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WORKSHOP REPORT

Energy Policy Workshop with Policymakers and Non-State Policy Actors in Rwanda

- Insights around policy challenges and how to achieve progress in clean cooking implementation
- Inclusive electricity access: Policy and funding for the solar PV

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CHALMERS UNIVERSITY OF TECHNOLOGY
Gothenburg, Sweden 2025
www.chalmers.se

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Acknowledgement

The workshop organizing team extends appreciation to all individuals and institutions for your participation. The contributions provided during the workshop sessions and focus group discussions (FGD) have made the energy policy workshop a success. The deepest gratitude goes to the host of the workshop, the Resident Principal of the College of Science and Technology (CST), **Assoc. Prof. Gatare Ignace** as represented by **Assoc. Prof. Theophile Niyonzima**, and the UR's African Centre of Excellence in Energy for Sustainable Development (**ACE-ESD**), for providing a conducive space for critical policy dialogue. We are equally grateful to **Chalmers University of Technology** for funding the workshop logistics.

We further acknowledge the efforts of co-organizers—the leadership of **EPD** Rwanda; the **UnIPod** Team for sound system, livestreaming and photographing; the **Barefoot College International** represented by **Ms. Brenda Geofrey** for sharing best practices of Solar Mamas project; **Tracy Kamikazi** for moderation and **Claude Hagenimana** for minutes taking; **Dr. Gerard Bikorimana** for valuable support in shaping and delivering the workshop. Finally, a special thank you to the panel discussants―**DG. Jean Bosco Mugiraneza**/MININFRA; **DG. Philippe Kwitonda**/MoE; **Ms. Leah Akimana**/BRD and **Mr. Ehudi Shingiro**/EPD—for their expertise and insights that enriched the policy discussions. Your collective efforts and commitment were instrumental for the success of the policy workshop.

1. Introduction

The energy policy workshop was a segment of the Innovation Week, organized by the Grid Innovation and Incubation Hub (GIIH) at University of Rwanda (UR) in partnership with Chalmers University of Technology (Chalmers), Sweden. The workshop was hosted by the UR with the researchers leading the workshop belonging to the Research Training Partnership (funded by Sida) sub-program in Sustainable Energy between the UR's African Centre of Excellence in Energy for Sustainable Development (ACE-ESD) and Chalmers. The Energy Private Developers (EPD) in Rwanda were co-host of the workshop. The policy workshop took place at the UnIPod design and makerspace, at College of Science and Technology (CST) on the 21st of November 2024.

The energy policy workshop brought together central and local government officials from the energy policymaking and implementation agencies, financial institutions, academic research teams from both UR and Chalmers, with Barefoot College Zanzibar/Tanzania, EPD, local government planning officers and representatives from Non-Governmental Organizations-NGOs.

The workshop discussed policy challenges hindering effective transition to clean cooking in Rwanda and explored issues related to inclusive electricity access through "*policy and funding for the solar PV sector*". The aim was further to share findings and insights from three research projects led by the organizing team, to support evidence-based policy and enable joint learning.

During the panel and group discussions, participants acknowledged the Government of Rwanda's strong political commitment to advancing clean cooking through well-defined policy targets and initiatives. However, they highlighted areas for improvement in the energy policy framework, including better coordination in implementation, enhanced access to funding services, stronger engagement with academic institutions, protection for domestic energy investors, and greater inclusivity in energy service delivery, among other recommendations.

In attendance:

- The Ministry of Infrastructure-MININFRA
- The Ministry of Environment-MoE
- The Ministry of Finance and Economic Planning-MINECOFIN
- Rwanda Development Bank-BRD
- The Ministry of Agriculture and Animal resources-MINAGRI
- The Rwanda Energy Group-REG
- Rwanda Energy Private Developers-EPD
- Provincial and District Director of Planning Units
- Non-Government organizations-NGOs
- Representatives from the Chalmers University of Technology
- Representative, Barefoot College International-BCI, Tanzania
- Lecturers and professors from the University of Rwanda
- Students in the energy sector
- Media Houses

2. Welcome Remarks by the UR Representative

Figure 1: Assoc. Prof. Theophile NIYONZIMA Director of Center for Innovation and Entrepreneurship, ai.

In his welcome remarks, the Acting Director of the Center for Innovation and Entrepreneurship at UR expressed gratitude to the workshop participants for their ongoing good collaboration with the university.

He emphasized that the energy policy workshop aims to drive innovation in energy and climate policy processes, with a particular focus on fostering consultation with diverse policy stakeholders to promote more accountable and inclusive policy-making processes.

Acknowledging Rwanda's significant progress in expanding access to electricity, he urged for similar policy efforts to accelerate the transition to clean cooking solutions, aligning with the Sustainable Development Goal 7 (universal access to clean energy for all) and Goal 13 (integrating climate action into government policies). He concluded by encouraging all participants to actively engage in the discussions on clean cooking and effective strategies for inclusive electricity access, with a particular focus on the solar PV sector.

3. Keynote Address by the Guest of Honor Representing the Rwanda's Ministry of Infrastructure

Figure 2: Remarks by MUGIRANEZA Jean Bosco Director General for Energy, MININFRA

In his keynote address, DG Jean Bosco, an alumnus of UR, expressed gratitude to the university and its partners for organizing the energy policy workshop, highlighting it as a valuable platform for gathering insights to inform policy improvement.

He acknowledged Rwanda's remarkable progress toward achieving universal access to electricity but emphasized that many Rwandan households continue to rely on biomass fuels for cooking and heating, resulting in significant health risks and environmental degradation. He therefore encouraged UR to continue conducting research on innovative technologies that can facilitate the transition from firewood to clean cooking solutions.

Addressing the exclusion of academia in the policy process, he pledged to close this gap by ensuring that academic institutions are actively engaged in policy discussions.

DG Jean Bosco highlighted several challenges impeding access to clean cooking, including issues of affordability and accessibility, behavioral and cultural barriers, supply chain and infrastructure limitations, and inadequate coordination efforts.

In closing, the DG urged partners to sustain their efforts in pursuing transformative interventions that can accelerate Rwanda's transition to clean cooking, promoting healthier households and a more sustainable environment.

4. Keynote Address by the Delegate of Chalmers University of Technology, Sweden

Figure 3: Assoc. Prof. Helene Ahlborg, at Chalmers University of Technology, Sweden

In her keynote address, Prof. Helene expressed gratitude to all participants for attending the policy workshop. She also introduced her team members from Chalmers and UR, acknowledging their ongoing collaboration in advancing research under the sustainable energy subprogram through the UR-Sweden Research Training Partnership programme.

Chalmers works with the ACEESD in the Sustainable Energy sub-program. The two institutions have jointly established an interdisciplinary team of engineers, natural scientists and social scientists trying to cover many aspects of energy transition.

Prof. Helene mentioned that the research program was initially aimed at building interdisciplinary expertise with a focus to smart electrification for rural development. As result of research programme, technologies are being developed including application of IoT/AI in the energy sector but also evaluating Solar PV and clean cooking solutions.

Prof. Helene emphasized the disconnect between the energy sector and academic engagement, advocating for strong support to academia to enable the delivery of high-quality studies, but also that sector stakeholders can request that academics are proactive and communicate their research results to inform energy policy processes.

In concluding her keynote address, she emphasized that innovation involves developing homegrown solutions to sector challenges such as grid intermittency, and economic viability for emerging domestic sectors e.g. in solar PV and electric vehicles. She highlighted that the energy policy workshop seeks to bring together key stakeholders in the energy sector to promote cross-learning and knowledge exchange for more inclusive and accountable energy policy processes.

5. Introducing Research on “Innovation in the Energy and Climate Policy Arenas” in Rwanda

Figure 4: Anatole UWIRAGIYE, Doctoral candidate at Environmental Systems Analysis at Chalmers University of Technology, Sweden

Presenting his doctoral research project, *"Innovation in the Energy and Climate Policy Arenas in Rwanda",* Anatole explained that his study aims to assess the effectiveness of energy policy approaches in facilitating Rwanda’s transition to low-carbon energy services.

He noted that the research is expected to contribute with knowledge about new tools, techniques, and methods to complement existing mechanisms to ensure energy and climate policy processes are more accountable and inclusive.

He further informed that the second part of his research project seeks to initiate a process of “policy innovation” that is to propose adjustments to policy processes to effectively achieve policy desired outcomes. As a junior researcher in the sector, Anatole is committed to communicating his research findings while ensuring the relevance of his work by listening to and learning from sector actors. This commitment manifested in his work of leading the organization of the workshop.

6. Interactive session: Smaller group discussions on clean cooking policy implementation process – challenges and the way forward

The first topic of policy challenges to progress in clean cooking was discussed in five groups, with the key takeaways reported below:

6.1 Group Discussion 1 with the Ministry of Finance and Economic Planning (MINECOFIN)

The group examined the feasibility of the clean energy cooking policy targets within the context of the concluded NST1 and the ongoing NST2. Additionally, they explored potential policy improvements to achieve the intended policy outcomes.

The discussion highlighted the following policy challenges of clean cooking:

- Inaccessibility/limited availability of clean cooking services
- Affordability issue
- Resistance to change
- Incompatibility with cooking habits of Rwandans
- Intervention overlaps
- Limited involvement of local government

Following the challenges observed, the discussion suggested the following changes in the energy policy process:

- Improve coordination of supply chain of clean cooking services
- Shift from output based to outcome-based policy implementation
- Ensure energy champions at village level

6.2 Group discussion 2 with the Ministry of Trade and Commerce (MINICOM)

The key messages from this group discussion are summarized as follows:

- In the last two decades, solar home systems were among energy policy priorities implemented through the EDPRS that ended in 2018
- Transition to clean energy like e-mobility, nuclear energy, etc. was not on the policy agenda
- The private sector was not yet well structured as it is today
- Gender mainstreaming did not get a due value in the energy sector. It was not easy to even find a female energy engineer in the sector

The group discussion highlighted the policy participation challenges as follows:

- Limited participation of stakeholders in the energy policy design
- Technical gap in the energy policy design
- Limited compliance to gender and equity principles
- High dependency on external finance (grants and other facilities)

Suggested changes for policy improvement:

- Effective participation of stakeholders (clear engagement of private sector and local communities in energy policy design)
- More capacity building for energy policy makers on policy feasibility
- Promote homegrown solutions to reduce dependency on external grants and technologies

1.3 Group discussion 3 with the Rwanda Energy Group (REG)

This group 3 discussed the challenges pertaining to the participation in the designing process of the energy policy, suggesting enhanced policy accountability and inclusiveness.

This focus group discussion highlighted the following policy challenges:

- Lack of community engagement in policy design process
- Low technical capacity at local levels to engage in the policy process
- Limited access to energy decision-making platforms by local policy implementers

Suggested changes for policy changes:

- Ensure local communities' engagement as active contributors to the energy transition process
- Ensure a multi-sectoral policy consultation particularly during the policy goal-setting to consider diversified inputs
- Decentralizing policy consultations with local communities for enhanced public acceptance and inclusiveness

6.4 Group Discussion 4 with the Ministry of Infrastructure (MININFRA)

Group 4 discussed the participation and engagement of various stakeholders in the design process of energy policy in Rwanda.

The group highlighted the following challenges in the energy policy process in Rwanda:

- Limited public awareness and understanding of policy commitments
- Poor coordination among suppliers of clean cooking services
- Inadequate stakeholders' engagement
- Limited financial resources and technical capacity

Suggested changes for policy improvement:

- Ensure funding opportunities are accessible by local companies
- Awareness campaign to challenge cultural barriers
- Addressing coordination issues in the implementation of policy goals
- Building capacity for local companies to produce clean fuels
- Ensure academia participates in the policy design and related dialogues

6.5 Group discussion 5 with the Ministry of Environment (MoE) and Rwanda Development Bank (BRD)

The key highlights from the focus group discussion 5 are summarized as follows:

- The energy policy is too technical with politics which are difficult to understand by policy implementers, resulting in less implementation on the ground
- The policy enforcement is limited due to low engagement of stakeholders
- Policy target groups are not consulted. No one knows about the policies in place, and they are not understandable for ordinary people. Most of policies are in English
- The engagement of financial institutions is still very low (compared to what it should be).
- How often are these energy policies reviewed? Are they reviewed yearly, quarterly? We should have a review and see if stakeholders were not involved, then involve them.
- We have the policy, but synergies between the stakeholders by coming together is lacking.
- Efforts are duplicated due to lack of coordination, e.g. local NGOs and companies give multiple cook stoves to the same household.
- Stakeholders do the business but are not aware of in-place policy incentives.
- Too many players in clean cooking, and no regulations, having correct data is missing.
- Many schools still use firewood. The parents of students see what the school is using, it sets a bad example.

Suggested changes for policy improvement:

- Need for increased efforts for implementation of energy policy goals.
- Use an accessible language rather than technical jargon (e.g. the tiers that no one knows what it means.) Use media to reach the local community.
- There is need to consult with people throughout the process.
- Academic consultation has been really missing. There is a need to amend and involve those who are missing.
- Public institutions such as schools should change and then catalyze change for the population.

7. Panel Discussion: insights around policy challenges and how to achieve progress in clean cooking implementation

Following the small group focus discussions, a panel consisting of Mr. Jean Bosco Mugiraneza, the director general for energy at MININFRA, Mr. Philippe Kwitonda, the director general for land, water and forestry at the MoE, Ms. Leah Akimana, the coordinator for EAQIP Clean Cooking Project (BRD) PLC and Mr. Ehudi Shingiro, the head of clean cooking sub-sector at the EPD engaged in engaged in a deeper reflection around the issues that had surfaced in the groups.

Figure 5: A panel discussion around energy policy challenges and barriers hindering progress in clean cooking implementation

Figure 6: Mr. MUGIRANEZA Jean Bosco, DG - Energy Division at MININFRA

The Director General for Energy highlighted that the primary policy challenge remains the poor coordination among numerous partner agencies working with diverse technologies.

Other key challenges he mentioned include the affordability issue due to low purchasing power among rural households, the lack of suitable technologies, and insufficient after-sales services.

He also emphasized the existing subsidy programs, incentives, and tax exemptions for clean cooking technologies, which have the potential to support the achievement of policy goals. To address these issues, he recommended continued research to develop improved technologies and explore innovative policy approaches.


Figure 7: Mr. Philippe KWITONDA, DG in Charge of Land, Water and Forestry in Ministry of Environment

Mr. Philippe emphasized that Rwanda's policy frameworks aim at advancing environmental sustainability including the Nationally Determined Contributions-NDCs 2020, the Green Growth and Climate Resilience Strategy (GGCRS) 2022-2050, forest policies and financing strategies. These all support a shift from biomass fuels to clean energy technologies.

DG Philippe informed the audience that, thanks to policy enforcement, many hotels, schools, institutions, and households have begun transitioning from traditional cooking practices to clean cooking technologies.

However, he acknowledged that challenges remain, including issues of accessibility, affordability, and poor coordination within the supply chain for clean cooking alternatives. He encouraged researchers to continue developing sustainable, locally produced, and low-cost clean cooking technologies that align with the purchasing power of target consumers.

In conclusion, he highlighted the opportunities the Government of Rwanda has established to support the transition to cleaner cooking, such as tax exemptions, subsidy programs, funding opportunities, among others.

Figure 8: Ms. Leah AKIMANA, EAQIP Clean Cooking Project coordinator (BRD) PLC

Ms. Leah highlighted the challenge that private energy companies do not access available funding, largely due to the perceived risks associated with energy projects.
She urged the government and financial institutions to collaborate in supporting clean cooking companies to develop affordable energy products.

Leah also mentioned that the upcoming financing program will focus exclusively on access to energy services within tiers[i] 4 and 5 (referring to Tier 0: no access to modern energy to Tier 5: full access to modern energy). This includes technologies such as electric cookers, electric pressure cookers, and LPG systems, aimed at transitioning from higher to lower emissions.

The BRD Results-Based Funding, a subsidy program for clean cooking, currently provides 90% of the clean cooking up-front cost for both rural and urban households. Subsidized technologies include solar-powered cookers, electric pressure cookers, and other low-carbon emission solutions. However, the private sector faces financial constraints in scaling up the supply of clean cooking technologies due to limited access to funding opportunities.

She proposed that alternative financial models can support the transition to clean cooking, such as collaborating with microfinance institutions to offer loans with flexible repayment plans in phased installments.

Additionally, she suggested providing low-interest loans to schools, as many of them have expressed a willingness to adopt clean cooking technologies but are hindered by financial limitations.

She emphasized the need to make clean cooking solutions more affordable by leveraging compensation opportunities from the carbon market. She proposed that the government develop a mechanism to monetize carbon credits and reinvest the proceeds to provide households with clean energy at reduced costs.

In conclusion, she recommended restructuring subsidy programs for clean cooking technologies to include fuel subsidies. This, she argued, would prevent households from returning to firewood collection due to the inaccessibility of clean fuels.

Figure 9: Mr. Ehudi SHINGIRO, Head of Clean Cooking Sub-Sector at EPD

Mr. Ehudi expressed his gratitude to the Government of Rwanda for its commitment to green policies and praised the strong partnership between UR and Chalmers in advancing research on sustainable energy.

He highlighted key challenges in the clean cooking sector, including poor coordination and lack of synergy among stakeholders, poor quality of cooking technologies, and limited awareness of the benefits of clean cooking. He urged companies to collaborate more effectively in the distribution of clean cooking technologies.

Mr. Ehudi challenged the reliance on the cleaner cooking imports at the expense of locally-made technologies, resulting in high costs of cooking stoves and fuels.

He noted that current national policies do not adequately support local companies, creating opportunities for transnational corporations to dominate the energy market. This situation arises from the limited capital and cash flow of local businesses, which hinders their ability to supply high-quality stoves in the Tier 4 and Tier 5 categories.

He urged local energy researchers to innovate and develop competitive products to stimulate domestic economic growth. He further recommended that the Government of Rwanda prioritize the availability, accessibility, and affordability of clean fuels and stoves. Without these measures, households will likely continue using biomass fuels, which remain more affordable compared to clean cooking solutions.

Concluding his remarks, the head of the clean cooking subsector at EPD highlighted the persistent gender inequality in the energy sector, where women represent less than 5% of private energy developers in Rwanda. To address this disparity, EPD has initiated a program that has so far placed 15 women in industrial attachments to build their capacity and gradually bridge the gender gap in the energy sector.

Figure 10: Mr. Francois Regis NKURUNZIZA, Planning Specialist at MINECOFIN

Special contribution

In his contribution to panel discussion, Mr. Francois from the MINECOFIN, clarified that mitigation of climate change is amongst the Government priorities. He informed the audience that the Government, through MINECOFIN, has increased efforts in mobilizing resources to support the implementation of climate policy targets including the achievement of 38% reduction of GHG emissions by 2030.

He concluded his contribution by recommending stakeholders to improve on coordination in the clean cooking services, ensuring that the public investment in clean cooking yields the expected outcome

8. Inclusive Electricity Access: Policy and Funding for the Solar PV Sector

Insights from the REGENDER Project on Energy Entrepreneurship Project

In her presentation, Ass. Prof. Helene Ahlborg shared insights from the REGENDER project, led by Dr. Olufolahan Osunmuyiwa and herself, concerning gender equality and energy as catalyst for entrepreneurial development in Rwanda.

She explained that the project's goal was to address the energy access gaps in renewable energy systems while fostering the growth of the off-grid market. The project aimed to evaluate whether the availability of small-scale solar home systems could contribute to economic development and social inclusion in the target communities.

She also noted that the project sought to gather insights from the domestic market, as the solar PV sector is increasingly dominated by transnational companies. These large players tend to dominate early on, and when the market expands, local companies often struggle to compete. Financial institutions need to consider how the conditions and procurement processes affect domestic companies and work as barriers to local market participation.

She advised that energy policy processes should ensure the compliance to gender and equity principles as the energy sector is still not inclusive. Major sources of grants still lack gender-sensitive funding instruments.

Prof. Helene emphasized promoting local innovation stating, *"We need to look into how the policies and funding mechanisms can ensure that capital flows to Africa also stay in Africa through successful local companies and homegrown solutions"*.

She concluded by emphasizing that international energy companies have a role to play. However, policy and financial support to local companies is important to foster local innovations and capabilities, rather than relying solely on imported technologies and expertise from abroad.

9. Good Practices for Gender and Equity Principles: The Solar Mamas Programme, Zanzibar

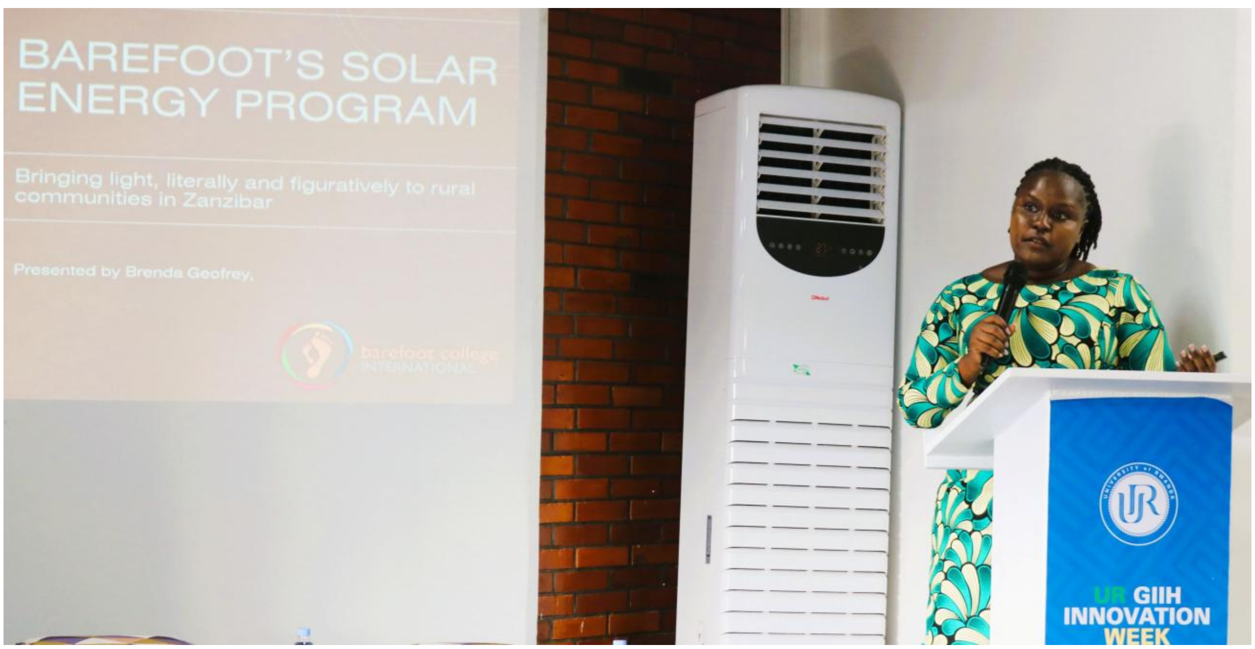

Figure 11: Ms. Brenda Geofrey, Director of programs and operations at Barefoot College, Zanzibar

Invited as a guest to share best practices from the Solar Mamas Programme at the Barefoot College Zanzibar, Ms. Brenda emphasized that men remain the ones accessing most opportunities in the energy sector, resulting in gender inequality.

In response to the gender gap in the energy sector, the Barefoot College introduced the Solar Mamas program in Zanzibar for women from 35 years old to build their capacity and create jobs for them. The program targets Mamas because they remain in the villages close to their families while men, after training, typically leave their communities in search for better employment elsewhere. The program thus solves a key challenge in the sector, namely ensuring technical capacity within the villages electrified and sustainability of services.

Furthermore, the College intentionally empowers young mothers to build their technical capacities in solar kit installation and maintenance, thereby supporting them to improve and sustain their socio-economic livelihoods.

The program targets rural women with little formal education and 80% of the participants cannot read or write well. Selected women attend a technical training in Zanzibar, learning how to assemble, maintain and repair the solar panels. The women return to their villages after training to start a business as solar technicians while earning income from provided services.

10. Interactive Session: Leveraging gender inclusive strategies to enhance community access to solar PV

The workshop participants were inspired by the best practices of the Solar Mamas program in Tanzania. During the plenary, it was suggested that the Solar Mamas program could expand to include solar-powered cooking technology.

In the plenary discussion, EPD shared that they launched the Energy Female Inclusion Unit, which has been actively engaging stakeholders to promote female inclusion within the EPD ecosystem.

Additionally, EPD has begun addressing the gender gap between academia and the energy sector through industrial attachments, with 15 out of 20 students facilitated being female.

Dr. Emmanuel Ufiteyezu, Director of the ACE-ESD, informed that the center has trained over 150 women from various districts across Rwanda, equipping them with skills to address issues with solar kit systems, particularly battery maintenance and panel cleaning.

The Director of Planning from Rwanda's Eastern Province encouraged local investors to learn from the Mamas Project in Zanzibar, advocating for sponsors to fund gender-inclusive initiatives.

11. Closing Remarks

In his closing remarks, Director General at MININFRA Energy Division expressed his gratitude to participants for their active engagement and invaluable insights. He acknowledged that their contributions are instrumental in advancing shared commitment toward achieving Rwanda's sustainable energy and climate policy goals.

He expressed his gratitude to UR and Chalmers for organizing the Innovation Week, and particularly the energy policy workshop.

He suggested that future events should include at least a two-day workshop to facilitate more effective discussions and knowledge exchange. The Director General also praised the best practices of the Solar Mamas program in Tanzania, highlighting the valuable lessons it offers for Rwanda in ensuring an inclusive energy transition.

He noted that the introduced study underscores the challenges that must be addressed in the ongoing transition to sustainable energy by 2030. He emphasized that achieving the policy targets will require innovative technologies and scalable solutions from various stakeholders to tackle issues such as affordability, infrastructure barriers, behavior change, financial obstacles, and supply chain gaps.

Figure 12: Closing remarks by MUGIRANEZA Jean Bosco, DG – Energy Division at MININFRA

In closing, he encouraged participants to maintain the momentum in energy dialogues and innovations, calling for a joint development of actionable solutions ensuring none left behind in Rwanda's transition to low-carbon energy services

12. Conclusions and Way Forward

The Energy Policy Dialogue was organized to foster discussions on the policy challenges hindering the transition to clean cooking and inclusive electricity access in Rwanda, particularly policies and funding for the solar PV sector.

The Director General of MINIFRA's Energy Division committed to maintaining a supportive business environment for investors to assist Rwanda's transition to low-carbon energy services. He also recommended that the Energy Policy Dialogue becomes a continuous platform to address ongoing challenges in the energy sector. The dialogue provided an opportunity for energy stakeholders to exchange knowledge, skills, and best practices in the continued transition to sustainable energy, while ensuring affordable financial models and inclusive access to low-carbon energy services in Rwanda. The recommended way forward is summarized as follows:

- Promote and subsidize the local production of clean fuels, as homegrown solutions are context-specific and could be affordable for both urban and rural households.
- Encourage stronger synergies between local and international companies for technology transfer and capacity building, fostering domestic innovations while ensuring sustainability and supporting the growth of local economies.
- Establish more accessible financing models, increase awareness of financial access, and provide capacity-building on how the carbon market operates.
- Increase budgetary allocations to academia to develop innovative technologies and policy tools that can accelerate the transition to clean cooking and ensure sustainable energy access for all.
- Support local innovations such as improved biodigesters, LNG or biomethane, including them in subsidy programs and offering tax exemptions.
- Invest in solar cooking technologies and ensure that they are supported by the policy.

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[i] https://www.worldbank.org/en/topic/energy/publication/the-state-of-access-to-modern-energy-cooking-services the World Bank's established Multi-Tier Framework (MTF) for cooking is a multidimensional, tiered approach to measuring household access to cooking solutions across six technical and contextual attributes—convenience, affordability, safety, fuel availability, exposure, and efficiency, ranging from Tier 0 (no access) to Tier 5 (full access). A household is considered to have access to modern energy cooking services (MECS) when their cooking practices meet the MTF Tier 4 or above. A household whose cooking practices meet MTF Tier 2 or 3 is considered as being in transition with access to improved cooking services.