WORKSHOP REPORT

On

Enhancing Young professionals for Uganda's Clean Energy Sector

4th August 2022

1. Workshop Overview

The Ministry of Energy and Mineral Development (MEMD) through the National Renewable Energy Platform (NREP) in conjunction with the Uganda National Renewable Energy and Energy Efficiency Alliance – UNREEEA and Makerere University Business School – MUBS organized this workshop at **MUBS in ADB Building, Theatre 2 on 4th August 2022 from 8 am to 1 pm** under the theme**; "*Enhancing Youth Professionals for Uganda's Clean Energy Sector*"**. This workshop is one of the activities leading the annual conference, Renewable Energy Conference 2022 (REC22) and Expo slated for 3rd – 5th November 2022 at Kololo Independence Grounds, Kampala. For more details visit www.nrep.ug.

This workshop focused on bringing together experts from the Energy, Legal, Development, Academia, Business and Finance sectors to discuss how students of today and early career professionals, be it engineers, economists, scientists etc., can acquire the necessary skill sets early on in their career to exploit the opportunities that the country's energy space has to offer.

The workshop was moderated by **Dr. Nicholas Mukisa**, the Deputy National Coodinator of NREP, also Acting Chief Executive Officer (CEO) of UNREEEA assisted by **Ms. Brendah Akankunda**, a Lecturer at MUBS.

Fig. 1: *Dr. Nicholas Mukisa (left) & Ms. Brendah Akankunda (Right) moderating the workshop*

2. Opening Remarks

3.1. Prof. Waswa Balunywa, Principal – MUBS (*Delivered Via Online Platform*)

In his opening remarks, Prof. Balunywa alluded to the fact that Uganda is very well endowed with water to harness hydro power generation; however, the issue of sustainable development is important when preparing projects; viability and sustainability are crucial. For instance, there is electricity generation at Bujagaali but no waterfalls anymore, which previously was a major tourist attraction site. Are there plans for sustainably developing energy resources?

The conflict between Ukraine and Russia has led to increased fuel prices being that Russia is a major oil and gas supplier.

It is therefore critical to ensure sustainable energy production ensuring long term energy security especially now with the exploration of nuclear energy in Uganda.

Fig. 2: *Prof. Waswa Balunywa (Photo source: MUBS website)*

There is need to harness solar energy in Uganda, whose potential is about 5.1 kWh/m^2 compared to countries like Germany which harvest more solar energy, yet their potential is at about 3.5 kWh/m^2, way lower than the potential to Uganda. This can be achieved through policy and regulatory framework and research to develop clean energy, which is sustainable, planning is key.

Clean energy is a better alternative to oil, a conventional fuel contributing to climate change especially from car emissions that impact the environment. As a country, there is a need to explore solar energy and some of the questions we can ask could be, how we can manufacture solar panels in Uganda? The country needs to use more electricity. People are not utilizing solar energy or grid electricity because they cannot afford them. Thus, I suggest lowering the prices of electricity and solar systems to increase the number of people using them, especially for cooking. How can the cost of electricity be lowered so that the ordinary people can utilize it? There's also a need to produce enough electricity for industrialization. Institutions such as MUBS will support the ministry in developing business models that are suitable for electricity price reduction.

The use of charcoal affects our ecosystems through deforestation, the percentage of the population using charcoal is high and as such, if the country is to continue using charcoal, there is an urgent need to devise a way of planting trees that grow

faster than the rate we cut the tress for charcoal. Alternatives to charcoal such as biogas and LPG could play a vital role in providing clean cooking energy for households.

The conference, therefore, will lead to discussions on identifying the challenges and finding solutions that we have in energy sector, where researchers can advise and guide government on:

i. Affordability: can we develop a business model for rolling out the use of clean energy?
ii. Liability
iii. Sustainability

3.2. Prof. Ngoma Muhammed, Director Energy Economics and Modelling Center – MUBS

MUBS has achieved some efforts in line with the energy sector whose impact cuts across all sectors. The University started the Energy Economics Modelling Center, a Faculty of Energy Economics and Management Science, a PhD and Master in Energy Economics and Governance. MUBS is yet to start a bachelor's degree in Energy Economics to address the technical aspects.

Fig. 3: *Prof. Ngoma Muhammed giving his remarks*

We have people still using traditional fuels like kerosene lamps with electricity transmission and distribution lines passing over their homestead. We also have

people that say 'Tooke' cannot be well prepared on gas. Is it an issue of access, affordability, or a behavioral issue? These are the perceptions on clean energy that need to be abated by researchers and young professionals.

The role of the youth in the energy space, which make the largest percentage of the population, cannot be ignored, an appreciation to the workshop organization for this inclusion.

Energy economics is an area that has been ignored in Uganda whereby the training and research available addresses technical aspects with a sufficient number of energy engineers but there is need to train people on energy economics aspects like behavioral economics which can fast track the energy transition. In this regard, we noticed there was no training on energy costing, energy governance, energy entrepreneurship among others and thus, MUBS designed a program that addresses these energy concepts. MUBS' focus therefore is on energy economics, behavioral and governance issues.

3.3. Eng. Alexander Akena, Chairman Board of Directors – UNREEEA

UNREEEA represents the voice of the private sector to the government mainly through advocacy for a conducive business environment in form of enabling policies, market intelligence, capacity building and self-regulation of quality etc.

Energy is a very interesting sector; critical and energy security is important, thus renewable energy plays a big role. In 2005, we had a scenario where there was more energy demand than supply characterized by many power outages and today, the reverse is true, whereby the supply of energy is constrained due to limitations in transmission and distribution of this energy. The sector requires more investments and instead of looking at the public sector, we need to look at the role the private sector plays.

Fig. 4: *Eng. Akena delivering his remarks*

How do we generate power for the localized areas to meet our energy needs like lighting, charging with less reliance on government intervention? Currently, off-grid systems contribute over 38% of the country's 57% electrification. Energy is key in the sustainable development goals (SDGs), namely:

- ✓ SDG7- Affordable Access and reliable Access for all.
- ✓ SDG8- Promoting sustained inclusive and sustainable economic growth full and productive employment.

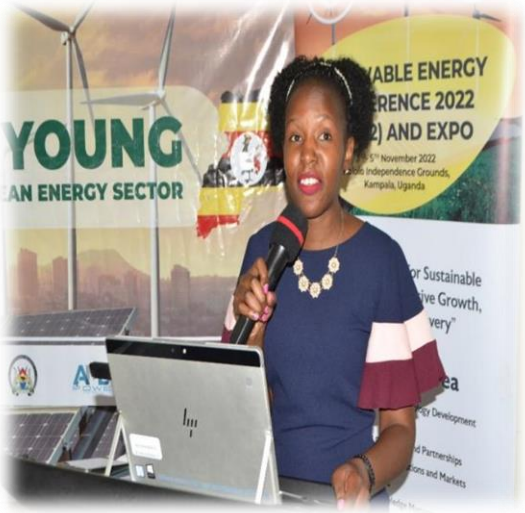
The opportunities in energy sector are limitless, there is need to explore the entire value chain of the sector, i.e., the renewable energy supply and demand side. We should think towards Research & Development, proper modelling i.e., where do we have a competitive advantage.

UNREEEA is doing the following, among others in the sector.

- ✓ Trainings in cookstoves making, biogas, high level trainings etcetera.
- ✓ Advanced Certification.
- ✓ Looking into placement programs.
- ✓ Offers appropriate workplaces for internships and apprentices to students in the renewable energy sector.

UNREEEA will continue working with universities to develop skilling and training programs for the benefit of the sector.

4. Dr. Mary Gorret Nantongo, Lecturer, Energy Science and Technology – MUBS



Dr. Mary made a key presentation on the theme: "*Enhancing Young Professionals for Uganda's Clean Energy Sector*". She highlighted that East Africa Community (EAC) Vision 2050 aims to increase power production from 3,965 MW in 2014 to an estimated 70,570 MW in 2030, which is over 90% increase.

***Fig. 5**: Dr. Mary delivering her presentation*

The NDPIII aims to increase the population with access to electricity from 24% in the FY 2018/19 to 60% in 2025.

The SDG7: Affordable and Clean Energy calls on governments to "ensure access to affordable, reliable, sustainable and modern energy for all by 2030". EAC Visions 2050 aims to increase production of power by 2050.

According to NPA 2020; Access to clean energy is low.

- ✓ Biomass being the predominant cooking fuel with over 85% of the population using firewood and 13% using Charcoal.
- ✓ By 2019, access to electricity was at 29% compared to the sub-Saharan African average of 42%.
- ✓ UBOS reports that electricity access is at 57% where on-grid and off-grid is at 19% and 38%, respectively.

In comparison to Other East African countries, we are over zero percent in clean cooking with Kenya at 19% in electricity 40% compared to Kenya at 60%.

In reference to SDG 13, this goal urges governments to take urgent action to tackle climate change and its impacts. Uganda is good at developing policies but lacks in implemetation. Uganda was the first country in Africa to develop and endorse its Nationally Determined Contribution Plan in 2018. Commitments included reducing national GHG emissions by 22% by 2030, reducing climate vulnerability and building climate resilience of key sectors.

Globally, the energy sector contributes over 60% of the GHG emissions, with other reports at 70% of the GHG emissions, therefore, energy is at the heart of solutions to combat climate change.

Uganda's forests supply over 88% of all the country's energy needs. The forest cover declined by 57% in just 25 years, 1990 to 2015 across the country. Currently, Uganda is grappling with catastrophes from climate change, that is, drought, floods, and excessive and unpredictable rainfall etcetera.

In reference to SDG8, this goal aims to achieve full and productive employment, and decent work, for all women and men by 2030.

African leaders pledged in July 2021 in Abidjan to "increase the number of young people and adults with the skills, particularly technical and vocational, necessary to obtain employment and entrepreneurship".

The theme for Uganda's NDP III is "Sustainable Industrialization for inclusive growth, employment and sustainable wealth creation". To achieve the NDP III targets, the country needs expand its energy generation capacity.

In Uganda, 78% of the population is aged 30 years and below, and as such there is insufficient creation of quality and gainful jobs in the economy especially for the youth, with an unemployment rate currently estimated at 13.3%. There is labor under-utilization in the country. Youth trained up to degrees/ diploma level are leaving the country to take up employment requiring little or no skill abroad.

Measures to enhance employment include among others:

- ✓ Bolstering efforts to strengthen local value chains.
- ✓ Stock taking of the regional and local strengthens to identify opportunities for localization and potential of creating regional hubs for technology necessary for transition.
- ✓ Carefully craft incentives, rules, business incubation incentives, support of small & medium enterprises and produce key industry clusters.
- ✓ A thorough understanding of the jobs that will emerge domestically
- ✓ A comprehensive educational, skills-oriented policy framework

Ways of expanding the renewable energy workforce of the future should consider a holistic policy framework that includes:

- ✓ Industrial policies
- ✓ Labour market policies
- ✓ Social protection measures
- ✓ Diversity and inclusion programs
- ✓ Skills training and retaining strategies

The role of education institution is to:

- ➢ Co-ordination between energy sector players and educational institutions to understand the training requirements necessary for the sector
- ➢ Holistic training across energy and other relevant sectors e.g environment and climate, natural resources, agriculture, health, business and finance, economics, governance etc
- ➢ Research and innovation
- ➢ Build partnerships to encourage learning and technology transfer.
- ➢ Train on how to access Finance as a driver for energy access.

5.Panel Discussion

The panel constituted of distinguished experts, namely, **Dr. Ahmad Walugembe,** Head of Department, Marketing – MUBS, Uganda; **Mr. Simon Murungi Byakutaaga**, Projects Manager, AMEA Power, Uganda; **Ms. Jemimah Irene Nanziri**, Manager – KPMG, Uganda; and **Eng. Ismail Sonko**, Sales Specialist – Asea Brown Boveri (ABB) Ltd, Uganda. The panel was also joined by **Dr. Mary Gorret Nantongo**, Lecturer, Energy Science and Technology – MUBS.

Fig. 6: *Left – Right Panelists: Dr. Mary, Ms. Irene, Dr. Ahmed, Eng. Ismail and Mr. Simon*

5.1. Dr. Ahmed Walugembe, Head of Department, Marketing – MUBS

Dr. Ahmed discussed about how students and young professionals career guidance on energy sector opportunities.

Fig. 7: *Dr. Ahmed sharing during the panel discussion*

Science, Technology, Engineering and Mathematics (STEM) career development, there are, there are concepts to apply:

- Separate technical approach from behavioral approach. The gap should be identified and talked about to the youth.
- Career switch: Issues on the raise and challenging are whether someone should take a straight career path as scholars and experts or can switch to other careers that are not grounded on academic courses.

The concept of energy economics is new and will be embraced as a profession to ensure there is growth.

To effectively succeed in a career switch:

- ✓ Work with professional bodies which will help with the practical aspect.
- ✓ Create professional qualifications that help scholars change from one area of specialization to another with ease.
- ✓ Mentorship: model of learning where people learn from seniors or experts. The ability and readiness of people to learn from mentors and the willingness of learners is key.
- ✓ Use the opportunity of field attachments in expanding the energy sector, which enables the scholars to pick interest and areas of study. This is an

intentional strategy.

- ✓ Volunteering is another model of advancing oneself in the energy sector, but it is subject to a number of factors like the willingness for the learner to volunteer.

In support of Dr Ahmed's discussion points, Dr. Nicholas highlighted that UNREEEA is working on a portal where interns will be matched with companies and business to ease internship attachment as well as foster employment and career switch to the energy sector.

5.2. Mr. Simon Murungi Byakutaaga, Projects Manager AMEA Power

Mr. Simon discussed some of the career skills desirable for project development and management in the energy sector. In is discussion, Mr. Simon mentioned some of the projects being worked on by AMEA Power in Uganda, which include a 20 MW project in West Nile whose construction is anticipated to start in the next 6 months. He also highlighted the following as the key desirable skills for anyone to excel in project development and management.

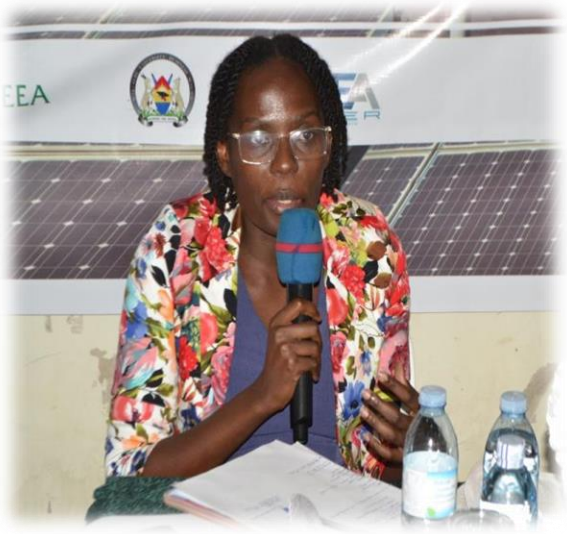
He encouraged the young professionals to identify opportunities for development at an early stage by analysing the opportunity demands. He highlighted the following key skill sets

- ✓ Be versatile with information; multi-task
- ✓ Trainability, ability to acquire new skills

Fig. 8: *Mr. Simon sharing during the panel discussion*

- ✓ Able to write technical reports.
- ✓ Open to learn
- ✓ Patience (project development requires an individual to be patient)- open to being challenged

5.3. Ms. Jemimah Irene Nanziri, Manager – KPMG



Ms. Irene discussed tax, financing and accounting skills desirable in the energy sector. In her discussion, she emphasized the following skills.

Fig. 9: *Ms. Irene sharing during the panel discussion*

- ✓ Practicability of what an individual/ organization needs. How do you apply the skills acquired?
- ✓ Lobby skills: Develop such a skill because it is an important skill in the different sectors.
- ✓ Collaboration: In the energy sector for instance, engineers and accountants work hand in hand to be counterproductive.
- ✓ Networking
- ✓ Teachable
- ✓ Apply knowledge from across the various sectors.
- ✓ Willing to explore, teaching yourself, acquiring knowledge online so as to understand which knowledge is applicable on which sector.
- ✓ Coaching and mentorship; Follow the individuals on ground on what they are implementing to learn and emulate.

5.4. Eng. Ismail Ssonko, Sales Specialist – Asea Brown Boveri (ABB) Ltd

Eng. Ismail discussed career skills desirable and applicable to technical subsectors of the energy sector, i.e., power substations.

Fig. 10: *Eng. Ismail sharing during the panel discussion*

- ✓ Take keen interest in the sector: For young professionals to benefit for the opportunities in the energy sector.
- ✓ Participate in sector events like such a workshop and conferences.
- ✓ Involve/ be present with active people in the sector i.e., sector associations like UNREEEA, EEAU, USEA etc.
- ✓ Be innovative: Youth should look at creating or invent an energy solution that will solve problems in the society.
- ✓ Identify opportunities to solve energy related problems in society.
- ✓ 10% employed in energy formal sector, 90% energy informal sector with 54% of the latter are self-employed. This highlights the state of the energy sector as a whole.
- ✓ Align your skills or CV to job requirements in the energy sector to be job ready.

6. Questions and Answer Session

Question 1:

How can we maximize on partnerships?

Answers:

This question was responded to by both Dr. Mary Gorret Nantongo and Dr. Ahmed Walugembe as follows.

Fig. 11: *Dr. Mary responding to the question*

- Focusing on individual partnerships can happen through networking

- For successful networking ensure you have soft skills sometimes soft skills can take you far than technical skills. These are basic requirements to propel you to the next level like ability to engage with different people.

- Have a strategic plan for what you want to achieve and ensure it's written down and take steps to achieve those plans.

- Be thorough - give your best shot to every task you are to do leaving nothing to chance.

Question 2:

What is MEMD doing to ensure energy is adapted right from lower school institutions to higher institutions to ensure proper career guidance

Answers:

This question was responded to by Dr. Ruth Atuhaire, Head of Department Energy Sciences and Technology – MUBS and Mr. Godfrey Kimuli, National Coordinator at the National Renewable Energy Platform as follows.

Fig. 12: *Dr. Ruth responding to the question*

- Government Introduced energy courses at tertiary level including a diploma course at Nyabyeya Forestry College and at Makerere University with a masters in Renewable energy and Masters in Energy Economics Governance at Makerere University Business School.
- The Energy and Minerals Week is coming up from 31st October to 5th November 2022, and one of the key events in the week is the renewable energy conference (REC22) and Expo that is slated for 3rd to 5th November at Kololo Independence Grounds, Kampala to increase the awareness on renewable energy and energy efficiency.

Question 3:

Why are renewable energies not on the forefront as the major source of energy in Uganda like Total and Vivo front fossil energies?

Answers:

On behalf of the Ministry of Energy and Mineral Development, one

of the energy officers in attendance, Ms. Justine Akumu responded to this question as follows.

Fig. 12: *Ms. Justine responding to the question*

- There's a global shift for oil companies to renewables and an example is Total that is now total energies and has already installed a mini grid in Uganda.
- Renewable energy is a key priority for government and has the largest share of installed capacity.

Question 4:

Are there graduate training opportunities in the energy sector? How can they be accessed?

Answers:

Prof. Ngoma Muhammed responded to this question as follows.

Fig. 13: *Prof. Ngoma responding to the question*

- Maximize on the networks in the energy space and when opportunities are available you can easily and quickly be sought out and taken on.
- If you are interested in the sector, identify opportunities for yourself by following the progress in various energy companies operating and take the initiative to be updated on the status of their developments especially from

the social media platforms.

Question 5:

If I don't have a background in Energy, how do I make a switch to have a career in the energy industry?

Answers:

This question was responded to by Eng. Ismail Sonko and Mr. Simon Murungi Byakutaaga as follows.

Fig. 14: *Eng. Ismail responding to the question*

- Energy is a cross cutting industry you could utilize the knowledge you have to offer service and expertise in the sector it could be finance, administration among others.
- Attend gatherings of the renewable energy communities and identify opportunities where you can serve.
- Engage in social media discussions on energy this will increase your visibility and portray your interest in the sector.

Question 6:

Investment is biased to specific renewable energy sources like hydro power neglecting other sources like solar, wind and geothermal, why is that?

Answers:

This question was responded to by Ms. Jemimah Irene Nanziri responded as

follows.

- Ensure the project is a bankable project first. And this are some considerations for bankable projects what systems have you put in place? Do you have a proper accounting system?

You should have a solid financial, economic and technical plan that allows the institution to ensure security of their loan.

Fig. 15: *Ms. Irene responding to the question*

Dr. Nicholas also commented on this question by said that UNREEEA is organizing a webinar on Energy finance, which is a serious point of concern in Energy and this webinar will bring together entities in the energy finance space to address finance and investment aspects.

The workshop was quite informative to the participants that several of the young professionals kept taking notes as shown in Fig. 16.

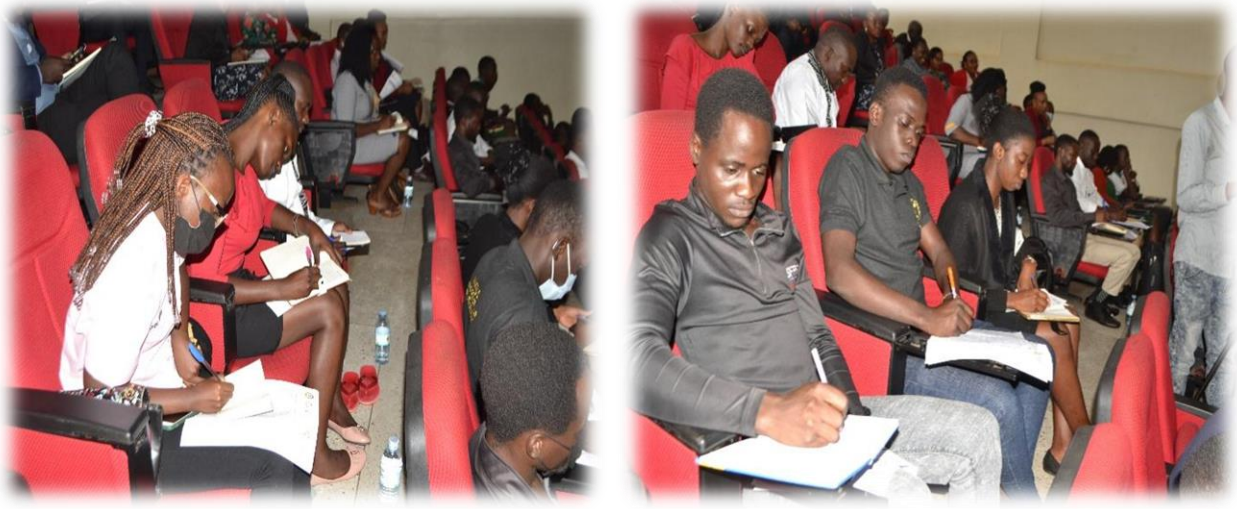


Fig. 16: *Some of the participants taking notes at the workshop*

Some of the participants that asked questions in workshop are shown in Fig. 17. Some questions were asked by the online participants as well.

Fig. 17: *Some of the participants that asked questions at the workshop*

7. Closing Remarks: Eng. Simon Peter Ssekitoleko, Assistant Commissioner Renewable Energy Department - MEMD (*Delivered Via Online Platform*)

I am truly honored to make the closing remarks at the Workshop for Enhancing Young Professionals for Uganda's Clean Energy Sector. I would like to take this opportunity to appreciate all of you for giving rich input and sharing your experience in all the thematic areas that were considered in the discussions today.

Globally, Energy has played a critical role in enabling socio-economic development and Uganda is no exception as is indicated in our national plans.

The government's direction is to create a renewable energy powerhouse in line with the National Development Plan III whereby the country is targeting approximately 3,500 MW of installed capacity from the present targeted 1,800 MW by end of 2023. NDP III is also targeting an ambitious increase in access to clean

cooking from the current 15% to 50% by end 2025. The energy sector is rapidly transforming and moving more towards renewable energy, a shift that is a huge opportunity to achieve greater youth, gender equality and inclusion in Uganda.

Fig. 18: *Eng. Simon Peter Ssekitoleko delivering his closing remarks*

Uganda has one of the youngest and most rapidly growing populations in the world and preparing them for productive jobs is a social and political priority for the government. Annually, about 500,000 people are expected to enter the labor market and renewable energy presents an opportunity for employment and entrepreneurship. The national employment rate has increased regardless of the effects of the COVID- 19 pandemic.

Renewable energy technologies create jobs up and down the supply chain and can spur broad and sustainable social and economic development and can fill the employment gap created between men, women and youth. According to the International Renewable Energy Agency (IRENA), Renewables accounted for an estimated 11.5 million jobs worldwide in 2019. While few large markets still account for the bulk of those jobs, employment in renewables has started spreading more widely, especially through the proliferation of solar photovoltaic (PV) panels. Solar PV accounted for 33% of the world's renewable energy workforce in 2019.

Off-grid decentralized renewables such as stand-alone solar systems, cookstoves, biogas technology and mini-grids account for increasing numbers of direct jobs, especially in Uganda, as well as propelling employment in agro-processing, health

care, communications, local commerce, and other productive uses. Electricity access stands at 57% with 38% from off- grid solar systems installed by the private sector. UNREEEA alone boast of over 550 companies with over 220 companies in solar alone. On the other hand, 8,000 biogas digesters have been installed by the private sector through the Uganda National Biogas Alliance which boasts of over 76 companies across the whole country.

One of the key barriers however to employment in the renewable energy sector is inadequate skills in renewable energy technologies as well as access to finance. To address this problem, the ministry has implemented the following:

- The government has created an enabling environment guided by the Renewable Energy Policy (2007) to increase employment. These include tax incentives such as zero tax on solar panels, electricity generation equipment, biogas equipment and imported stove parts.

- The ministry is working together with partners such as Directorate of Industrial Training, UNREEEA and higher education institutions such as MUBS and Makerere University to provide adequate skills through vocational, diploma and advanced academic programs. T

- The ministry has worked hand in hand with UNBS to develop and enforce renewable energy standards and train the private sector so that the products that are developed and traded are of quality.

- The ministry has facilitated the establishment of several laboratories, such a biomass laboratory in Nyabyeya Forestry College and provided testing facilities to UNBS in order to enable quality testing of renewable energy products.

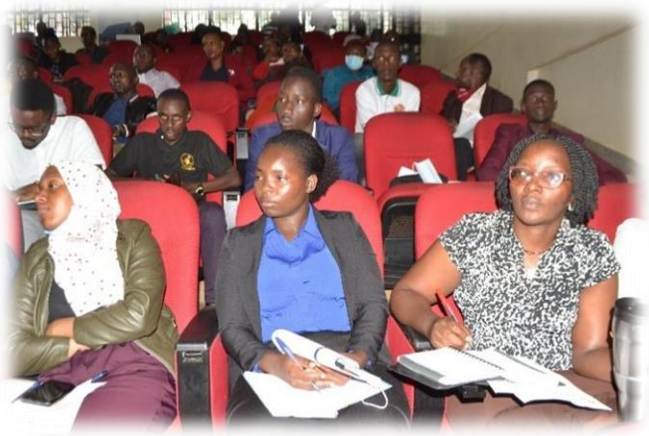
- Together with Uganda Energy Credit Capitalization Company Ltd, the

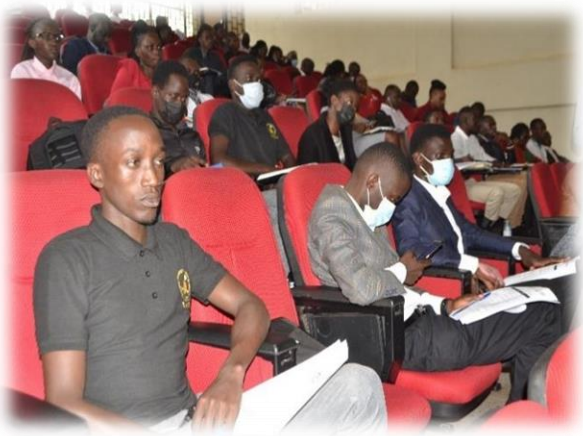
ministry has created programs to improve access to finance such as providing working capital and asset financing to the public at affordable interest rates and providing business development skills to the private sector.

The government recognizes the high potential that renewable energies have to create employment in the country and is prioritizing the energy transition as a result.

Allow me in a special way to appreciate the organizers of this event. Allow me to appreciate the Ministry of Energy and Mineral Development, Makerere University Business School, Uganda National Renewable Energy and Energy Efficiency Alliance (UNREEEA), AMEA Power and all partners who have been part of this memorable day. Thank you for organizing this very participatory workshop along the theme of young professionals for Uganda's clean energy sector. Your support, persistence and passion towards promoting renewable energy in the country are truly appreciated. Thank you. For God and my country.

Some of the photos of the workshop participants are shown in Fig. 19.





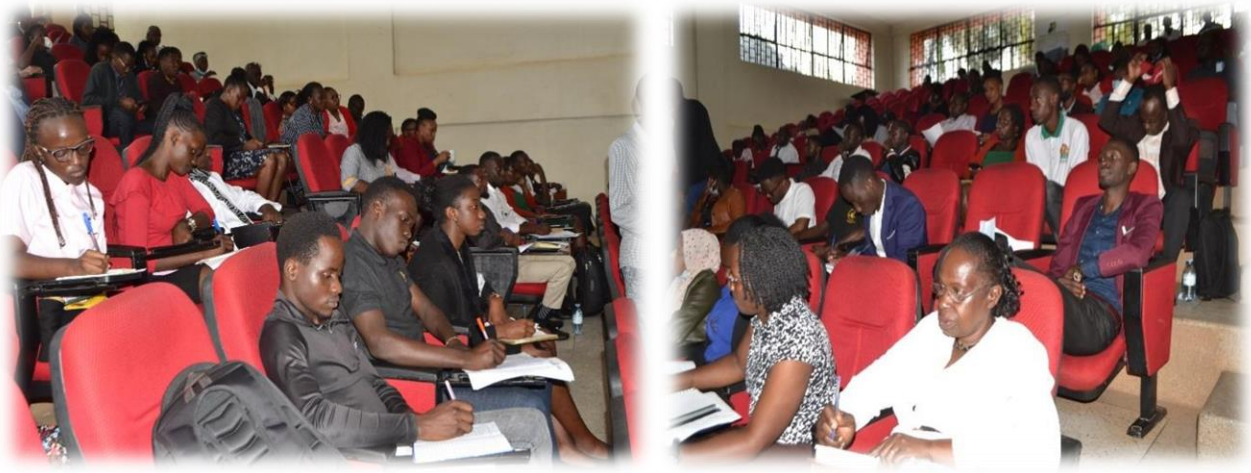


Fig. 19: Some of the participants in the workshops

Reverend Francis Osire, Assistant Chaplain, St. James Chapel – MUBS led the participants in the closing prayer. Rev. Francis also blessed the lunch meal that was set for the workshop participants.

Fig. 20: *Rev. Francis leading the closing prayer*

For the detailed video of the workshop, please visit the YouTube channel via the following links: https://www.youtube.com/watch?v=sojbsIJwnYk. An edited video will soon be uploaded to this YouTube channel soon.

8. OUR PARTNERS

Our appreciations go out to our partners the Ministry of Energy and Mineral Development, National Renewable Energy Platform and Makerere University Business School for co-organizing this workshop with UNREEEA. And in a special way, we would like to appreciate AMEA Power for sponsoring this workshop. Thank you everyone for being part of this workshop.