Bioenergy Policy Stakeholder Workshop for ICAT Eswatini Phase 2

ICAT Initiative for Climate Action Transparency

Initiative for Climate Action Transparency - ICAT Bioenergy Policy Stakeholder Workshop

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AUTHORS

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PREPARED UNDER

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Abbreviations

CSER	Centre for Sustainable Energy Research
CCU	Climate Change Unit
ECGA	Eswatini Cane Growers Association
EEA	Eswatini Environmental Authority
EEC	Eswatini Electricity Company
ESA	Eswatini Sugar Association
ESERA	Eswatini Energy Regulatory Authority
GHGMI	Greenhouse Gas Management Institute
GoE	Government of Eswatini
ICAT	Initiative for Climate Action Transparency
MCIT	Ministry of Commerce Industry and Trade
MoF	Ministry of Finance
MNRE	Ministry of Natural Resources and Energy
MTEA	Ministry of Tourism and Environmental Affairs
NDC	Nationally Determined Contributions
PPCU	Policy and Programme Coordination Unit
RES	Royal Eswatini Sugar
UNESWA	University of Eswatini
UNFCCC	United Nations Framework Convention on Climate Change
UNOPS	United Nations Office for Project Services

1. Introduction

The Kingdom of Eswatini relies heavily on imports to meet its energy demand, with all petroleum products and more than half of the electricity consumed being imported. The country has no oil reserves, limiting its ability to reduce imports of petroleum products. Despite this, Eswatini possesses both conventional and renewable energy resources that can enhance electricity generation and improve the security of its electricity supply.

Biomass residues from the sugar sector (primarily bagasse) and the timber sector (residues and wood chips) are renewable energy resources with a significant potential to contribute towards meeting Eswatini's electricity demand. Additionally, producing bioethanol from sugar processing for blending with petrol can reduce the quantity of imported petrol, and contribute to the reduction of greenhouse gas emissions.

Appropriate bioenergy policies can unlock Eswatini's potential for biomass electricity generation, biofuel production, and efficient use of wood fuel in households. By harnessing sustainably grown biomass residues for electricity generation, Eswatini can decrease its reliance on imported electricity, thus enhancing energy security and mitigating price fluctuations associated with imported fuels. Biomass electricity plants can provide a stable and clean energy source, contributing to the country's developmental and environmental goals. Increased local electricity generation will enhance and diversify local economic development and growth by reducing expenditure on imported electricity while utilizing locally grown biomass residues. Additionally, the involvement of numerous smallholder farmers in the biomass production chain can result in significant socio-economic impacts and promote rural development.

Furthermore, Eswatini's Bioenergy Policy promotes the development of liquid biofuels as a sustainable alternative to traditional transportation fossil fuels. This will reduce greenhouse gas emissions, increase domestic energy production, create jobs, reduce imports, and boost the local economy.

The actions in the Bioenergy Policy are aimed at achieving the following objectives:

1. Addressing Energy Security Concerns: Eswatini imports a significant amount of its electricity (about 70% of national demand) and all its liquid fuel, making it vulnerable to price fluctuations and supply disruptions in the regional market. Biomass, as a domestic renewable resource, can help reduce this dependence and supply fluctuations, thereby enhancing Eswatini's energy security.
2. Combating Climate Change: If managed sustainably, biomass can offer a lower carbon footprint compared to traditional fossil fuels like coal. This aligns with Eswatini's commitments (under the NDC) to international climate agreements and its pursuit of a more sustainable energy future.
3. Economic Development Opportunities: Establishing a commercial biomass energy sector can create new jobs in areas such as cultivating and managing biomass feedstocks, operating power plants, and developing related technologies. This can contribute to economic growth and diversification, particularly in rural areas.

The development of the Bioenergy Policy is the primary task of the Bioenergy Task Force (BTF), which has been operating since early-2024. The BTF is inclusive, with members from a number of key stakeholder institutions and groups.[1] Inclusiveness requires engagement with key stakeholders. On 26 July 2024, key bioenergy stakeholders were invited to a stakeholder workshop to discuss the draft Bioenergy Policy being developed under the direction of the BTF supported by the ICAT Eswatini II project.

2. Workshop objectives and expected outcomes

The specific objectives of the Bioenergy Stakeholder Workshop were to:

1. Engage stakeholders on the policy positions proposed by the BTF.
2. Raise awareness among key stakeholders about the bioenergy sector.
3. Refine policy positions developed by the BTF.

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[1] The BTF comprises representatives from MNRE (Energy Department), MTEA (Forestry Department), MOA (Ministry of Agriculture), the Biomass Group (one member representing primarily the sugar and timber sectors), ESERA (Eswatini Energy Regulatory Authority), EEC (Eswatini Electricity Company), representatives from UNESWA/CSER.

4. Ensure the developing policy addresses technical, financial, and environmental aspects of bioenergy production.

The main outcomes of the workshop included:

1. Enhanced understanding of the National Bioenergy Policy draft.
2. Collection of valuable stakeholder input to refine policy positions.
3. Agreement on the next steps to develop a comprehensive policy framework.
4. Recognition of the importance of cooperation between ministries and organizations.

3. Workshop format

The one-day workshop was held at the George Hotel in Manzini on the 26th July 2024. This offered a valuable opportunity for stakeholders to discuss and consult on the draft bioenergy policy. It featured participation from a diverse range of stakeholders, including representatives from the Ministry of Natural Resources and Energy (MNRE), Ministry of Finance, Royal Eswatini Sugar, Ubombo Sugar Limited, Centre for Sustainable Energy Research at the University of Eswatini (CSER/UNESWA), and the Eswatini Energy Regulatory Authority (ESERA) to name a few.

The workshop included presentations on the objectives of the Bioenergy Policy, a summary of the work done so far and facilitated interactive discussions. The morning session was used to introduce the Draft Bioenergy Policy to stakeholders so that they could gain an understanding of the objectives of the policy. This was followed by breakout sessions where the policy statements and specific challenges were discussed by participants and results of the deliberations presented to plenary for further discussion. The workshop agenda is provided in Annex 1.

4. Workshop participants

The workshop was attended by 30 representatives from various government ministries, departments, agencies, academia, NGOs, civil society, the private sector, and project partners (Annex 2). It is noted that of the 30 participants, 13 were female and 17 males.

5. Workshop Proceedings

5.1. Introductory session

The Bioenergy Stakeholder Workshop began at 09:00 am with a word of prayer led by Mr. Ndzimandze. He also delivered opening remarks on behalf of the Director of the Energy Department in the Ministry of Natural Resources and Energy (MNRE), emphasizing the importance of achieving energy security as mandated by the National Development Plan 2023–2028 and the National Energy Plan of 2018.

Mr. Ndzimandze (Figure 1) highlighted the urgency of developing Eswatini's energy generation capacity, noting that the country imports about 70% of its electricity. He mentioned the government's Short-Term Generation Expansion Plan, in which 40 MW biomass power and 40 MW Solar PV power is prioritized. He added that government has since prioritized the development of an additional 80 MW of biomass power. "Developing a robust bioenergy sector is essential for reducing our reliance on imported electricity and achieving energy security," he stated.

Acknowledging support from the Ministry of Tourism and Environmental Affairs (MTEA) and the Initiative for Climate Action Transparency (ICAT), Mr. Ndzimandze outlined the aim of drafting a comprehensive National Bioenergy Policy to provide a framework for sustainable bioenergy production, including electricity generation from biomass, biofuels for transport, and clean cooking technologies.

He expressed gratitude to the Bioenergy Task Force (BTF) for their efforts in drafting policy positions, forming the basis of the day's discussions. He reiterated Eswatini's commitment to international agreements like the Paris Agreement (UNFCCC) and the UN's Sustainable Development Goals (SDGs),

highlighting that the National Bioenergy Policy is important in achieving the country's Nationally Determined Contributions (NDCs, as set out in the Paris Agreement) and supporting global climate change mitigation efforts.

Mr. Ndzimandze also outlined the broader benefits of implementing a bioenergy policy, such as enhanced energy security, economic growth, job creation, and improved public health through the adoption of clean cooking technologies. He stressed the importance of sustainable practices, including promoting reforestation and sustainable forest management to protect natural forests and increase the country's carbon stock.

Figure 1: Mr Thembinkhosi Ndzimandze making his opening remarks.

Concluding his remarks, Mr. Ndzimandze urged all stakeholders to actively participate in the discussions, share their insights, and work collaboratively to refine the draft bioenergy policy. He expressed confidence that the process would result in a comprehensive National Bioenergy Policy guiding Eswatini towards a sustainable energy future, thanking all participants for their dedication to this important cause.

5.2. Introduction to Eswatini National Bioenergy Policy

Mr. Ndzimandze, as the Chair of the BTF, gave a brief summary of how the draft policy has been developed. He acknowledged the support from the Greenhouse Gas Management Institute (GHGMI) throughout the project. He detailed the BTF's efforts in drafting policy statements, holding consultations with key stakeholders, such as the Eswatini Investment Promotion Authority (EIPA), the Ministry of Commerce, Industry and Trade (MCIT), the Ministry of Agriculture, and others to refine the policy. Despite some missed consultations, particularly with the Ministry of Finance and the Ministry of Tinkhundla, the BTF gathered substantial input from various sectors, including the sugar cane growers (Eswatini Cane Growers Association/ECGA)[2], the Eswatini Sugar Association (ESA) and ESERA, the energy regulator and the electricity utility EEC (Eswatini Electricity Company).

Mr. Ndzimandze stressed the importance of the workshop in consolidating stakeholder views to develop a robust framework that would enhance local electricity generation and reduce dependency on imports. He cited as a successful example, the partnership between EEC and Ubombo Sugar limited. The partnership provides 14 MW of biomass electricity to the national grid.

5.3. Summary of Bioenergy Policy Actions

Dr. Gcina Mavimbela (The policy stresses the importance of a reliable feedstock supply for both electricity generation and biofuels production, promoting a variety of sources such as agricultural residues, dedicated

[2] *ECGA, along with the Eswatini sugar companies (RES and Ubombo) make up the membership of the Eswatini Sugar Association (ESA).*

energy crops, industrial by-products mainly in the timber industries, among other sources. It highlights the need for good agricultural practices, a comprehensive monitoring framework, and transparency in the biomass supply chain. Additionally, the policy aims to enhance biomass transport efficiency through group transportation and proposing the introduction of incentives for fuel-efficient technologies.

) provided a detailed overview of the bioenergy policy, highlighting that the policy focuses on three primary areas: electricity generation, biofuels, and wood fuel for cooking.

Figure 2: Dr Gcina Mavimbela, making his presentation on the summary of work on the Bioenergy policy.

The policy stresses the importance of a reliable feedstock supply for both electricity generation and biofuels production, promoting a variety of sources such as agricultural residues, dedicated energy crops, industrial by-products mainly in the timber industries, among other sources. It highlights the need for good agricultural practices, a comprehensive monitoring framework, and transparency in the biomass supply chain. Additionally, the policy aims to enhance biomass transport efficiency through group transportation and proposing the introduction of incentives for fuel-efficient technologies.

For biomass power generation, the policy sets efficiency standards and supports research into advanced conversion technologies. It encourages advanced biofuel production technologies, mandates fuel blending, and calls for setting quality standards for biofuels. To minimize environmental impacts, the policy promotes the introduction of emission standards and pollution control technologies.

The policy also addresses social impacts. In particular, the policy calls for a comprehensive framework for land-use changes. In addition, the policy calls for reviews of tax and customs obligations related to bioenergy investments in order to reduce the cost to the consumer. It supports the adoption of improved cookstoves and promotes alternative cooking options, such as LPG and biogas digesters. Sustainable forest management and reforestation are prioritized to ensure the long-term sustainability of the natural environment.

Finally, the policy promotes initiatives to build national capacities in biomass energy. The policy encourages government and stakeholders to look for funding that will assist with research programs, training programs, public awareness campaigns, and ongoing research into cleaner and more efficient biomass conversion technologies.

5.4. Remarks from GHGMI

Dr. Mavimbela then invited Mr. Mike Bess from GHGMI to give remarks. Mr. Bess noted that considerable progress has been made during this phase of the project, particularly noting the formation of the Bioenergy Task Force (BTF), which includes representation from various key stakeholders. He expressed his admiration for the work accomplished by the BTF, including the development of the bioenergy draft policy.

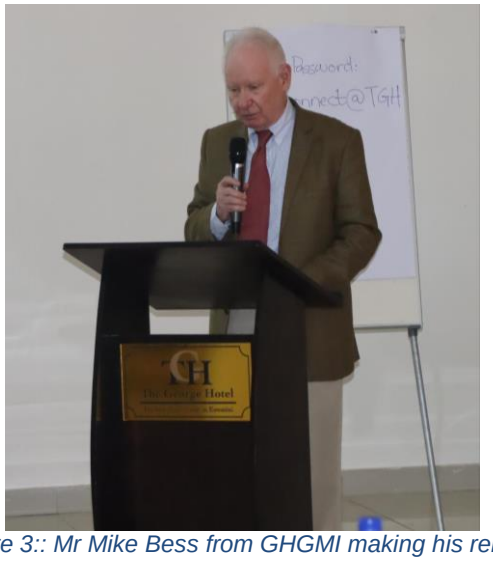


Figure 3:: Mr Mike Bess from GHGMI making his remarks.

Mr. Bess (Figure 3) emphasized the transformative potential of electrification, not only for farmers, by facilitating their transition from subsistence to cash crop farming, but also for the broader economy and rural development. He noted the positive impact that electrification could have on rural areas and expressed satisfaction with the collaborative efforts of GHGMI and the BTF. Mr. Bess concluded by expressing his enthusiasm for continuing to work with all stakeholders involved.

Following Mr. Bess's remarks, a brief impromptu question and answer session took place, during which stakeholders provided feedback to Dr. Mavimbela's presentation.

Dr. Nkambule from ECGA inquired about the availability of feedstock for biomass electricity, noting that the current priority in the sugar industry is to produce sugar with the biomass. He asked how much of the feedstock is available for power generation. Dr. Mavimbela responded that a total of about 1.7 million tonnes of feedstock (bagasse) is available, but under the current setup in the sugar mills is only sufficient to produce heat and electricity required for processing sugar. He further explained that while this amount is sufficient, the current systems are inefficient. By refurbishing these systems, it is possible to increase electricity production from the existing resource.

Dr. Nkambule also suggested that future reports should specify the amount of feedstock allocated for generation. He inquired about the challenges in fuel blending, given that this project was intended to commence earlier. Mr. Ndzimandze replied that while plans for blending are in place, finalization of the ethanol blending regulations is still pending. The legal framework is crucial for investment by the sugar sector who have the capacity to produce ethanol, and this policy will also provide the necessary enabling environment.

A representative from the Eswatini Environment Authority (EEA) commented on Policy Position 9 (on efficient cook stoves), noting that EEA is actively pursuing this area in collaboration with schools. They emphasized that there is existing work to build upon, rather than starting from nothing.

Mr. Bess added that the importance of improved cookstoves cannot be overstated, as neglecting this issue could lead to significant health problems. He highlighted the necessity of transitioning to cleaner cookstoves to mitigate respiratory diseases.

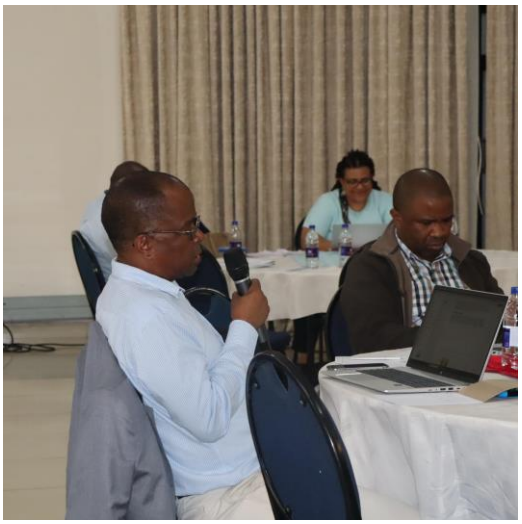



Figure 4: Dr Sipho Nkambule (ECGA) (left) and Mr Melusi Mbuli (EEA) (right) during the brief question and answer session.

5.5. Breakout Sessions

The workshop had breakout sessions where the participants were split into three groups to discuss the policy positions in the draft document as well as the implementation plan. Group one focused on electricity generation policies and challenges; group two focused on financial aspects of the policy; and group three focused on challenges in cooking. After discussions, the groups reported back to plenary.

Group 1: Electricity Generation

Group 1 focused on challenges in biomass electricity generation, emphasizing the need for clear definitions of the word government and its responsibilities in the policy statements. The group recommended revising the wording to state that "Government will create a conducive environment to ensure the adequate security of feedstock supply" in policy position one and further proposed similar changes to other policy positions.

The group had a lengthy debate on the inclusion of invasive species as a biomass resource and eventually decided to propose that they be excluded to prevent the potential for destruction of the natural forest during harvesting of such. The group also proposed changing the term "energy crops" to "energy plants," and that the policy should emphasize utilizing existing commercial forests land rather than clearing new land. The group proposed that research on energy plants should be a standalone policy position and that all agriculture related policy positions should be integrated into policies of the Ministry of Agriculture and likewise, transport issues should be integrated into policies of the Ministry of Public Works and Transport (MoPWT).

Figure 5: Group 1 representative giving their report.

Group 2: Financial Challenges

This group concentrated on Policy Positions 4 and 6. They stressed the need for targeted incentives for investors and argued that the policy should provide a strong economic case for energy generation. This includes demonstrating the policy's benefits for economic growth, business, education, and health. They emphasized the necessity of cooperation between ministries and alignment with the Investment Policy draft. The group highlighted challenges such as the environment levy and CIC levy, which increase investment costs and tariffs. They recommended exploring non-fiscal incentives, such as location-specific incentives, to mitigate these challenges.

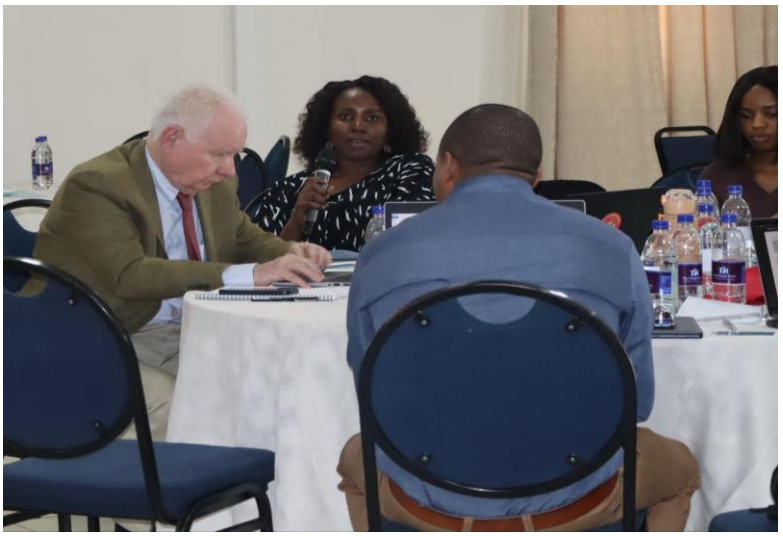


Figure 6: Group 2 representative giving their report

Group 3: Efficient Fuel Wood Cook-stoves

Group 3 concentrated on improving the adoption of advanced fuelwood cook-stoves and investigating sustainable cooking and heating alternatives. They recommended advancing cook-stoves with modern technology to enhance efficiency and minimize environmental impacts. To ensure successful implementation, the group suggested establishing clear targets and timelines for different technologies and access levels. They emphasized the need for setting standards for several types of cooking stoves and proposed forming a committee to oversee the implementation of these cook-stoves, as outlined in Policy Position 8.

Their action plan encompasses several important activities. Initially, they recommended conducting a study to evaluate the current landscape of cook-stove technologies in Eswatini and the region, identifying the most efficient and cost-effective options. For program documentation, they proposed collaborating with private sector cook-stove manufacturers to provide subsidized stoves to low-income households and exploring alternative financing methods such as microloans and carbon credits. They also advised considering fiscal budget allocations, on-bill funding, and soft loans to support these initiatives.

The group underscored the importance of defining a clear timeline for policy implementation and suggested setting specific targets for the number of stoves and homes covered. They also highlighted the need to consider institutional cooking stoves, conduct public consultations to inform design, and perform a skills-based assessment. Additionally, they recommended investigating standalone solutions like Solar Home Systems and ensuring that gender considerations are integrated across all policy positions. To promote the safe use of LPG, they proposed offering subsidies for equipment and cylinder refills, especially for low-income households. Lastly, they advocated for capacity-building programs focused on biogas digester maintenance and supported reforestation and afforestation efforts to ensure the long-term sustainability of biomass resources.

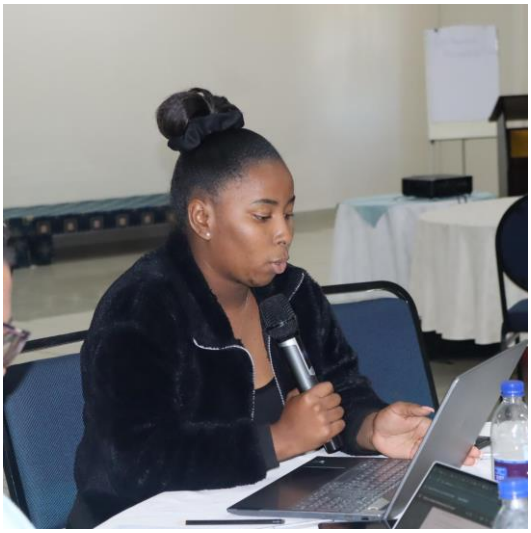


Figure 7: Group 3 representative giving their report.

5.6. Plenary Discussion

In the plenary discussions led by Mr. Ndzimandze (Figure 8), participants were given the opportunity to comment on, or discuss, any additional matters related to the bioenergy policy. The discussions highlighted an agreement to foster cooperation between various ministries and organizations. The Eswatini Environmental Authority (EEA) provided clarity/information on the processes involved in starting a project similar to those proposed in the policy, including costs and necessary studies.

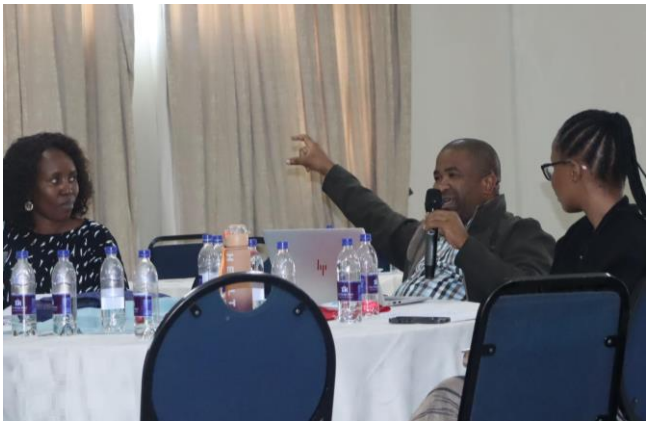
Concerns were raised about the environment levy being a percentage of a project capital costs, in particular, a stakeholder wanted to know why the levy is not fixed amount and what the levy is for? It is to be noted that the environment levy is a fee required by law for all projects that are to begin development.

The fee covers the environmental inspections and other environmental compliance costs associated with a project. A representative of the EEA acknowledged the high costs and explained that the funds are allocated for robust monitoring of projects to ensure compliance, as failure can significantly impact the environment and ordinary Emaswati. The EEA representative further clarified that the percentage charged on projects is not the same, as there are two groups whereby projects of higher magnitude (investment) are charged a slightly higher percentage. The representative added that the levy is currently under review and encouraged stakeholders to participate in the review process.

Figure 8: Mr Ndzimandze (BTF) leading the plenary discussion.

Discussions also touched on the issue of generation licenses, noting that they are tied to a certain percentage of revenues from tariffs. Participants called for clarity on why such large amounts need to be paid and suggested linking license fees to generation capacity. On another note, EEA requested that stakeholders respond to invitations for reviewing regulations to prevent the approval of problematic regulations.

Further discussions addressed the use of LPG, noting that safety issues are not adequately addressed. Representatives from Group 3 emphasized that while LPG is recognized as a clean cooking alternative, it is crucial to ensure standards for safe use are established and included in the policy statements.



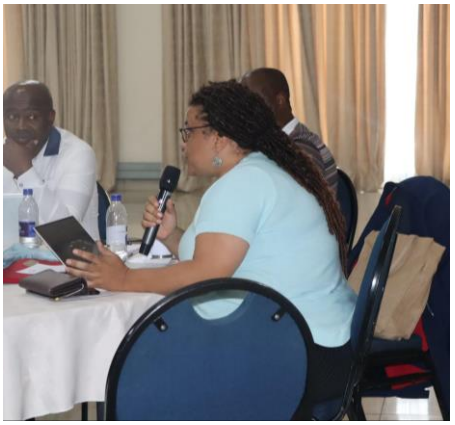


Figure 9: Mr Tfwala (RES) and Ms Stromvig (MNRE) making their remarks during the plenary discussion

5.7. Closing Remarks

Dr. Nosiphiwo Zwane (Figure 10) gave the closing remarks on behalf of the BTF, expressing gratitude to everyone for their attendance and active participation in the discussions. She emphasized that the insights shared will be important in further developing the draft policy into one that will be widely accepted and serve as a catalyst for positive change in the country.

Figure 10: Dr Nosiphiwo Zwane (CSER) giving closing remarks on behalf of the BTF.

The workshop concluded with a strong commitment from all stakeholders to work together in refining the National Bioenergy Policy, ensuring it addresses the technical, financial, and environmental aspects of bioenergy production. The policy aims to enhance energy security, create job opportunities, stimulate economic growth, and improve public health while promoting sustainable practices and environmental conservation.

ANNEX 1: BIOENERGY STAKEHOLDER WORKSHOP AGENDA

Time	Activity	Responsibility
08:00 – 08:30	Arrival and Registration	All Participants
08:30 – 08:40	Welcome Remarks	MNRE
08:40 – 08:50	Remarks by NDA	MTEA
08:50 -- 09:00	Introducing the Workshop and its objectives	BTF Chair
09:00 – 09:30	Summary of work on Bioenergy Policy	UNESWA
09:30 – 10:40	Breakout Session	All
10:40 – 11:00	**Tea Break**	**All Participants**
11:00 – 12:00	Breakout Session	All
12:00 – 12:20	Group 1 Report back	G1-Rep
12:20 – 12:40	Group 2 Report back	G2-Rep
12:40 – 13:00	Group 3 Report back	G3-Rep
13:00 – 14:00	**Lunch Break**	**All Participants**
14:00 –15:00	Plenary discussion	All
15:00 – 15:30	Conclusions	BTF Chair
15:30 – 15:45	**Tea Break**	**All Participants**
15:45 – 16:15	Way forward	BTF Chair
16:15 – 16:45	**Closing Remarks**	**MNRE**

ANNEX 2: BIOENERGY STAKEHOLDER WORKSHOP PARTICIPANTS

LIST

No.	Name & Surname	Institution	Gender
1	Candy Stromvig	MNRE	F
2	Siphiwangubani Sikhondze	MCIT	F
3	Sandile Khumalo	Ubombo Sugar LTD	M
4	Sipho Nkambule	ECGA	M
5	Andries Mhlongo	USA Distillers	M
6	Melusi Mbuli	EEA	M
7	Bongani Mavimbela	EEA	M
8	Neliswa Nkambule	MoF	F
9	Sandra Greenhead	MoF	F
10	Zethu Dlamini	UNESWA-CSER/MTEA-CCU	F
11	Samkelisiwe Maphalala	UNESWA-CSER/MTEA-CCU	F
12	Vuyolwethu Mahlalela	UNESWA-CSER/MTEA-CCU	M
13	Ndumiso Dlamini	Montigny Timber	M
14	Sihle Magagula	ESERA	M
15	Nelisiwe Kunene	PPCU	F
16	Bongumusa Tfwala	RES	M
17	Lomagugu Ntshalintshali	UNESWA-CSER	F
18	Gcina Mavimbela	UNESWA-CSER	M
19	Bafana Simelane	MTEA-MET	M
20	Nosiphiwo Zwane	UNESWA-CSER	F
21	Mike Bess	ICAT- GHGMI	M
22	Goska Matala	MNRE	F
23	Thandeka Dlamini	MNRE	F
24	Siphesihle Ndzimandze	MNRE	F
25	Mzwandile Ndzinisa	MNRE	M
26	Gugu VIlakati	MNRE	F
27	Chalazi Dlamini	MNRE	M
28	Khulekani Sifundza	MNRE	M
29	Lucky Dlamini	MTEA-Forestry	M
30	Thembinkhosi Ndzimandze	MNRE/Energy Department	M