors, and no continued training and professional development of current employees.

Specific areas identified for intervention: training at various levels

- Training of current policy drivers (selected staff from Ministry of Energy) to understand the enacted policies such as RE, EE policies and action plans.
- Training 200 male and 200 female technicians for the installation and maintenance of solar systems.
- Training of responsible personnel from the Sierra Leone Bureau of Standards

Recommendations:

- Mini-grid technicians should be trained and deployed in relevant areas to carry out maintenance of mini-grids.
- Developing the right strategy to identify authentic renewable energy products and stop the importation of unauthorised products by enforcing monitoring.

Key elements for action towards a consolidated strategy

1. Regular meetings of ecosystem clusters to develop project proposals on the identified areas for intervention – First meeting in two weeks after the workshop and subsequently once every month; meetings can be held virtually and separately for the different clusters
2. TENN to provide a concept note template for proposal development
3. Ecosystem clusters to discuss within each cluster how to reach an agreement on the management of achievable projects in terms of who will be in charge.
4. Each ecosystem cluster to hold at least one virtual meeting every two weeks and one face-to-face meeting every six weeks.

Quotes from workshop participants:

"It is obvious that we don't need to convince you about the importance of energy for sustainable development. We just want to discuss and hear your experiences as you do your work and interventions in your communities - how you are seeing energy as an enabler to achieving the sustainable development goals" ***Kandeh Yumkella, CEO, TENN.***

"Let us try to identify the challenges and see whether they are linked to technology, human capacity, market linkages, finance, etc. Do you see opportunities when you look at the challenges? I am confident we have experts in all the enabling elements of the ecosystem and hopefully that at the end of this discussions we must have proper solutions to the problems" ***Prof. Kelleh Mansaray, Dean, Faculty of Engineering, University of Sierra Leone.***

"The energy situation in Sierra Leone is like we are going on a journey, and we have a car, but we don't have fuel, or we have fuel, but we don't have a car. We are going nowhere. That is the energy situation in Sierra Leone. From the perspective of the government, the installation of mini grids is good but if we look at some of the challenges faced by end-users throughout the country, it tells you we are probably building up a bigger problem" ***Kofie Macauley, President, Renewable Energy Association of Sierra Leone (REASL).***

"We did an assessment of the energy use pattern of rural mini-grid customers and discovered that rural communities are still using old and inefficient appliances because they believe energy efficient appliances are expensive and unaffordable" ***Sophie Johnson, Managing Director, Solar Era Holdings.***

"It is important for the Ministry of Energy to develop good and sustainable policies that will stand the test of time and ensure that whatever energy projects are implemented in Sierra Leone, they are in accordance with the policies developed by the ministry" ***Mohamed A. Kamara, Director, Renewable Energy Centre - Government Technical Institute, Freetown.***

"One thing that is lacking is collaboration between industry, implementing partners and universities. We have a lot of expertise at the universities in all faculties and departments. The Faculty of Engineering established the first innovation hub in Sierra Leone. We are open to everybody. Bring your challenges and problems to the university. Together we can find solutions" ***Prof. Kelleh Mansaray, Dean, Faculty of Engineering, University of Sierra Leone.***

"Communities should not only use energy for lighting but also for productive uses. The solution is to get the Ministry of Energy to develop an integrated energy action plan that clearly maps out which community is suitable for mini-grid installation base on energy for productive use in those communities" ***Abraham Grass-Sesay, Managing Director, ILEM.***

"Different governments have different ways of handling renewable energy policy issues. Here in Sierra Leone, the government introduced some incentives in terms of duty wavers on the importation of renewable energy components and appliances. Had it not been for this policy intervention, the price of solar panels and other appliances would have been much more expensive" ***Ing. Foday Suma, Managing Director, FLS Power***.

"Healthcare workers are at the receiving end of the energy technology and innovation. They know the challenges and the constraints. It is important to listen to them" ***Paul T. Yillia, Technical Advisor, TENN***.

"If you have a hundred million-grant for a mini-grid split it into two. Take 40% of that money and put it into developing livelihood activities in that community which will be the anchor to sustain the energy intervention. We need to send this message to the donors" ***Kofie Macauley, President, Renewable Energy Association of Sierra Leone (REASL).***

"Electricity from mini grids should not only be used for lighting and charging mobile phones. They should be used for other productive uses as well. If rural people are provided with efficient appliances and electricity for productive uses, they will not move to the city Freetown to seek better living conditions" ***Aminata Margai, Lead Coordinator-Women Empowerment, REACHOUT SALONE***.

"On the part of the customer, it is not only about buying appliances, but it is about buying efficient appliances. One limitation to the use of productive appliances is technology" ***Akam Kpaka, Product Coordinator, Easy Solar.***

"All these problems around energy are basically revolving around two main issues – it is about affordability and sustainability. Electricity tariffs must be affordable and renewable energy interventions should be sustainable. How do we ensure sustainability by making sure that people are able to pay for energy services? We need to look at the earning power of most people in the country. They cannot afford the rising cost of electricity. Given the choice between paying for their electricity needs and paying for their daily staple rice, most of the population especially in rural areas will choose rice" ***Kofie Macauley, President, Renewable Energy Association of Sierra Leone (REASL).***

"Without proper policy, mini grid projects will end up being white elephant projects. It is now time to put in place proper policy with regards to the importation of renewable energy components. This will ensure that importers will not just import all kinds of products that will create problems eventually" ***Santigie K. Kanu, Deputy Country Director, Welthungerhilfe.***

"Even with all the challenges, there are still good models on energy interventions for productive uses like the mini grid in Yele, which is still working. It is interesting that we can have such good models in a small country like ours, yet they are not being scaled and replicated" ***Paul T. Yillia, Technical Advisor, TENN***.

I hope the government will support the university by empowering us to test all electrical appliances coming into the country. The university has secured some funds from the UK Royal Academy of Engineering to set up a standard testing laboratory in Sierra Leone. We are starting with solar energy appliances." ***Prof. Kelleh Mansaray, Dean, Faculty of Engineering, University of Sierra Leone.***

Annex 1: Statement by Dr. Kandeh Yumkella, Founder & CEO, TENN:

- Two years ago, we were seated in this same conference room with senior representatives from SELCO Foundation who were in Sierra Leone from India to carry out some initial assessment relating to how TENN can replicate or introduce the energy ecosystems approach or

methodology for sustainable energy solutions in Sierra Leone. He also mentioned that some of the participants were there. The energy ecosystem approach seemed complex during the discussions then. However, today TENN is consulting with key stakeholders in the energy sector in Sierra Leone to establish a regional energy ecosystem hub in Sierra Leone, which is part of the Global SDG7 Hubs initiative.

- Since then, TENN is engaging on many fronts both national and international, collaborating with partners such as UN, EU, AU, and WHO, etc., to give strategic advice on accelerating progress on SDG 7. TENN is actively involved in helping to organize the first energy summit of the UN in forty years, which will take place in September 2021, with five working groups on energy access, energy as an enabler of sustainable development goal, clean cooking, etc. Another platform TENN is working with is the Africa–Europe Foundation which is trying to define a new partnership between Europe and Africa to accelerate energy transitions in Africa in the context of a new Africa-Europe green deal, which makes sense because if climate change predictions come true, there will be significant levels of migration from Africa to Europe.
- TENN is involved in five UN working groups providing strategic advice to WHO through the High-Level Coalition for Clean Cooking, including the World Bank. Clean cooking is important because more than 3 billion people globally do not have access to clean cooking solutions, 85% of them are in Sub-Saharan Africa. Globally, this is causing four million premature deaths, 65% of them women and children. It is a silent tsunami, worse than the ongoing Covid-19 pandemic. TENN is also working with another ancillary group on clean cooking solutions called LPG for SDG7. The initiative is backed by several companies, most of which are major financing institutions. Also included in this group are ministers of health from different countries and high-level energy practitioners around the world. This group is planning some event on climate change negotiations in UK. The idea is to mobilize resources for clean cooking solutions.
- TENN has also provided strategic advice to establish an African School of Regulation (ASR) for training regulators and civil servants including ministers in the energy sector. The ASR has been incubated now for more than two years with the Florence School of Regulation, established in Italy for over twenty-seven years to train European regulators on energy policy and growing the energy market. The ASR initiative will be undertaken with the support of the World Bank, MIT, the pan-African parliament, EU, Cape Town University, and the Florence School of Regulation. We are in the process of raising four million Euros and the EU is putting the proposal together. We are hopeful that by the end of this year, we will launch the African School of Regulation, which will initially be hosted by the Florence School of Regulations. The initiative has been picked up by the Africa-Europe Foundation. We are hoping that within two years, the African School of Regulation can be hosted in an African University. Training of energy regulators will ensure growth in the energy sector. We hope that TENN will be doing that in collaboration with other partners, locally and internationally.
- These are just some of the strategic advice TENN as a regional energy ecosystems hub is providing at different international platforms and levels of engagement. Here in Sierra Leone, we want to establish a regional ecosystems hub using the methodologies of SELCO Foundation. Our rationale relates to one of the working groups of the UN, using energy as an enabler to achieve the Sustainable Development Goals (SDGs). Today, we want to discuss with you the existing challenges on energy access as an enabler for healthcare service delivery, clean water and sanitation, agri-value chain, SMEs, etc., because the hub we are about to establish in Sierra Leone will deal with those issues, for example how do we embed energy as a component of public policy on health, agriculture, water and sanitation and in general in the provision of social services. We hope that with the establishment of a regional energy ecosystem hub in Sierra Leone through TENN, we can train more Sierra Leoneans in developing projects to undertake the kind of interventions needed to build an ecosystem around energy systems. We are taking this

approach together with our partner SELCO Foundation, which is helping us to structure it. Our dream is to become the regional hub for West Africa. For example, right now in Sierra Leone we have a major study going on by Rockefeller Foundation and Sustainable Energy for All (S4E) backed by Massachusetts Institute of Technology on accelerating electrification of health care centers. There is another study called the Integrated Energy Planning. That is planning energy access in which you also embed the electrification of hospitals, clean cooking solutions as well as energy for irrigation. In addition, a geo spatial- mapping exercise will also be done to determine where grid expansion will be needed in the next twenty years, as well as to determine were additional mini-grids will be located for productive use of energy.

- Finally, I remember informing you two years ago that we are about to establish TENN. We have almost completed the building with inbuilt technology to tap into the global energy systems from Sierra Leone. We hope to invite you all when we shall be opening our facility and subsequently, we hope to work with many more groups with vibrant initiatives in the energy sector. Most of what we want to do in the energy space should be done with standard regulations that can ensure positive outcome. Think about five million or fifty million dollars for mini-grids. It good but is not enough. We need hundreds of millions or billions of dollars, to do that we need big investment to come in. But our facility will be ready hopefully by the end of the year and we will invite you for a workshop to see what we are trying to do in building capacity in the country and the sub region. We have nine more years to 2030, many of us were involve in creating SDG 7(universal access to affordable and clean energy) and most African countries are not on track to achieve that except a few like Ghana (85% electrification), Côte d'Ivoire (60%), Senegal (45-50%). I was shocked because even Uganda is way down. Coming down to Sierra Leone where electrification rate is around 15-35% and in the rural areas some say about 6% others say about 1%. Nine years to go, there is a lot of global push to see how we accelerate investment for stakeholders and private sector folks. Electricity is a business. It is not a charity.

Annex II: Recorded statement by Huda Jaffer, Director, SELCO Foundation:

- We are very happy to be in partnership with The Energy Nexus Network (TENN). We are very happy to have everyone in the room today because you are all critical partners and stakeholders moving forward in Sierra Leone. At SELCO Foundation, we have been working on how we decentralized energy and energy efficiency can catalyze different aspects of livelihoods and different aspects of health and how we could better provide processes and opportunities to rural communities that are living in underserved and non-electrified areas.
- This is the agenda with which we partner with TENN to see how we can get implementation going on the ground, how can we get better collaboration on the ground to further the implementation on the ground and make sure that we get impact today and not five years or tens years from now.
- Together with each and everyone of you we hope design programmes, we hope to resources into programmes to really implement what is needed for poor communities. The opportunities that exist with the livelihood space span across agriculture which is the most critical aspect whether it is pre-planting and planting, post-harvest and the different types of technologies that use energy as a critical input. Animal husbandry being one of the other areas of interest whether it is dairy, poultry, piggery, we do feel that on-farm and off-farm technologies can further income generation activities for poor rural communities. There are also tradition textile craft which are common in Sierra Leone, which can promote decentralized energy as well as looking at small businesses, right from the pity shops, refrigerators, digital centers, and make sure that these micro businesses provide essential services to any locality and how can we ensure that we support them.

- Beyond that, the health value change also provides a lot of opportunities, whether it is your post-natal unit or your family care unit. We do feel that it does not make technical sense because the technology proves that they have been working but the gap created is how do we make sure that we are designing the right financial models and the right incentives for local stakeholders to own these solutions, to manage and run these solutions.
- We really look forward to that because each and everyone of you have expertise and experience which is important on how to design these programmes on the ground. We thank you so much and we look forward to what comes out of the workshop, and we really look forward to working with each and everyone of you.

About The Energy Nexus Network (TENN): TENN is a global knowledge hub for sustainable energy solutions, a founding partner of the **Global SDG7 Hubs** initiative. TENN works with local and international partners to understand and strengthen the energy ecosystem for productive uses and improved wellbeing. Simultaneously, TENN facilitates high-level multi-stakeholder dialogues on sustainable energy solutions and provides advisory support on crucial energy-enabling Sustainable Development Goals (SDGs) to accelerate scaling and replication of cost-effective solutions.

About SELCO Foundation: SELCO Foundation seeks to inspire and implement socially, financially, and environmentally inclusive solutions by improving access to sustainable energy. SELCO Foundation works with local partners to: systematically identify diverse needs of the poor, understand, and define the role of sustainable development, poverty alleviation and decentralized energy; create and deploy innovative solutions that positively impact well-being, health, education, and livelihoods towards the alleviation of poverty; foster the development of enabling conditions or an ecosystem through holistic thought processes in technology, innovation, finance, entrepreneurship, and policy.

TENN - SELCO Foundation Partnership: Fellow Travelers for Holistic Development Models
TENN is building an energy ecosystem platform in Sierra Leone in partnership with SELCO Foundation to strengthen partnerships and linkages between energy and key sustainable development themes such as poverty, health, food, education, water supply, climate change and environment. Pursuing sustainable energy interventions at the intersection with these development priorities is crucial for the effective delivery of development programmes. Unfortunately, some of the key enabling conditions required for scaling and replication of sustainable energy solutions remain weak or even non-existent in Sierra Leone. These so-called energy ecosystem elements include strong institutions and regulatory framework, finance (for entrepreneurs and end users), civil society engagement, human capacity, market linkages, and technology/innovation. Through the Global SDG7 Hubs initiative, which is a flagship programme of SELCO Foundation, TENN is working with local and international partners to facilitate south-south transfer and adaptation of technology, innovation, knowledge, and skills for the implementation of pro-poor sustainable energy solutions that are cost-effective and replicable.

Additional information:
For additional information, please contact Dr. Paul T. Yillia (Technical Advisor, TENN); email address: paulyillia@yahoo.com; WhatsApp: +232 78 814669; Tel.: +232 33 820964

ATTENDANCE LIST FOR TENN NATIONAL WORKSHOP

LOCATION: FAMILY KINGDOM RESORT, ABERDEN, FREETOWN

DATE: 8th July 2021

NO	NAME OF PARTICIPANT	ORGANIZATION	DESIGNATION	TELEPHONE	EMAIL ADDRESS
1	Hassan John Sapateh	MUNAFA LTD	Operation Manager	076297787	hassan.sapateh@munafaltd.com
2	Santigie K. Kanu	Welthungerhilfe	Deputy country Director	099670037	santigie.kanu@welthungerhilfe.de
3	Mohamed Swarray	Westwind Energy Ltd.	Production Supervisor	079935771	septimusray@gmail.com
4	Hannah Abdulai Kamara	Amazing Energy	Manager	075575933	amazingenergy4dev@gmail.com
5	Aminata Margai	REACHOUT Salone	SRH & Women Empowerment Lead Coordinator	031091209	Reachoutsalone2020@gmail.com
6	Rosaline A. Nyalay	Adonkia Community Health Post	In-charge	088590940	ljnyallay72@gmail.com
7	Foday Lansana Suma	FLS Power Solutions	Managing Director/CEO	078004464	foday@flsgroup.sl
8	Kofie Macauley	REASL/SEWA ENERGY	President/CEO	076300600	kofie.macauley@camserv.dk
9	Maria Olenina	Easy Solar	Product Lead	080000222	Maria.olenina@easysolar.org
10	Kelleh G. Mansaray	Fourah Bay College	Dean, Faculty of Engineering	078476527	mansaraykg@gmail.com
11	David Caulker	Fourah Bay College /Ministry of Energy	Senior Lecturer/Head of Planning Unit	078622914	dauda9@yahoo.com

12	Abdulai Kargbo	FINIC	Research and Development Officer.	076635170	finicone@yahoo.com
13	Abraham Grass-Sesay	ILEM consulting firm	Managing Director	080033124	abraham@ilem-africa.org
14	Sophie Johnson	Solar Era Holdings	Director	078785427	sophie@solarera.eu
15	David Kpakiwa	GIZ/ENDEV	Coordinator	030863054	david.kpakiwa@giz.de
16	Mohamed A. Kamara	Government Technical Institute - Renewable Energy Centre	Director	076646920	yeabumagbass@yahoo.com
17	Akam Kpaka	Easy Solar	Product Coordinator	076342208	Akam.kpaka@sl.easysolar.org
18	Anthony Toban Davies	ECOSYS SL Ltd.	CEO	076970288	anthdavies@yahoo.com
19	Tanzila Sankoh	UNDP	Team Lead	079961450	tanzila.sankoh@undp.org
20	Thomas Bockarie	ILEM consulting firm	Office Assistant	034559552	
21	Kandeh Yumkella	TENN	CEO	078807238	k.yumkella@icloud.com
22	Senesie Mansaray	TENN	Programme Assistant	099373790	senesiemansaray@gmail.com
23	Mohamed Mansaray	TENN	Workshop Assistant	079723982	Mmansaray6@gmail.com
24	Paul T. Yillia	TENN	Technical Advisor	033820964	paulyillia@yahoo.com