



Inception and Training Workshop on LEAP and GACMO Tools for Namibia's NDC Tracking

Initiative for Climate Action Transparency - ICAT

A Comprehensive Summary of the combined Inception and Training Workshop and Discussions - Utilizing LEAP and GACMO Tools for NDC Tracking and GHG Emissions Projections

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Table of Contents

Summary	5
1. Introduction	6
1.1. LEAP and GACMO as Strategic Tools for Namibia’s Climate Action.....	6
1.2. Purpose of the Training Workshops.....	6
1.3. Key Participants and Stakeholders.....	7
1.4. Workshop Structure and Approach.....	7
1.5. Outcome and Next Steps.....	8
2. Summary of Training Workshops and Discussions	8
2.1. Workshop Overview.....	8
2.1.1 <i>August 15, 2024: Introduction to LEAP</i>	8
2.1.2 <i>September 2, 2024: Comprehensive Training Session with NDC Focus</i>	9
2.2. Training on GACMO.....	9
2.2.1 <i>Cost-Effectiveness of Mitigation Actions</i>	9
2.2.2 <i>Application to Namibia’s Energy Sector</i>	9
2.2.3 <i>Key Outcomes</i>	10
3. Discussion on Modelling Tool Selection	10
2.3. Key Considerations.....	10
2.3.1 <i>LEAP’s Strengths in Comprehensive Energy System Modelling</i>	10
2.3.2 <i>GACMO’s Strengths in Cost-Benefit Analysis of Mitigation Actions</i>	11
3. Namibia NDC Tracking Presentation (September 2, 2024)	11
3.1. Key Points from the Presentation.....	12
3.1.1 <i>Overview of Namibia’s NDC Commitments and Progress Since 2020</i>	12
3.2. Emphasis on the Importance of Improving Monitoring, Reporting, and Verification (MRV) Systems.....	12
3.2.1 <i>Challenges in the Current MRV System</i>	12
3.3. GACMO for Cost-Effectiveness Analysis:.....	13
4. Addressed Comments and Feedback	13
4.1. Data Gaps.....	14
4.1.1 <i>Challenges Identified</i>	14
4.1.2 <i>Recommendations</i>	14
4.2. Capacity Building.....	14
4.2.1 <i>Challenges Identified</i>	15
4.2.2 <i>Recommendations</i>	15
4.3. Tool Integration.....	15
4.3.1 <i>Challenges Identified</i>	15

4.3.2 Recommendations.....	16
5. Conclusion and Next Steps.....	16
5.1. Strengthening Data Collection and MRV Systems.....	17
5.2. Building Capacity within Ministries and Institutions.....	17
6. List of Participants.....	19

SUMMARY

This report summarizes the outcomes of the training workshops conducted in 2024 for Namibia's key climate and energy stakeholders. The focus of these workshops was on building capacity in the use of LEAP (Long-range Energy Alternatives Planning) and GACMO (Greenhouse Gas Abatement Cost Model) tools to strengthen the country's ability to track its Nationally Determined Contributions (NDCs) under the Paris Agreement. The report provides a detailed discussion of the training sessions, key insights from the Namibia NDC Tracking Presentation, and recommendations for improving data collection, capacity building, and tool integration for effective climate action planning.

1. INTRODUCTION

The training workshops organized were critical components in building Namibia's capacity to address its climate action commitments. They aimed at equipping stakeholders with the necessary skills to use two important modelling tools—LEAP (Long-range Energy Alternatives Planning System) and GACMO (Greenhouse Gas Abatement Cost Model)—which are pivotal for tracking and planning the country's climate change mitigation strategies. These workshops were part of a broader initiative to enhance the country's ability to monitor and report on its Nationally Determined Contributions (NDCs), as outlined in the Paris Agreement.

1.1. LEAP and GACMO as Strategic Tools for Namibia's Climate Action

Both LEAP and GACMO were carefully selected for their ability to address different aspects of Namibia's greenhouse gas (GHG) emissions management and future climate planning.

- LEAP is a versatile tool used for comprehensive energy planning. It allows users to model energy demand and supply systems over the long term, making it ideal for creating projections under various policy scenarios. For Namibia, LEAP offers the capability to assess the potential impacts of different energy pathways and to understand how changes in energy use could influence GHG emissions. LEAP also allows the country to explore the integration of renewable energy technologies and assess energy efficiency improvements, which are vital for Namibia's low-carbon transition.
- GACMO, on the other hand, is designed to assess the cost-effectiveness of different mitigation options by calculating the costs and GHG reductions associated with various measures. This model simplifies the process of identifying economically viable emission reduction actions, which is particularly useful in selecting mitigation projects that align with the country's financial and development priorities.

Together, these tools support Namibia in both strategic energy planning and in evaluating the cost and benefit of mitigation measures, providing a robust foundation for NDC tracking and reporting.

1.2. Purpose of the Training Workshops

The primary purpose of the training workshops was to:

- **Enhance technical expertise:** By providing hands-on experience with LEAP and GACMO, the workshops aimed to build local capacity in using these tools for energy and GHG emissions projections, scenario development, and economic assessment of mitigation actions.
- **Support NDC tracking:** These tools are integral for tracking progress on Namibia's NDC commitments, which include reducing GHG emissions and increasing resilience to climate change. Training the relevant stakeholders on how to effectively use these tools ensures that the country is equipped to meet its monitoring, reporting, and verification (MRV) obligations under the Paris Agreement.

- **Fill data gaps:** One of the key challenges identified during the workshops was the lack of robust, comprehensive data for energy consumption, emissions, and other relevant variables. Part of the training involved identifying data gaps and exploring solutions for improving the availability and quality of data, essential for effective climate action planning.

1.3. Key Participants and Stakeholders

The workshops engaged a wide range of **key stakeholders**, including:

- **Government officials** from ministries responsible for energy, environment, agriculture, and climate change. These participants were integral to ensuring that the outputs of the workshops could be translated into policy decisions and actions.
- **Technical experts and planners** from national and regional institutions. These individuals were responsible for collecting, analysing, and reporting data on energy and emissions, and the training provided them with new methodologies for enhancing their work.
- **International and regional experts** who provided insights into best practices and experiences from other countries using LEAP and GACMO for NDC tracking and reporting.

In particular, representatives from the Ministry of Environment, Forestry, and Tourism (MEFT), the Ministry of Industrialisation and Trade, and the Ministry of Mines and Energy (MME) were actively involved. These institutions play crucial roles in gathering data, tracking progress on Namibia's climate goals, and ensuring alignment with international standards.

1.4. Workshop Structure and Approach

The workshops were structured to provide a balance between theoretical instruction and practical, hands-on sessions. This approach was designed to ensure that participants not only understood the fundamental principles behind LEAP and GACMO but were also able to apply these tools in real-world scenarios relevant to Namibia's context.

1. **Introductory sessions:** These sessions introduced participants to the basic features and functionalities of LEAP and GACMO. Discussions were centred around the tools' applicability to Namibia's energy and climate challenges, particularly in the context of the National Development Strategy (NDS) and the country's low-carbon development objectives.
2. **Data integration and scenario development:** Subsequent sessions delved into the mechanics of integrating data into the tools, using actual data from Namibia's energy and agricultural sectors. Participants learned they can develop different GHG emissions scenarios, such as business-as-usual (BAU), low-carbon growth, and renewable energy expansion scenarios.
3. **Cost-benefit analysis with GACMO:** GACMO was introduced in the later stages of the workshops to provide a framework for evaluating the cost-effectiveness of mitigation options. Participants used the tool to estimate the financial implications of various mitigation actions, such as switching to renewable energy or implementing energy

efficiency measures. This was key in helping policymakers and stakeholders understand how to prioritize projects based on both environmental impact and economic feasibility.

1.5. Outcome and Next Steps

The workshops successfully achieved their objectives by providing stakeholders with:

- A deepened understanding of how LEAP and GACMO can be used to track and project GHG emissions across sectors.
- Practical knowledge on how to integrate these tools into national climate reporting frameworks and how to enhance the data collection processes needed for their effective use.
- Clear next steps for continuing capacity building, improving data quality, and further refining Namibia's NDC tracking and reporting systems.

Moving forward, Namibia plans to institutionalize the use of LEAP and GACMO within its climate change strategies and will continue to conduct regular training sessions to maintain and expand the technical capabilities of key institutions.

2. SUMMARY OF TRAINING WORKSHOPS AND DISCUSSIONS

The series of workshops organized throughout 2024 provided an essential platform for stakeholders in Namibia's climate and energy sectors to gain hands-on experience with two critical tools: LEAP and GACMO. The focus of these workshops was to enhance the country's capacity to model GHG emissions, identify mitigation strategies, and track progress toward its Nationally Determined Contributions (NDCs) under the Paris Agreement. The training sessions aimed to cover both basic functionalities and advanced applications of the tools, ensuring that participants could apply the tools to real-world scenarios in Namibia's energy sector.

2.1. Workshop Overview

The workshops were strategically scheduled across 2024 to provide a comprehensive understanding of the tools at progressively deeper levels. They moved from introductory sessions to advanced scenario-building, ensuring that all participants, regardless of their initial technical expertise, were able to keep pace with the training.

2.1.1 August 15, 2024: Introduction to LEAP

The initial workshop in August provided participants with a fundamental understanding of both LEAP and GACMO. This session focused on:

- **LEAP's capabilities** in modelling energy systems, offering a basic overview of its architecture, data inputs, and outputs. Participants were introduced to how the tool can be applied to track energy demand, assess supply-side options, and project future emissions.

Participants were able to establish a foundational knowledge of the tools, setting the stage for more detailed exploration in subsequent workshops.

The August workshop explored deeper into the scenario-building capabilities of LEAP. Participants were taught to create complex models reflecting different energy pathways and policies. By the end of this session, participants had a clearer understanding of how LEAP can be used to model long-term transitions in Namibia's energy system and how it could serve as a powerful tool for tracking progress toward NDC targets.

2.1.2 September 2, 2024: Comprehensive Training Session with NDC Focus

The final major workshop held on September 2, 2024, integrated the knowledge from previous sessions, with a special focus on aligning LEAP and GACMO with Namibia's NDC tracking mechanisms. This session featured the *Namibia_NDC_Tracking_Presentation*, which highlighted:

- **Current progress** on Namibia's NDCs, with a focus on GHG emission reduction efforts in the energy sector.
- **Tool integration:** How LEAP and GACMO can be combined to provide a holistic view of energy demand projections and the cost-effectiveness of various mitigation strategies. This integration helps Namibia align its GHG tracking with international reporting obligations under the Paris Agreement.

This session was key in helping participants understand how to apply the tools in tracking and reporting Namibia's progress in reducing emissions, identifying gaps, and improving data collection.

2.2. Training on GACMO

The GACMO training sessions were designed to demonstrate how the tool can be used to assess the **cost-effectiveness of mitigation actions**. GACMO's simplicity made it accessible even to participants with limited modelling experience, as it provides straightforward calculations of GHG emission reductions and their associated costs.

2.2.1 Cost-Effectiveness of Mitigation Actions

Participants were introduced to the economic principles behind GACMO, which include:

- Estimating the cost per ton of CO₂ equivalent abated for different mitigation strategies.
- Identifying low-cost abatement opportunities that could yield the most significant reductions in emissions with the least financial burden.
- Evaluating mitigation measures in the energy sector, with a focus on strategies such as switching to renewable energy, and improving energy efficiency.

2.2.2 Application to Namibia's Energy Sector

Special emphasis was placed on using GACMO to evaluate mitigation options within Namibia's energy sector. For instance, participants examined the cost-effectiveness of replacing fossil fuels with renewables. The energy sector was chosen due to its significant contribution to Namibia's overall GHG emissions.

2.2.3 Key Outcomes

- GACMO enabled participants to quickly assess and compare various mitigation actions, helping them prioritize actions based on both emission reduction potential and cost-effectiveness. This proved valuable for designing policy frameworks and investment plans that are aligned with Namibia's climate objectives.
- Participants discussed how GACMO could be integrated with existing reporting frameworks, ensuring that the tool's outputs could be used to streamline the evaluation of climate actions. By embedding GACMO's cost-benefit analysis into the national reporting system, Namibia could more easily track its progress toward cost-efficient GHG reduction.

These training sessions provided Namibia's stakeholders with critical skills in using LEAP and GACMO, offering practical experience in energy modelling, scenario-building, and cost-effectiveness assessments. The workshops ensured that participants were prepared to contribute meaningfully to Namibia's ongoing climate action efforts, particularly in tracking and reporting on NDC progress.

3. DISCUSSION ON MODELLING TOOL SELECTION

During the workshops, there was a detailed and comprehensive discussion about the selection of the most suitable modelling tools to support Namibia's climate action efforts. The aim was to ensure that the tools chosen could provide accurate and actionable data for tracking Nationally Determined Contributions (NDCs), projecting future greenhouse gas (GHG) emissions, and evaluating the cost-effectiveness of mitigation strategies. Given Namibia's specific climate, energy needs, and development goals, it was crucial to assess the strengths and limitations of both LEAP and GACMO before deciding on the best approach.

2.3. Key Considerations

The discussions highlighted several important considerations, particularly regarding the functionality and compatibility of the two tools—LEAP and GACMO—with Namibia's overall climate policy framework and development objectives.

2.3.1 LEAP's Strengths in Comprehensive Energy System Modelling

LEAP was widely praised during the workshops for its ability to model entire energy systems comprehensively. The participants emphasized several key features that make LEAP particularly well-suited for Namibia's long-term energy planning and GHG projections:

Overall, LEAP was recognized as a robust tool that provides a high level of detail and adaptability, making it ideal for long-term planning and scenario analysis. Its ability to model various energy scenarios in a transparent and integrated manner was seen as a critical feature for supporting Namibia's NDC tracking and broader climate action strategies.

2.3.2 GACMO's Strengths in Cost-Benefit Analysis of Mitigation Actions

While LEAP was seen as an essential tool for energy system modelling, GACMO was recognized for its cost-effectiveness analysis capabilities. Participants acknowledged GACMO's unique value in providing quick assessments of the financial and emissions implications of different mitigation measures.

- **Ease of Use:** One of GACMO's strengths is its simplicity and ease of use, which allows stakeholders to quickly evaluate the GHG reduction potential and associated costs of various mitigation options. This capability was particularly important for identifying low-cost mitigation opportunities that could provide high GHG reduction returns. In this regard, GACMO serves as an efficient decision-support tool, particularly for policymakers and planners looking for cost-effective solutions to reduce emissions in the short term.
- **Focus on Mitigation Cost-Effectiveness:** GACMO enables users to conduct cost-benefit analyses for various climate actions, such as transitioning to renewable energy, and improving energy efficiency in the energy sector. This feature was seen as especially beneficial for Namibia, given the financial constraints faced by the country. With GACMO, stakeholders can prioritize projects based on cost-effectiveness, ensuring that **limited resources** are allocated to the most impactful mitigation actions.
- **Applicability to the Energy Sector:** GACMO's ability to analyse mitigation options across both the energy sector was considered a significant advantage. For Namibia, where both sectors contribute substantially to GHG emissions, having a tool that can assess the cost-effectiveness of actions like renewable energy investments is critical for designing a balanced and comprehensive mitigation strategy.

With GACMO's cost-effectiveness analysis, Namibia will be able to develop a robust approach to tracking progress on its NDCs, optimizing its climate action plans, and ensuring that both long-term energy transitions and immediate mitigation measures are effectively addressed. GACMO will also enable the country to produce more accurate and actionable reports for international climate commitments, while at the same time ensuring that economic considerations are factored into policy decisions.

3. NAMIBIA NDC TRACKING PRESENTATION (SEPTEMBER 2, 2024)

On September 2, 2024, the final training session concluded with a significant presentation titled "Namibia_NDC_Tracking", which provided a comprehensive overview of the country's progress toward meeting its Nationally Determined Contributions (NDCs). The presentation served as a key moment in the training workshops, offering participants a detailed view of

how Namibia has integrated GACMO into its NDC tracking and reporting mechanisms. This session not only reviewed the country's climate action progress but also demonstrated the practical application of the tools that had been the focus of the previous training workshops.

3.1. Key Points from the Presentation

3.1.1 Overview of Namibia's NDC Commitments and Progress Since 2020

The presentation began with a detailed overview of Namibia's NDC commitments, focusing on the targets and goals set out in its original submission under the Paris Agreement and the updated targets submitted in the 2020 NDC revision. The key commitments include:

- Reducing GHG emissions through increased investment in renewable energy, improving energy efficiency in the energy sector.
- A focus on scaling up the use of solar and wind power, which are seen as central to Namibia's strategy of reducing its reliance on imported fossil fuels.

The presentation highlighted the progress made since 2020, including:

- An increase in renewable energy capacity, particularly in the solar energy sector, which now accounts for a growing share of Namibia's electricity generation.
- Initial success in tracking GHG emissions in the energy sector through the use of GACMO for assessing mitigation strategies.

Despite these successes, the presentation acknowledged that Namibia still faces significant challenges in fully meeting its NDC targets, particularly in terms of data availability, financial constraints, and technical capacity.

3.2. Emphasis on the Importance of Improving Monitoring, Reporting, and Verification (MRV) Systems

A major focus of the presentation was the need to strengthen Namibia's Monitoring, Reporting, and Verification (MRV) systems. MRV systems are critical for tracking progress toward NDC commitments, ensuring transparency, and maintaining accountability in Namibia's climate actions.

3.2.1 Challenges in the Current MRV System:

- **Data gaps:** The presentation pointed out ongoing challenges with data collection, particularly in the energy sector, where reliable information on energy use is often lacking. This issue hampers accurate reporting and makes it difficult to fully track emissions reductions.
- **Inconsistent reporting formats:** Namibia has faced difficulties in aligning its MRV system with international reporting standards, leading to delays in submission and reduced credibility in some reports.

Steps to Improve MRV:

- The presentation emphasized the need to standardize data collection processes and harmonize reporting formats with international best practices. This would ensure that Namibia's reports are consistent with guidelines from the United Nations Framework Convention on Climate Change (UNFCCC).
- It was noted that integrating GACMO into the MRV system would help address some of these challenges by providing reliable tools for data modelling and cost-effectiveness analysis. LEAP's detailed energy system modelling capabilities would allow for more accurate projections of future energy consumption and emissions, while GACMO could help prioritize cost-effective mitigation actions based on reliable financial data.

The discussion further stressed the importance of building institutional capacity and ensuring that key government ministries, including the Ministry of Environment, Forestry, and Tourism (MEFT) and the Ministry of Mines and Energy (MME), are fully equipped to handle the demands of the MRV system.

3.3. GACMO for Cost-Effectiveness Analysis:

- GACMO was demonstrated as a complementary tool for assessing the financial feasibility of various mitigation actions. Participants were shown how to input different mitigation options, such as solar power installations, and energy efficiency upgrades and then calculate the cost per ton of CO₂ reduced.
- The presentation emphasized that GACMO's simplicity makes it especially useful for quick assessments of low-cost, high-impact mitigation options. For example, GACMO can quickly identify the most cost-effective mitigation strategies in the energy sector, such as transitioning from fossil fuels to renewable energy.

The demonstration also highlighted how GACMO can work to provide a comprehensive approach to NDC tracking and provide actionable insights into the financial and emissions impact of specific mitigation actions.

The Namibia_NDC_Tracking_Presentation was a key moment in the training session, bringing together all the lessons learned throughout the workshops. It provided participants with a clear understanding of Namibia's progress toward its NDC targets and how GACMO can be used to ensure effective monitoring and cost-efficient mitigation strategies.

The presentation underscored the importance of continued capacity building, particularly in improving MRV systems and ensuring that Namibia has the institutional and technical capacity to meet its climate goals. By effectively integrating GACMO, Namibia can strengthen its ability to track progress, make informed policy decisions, and meet its international climate commitments under the Paris Agreement.

4. ADDRESSED COMMENTS AND FEEDBACK

During the training sessions, participants engaged in critical discussions that brought several key issues to light. These comments and feedback reflected the practical challenges faced

by Namibia in tracking its Nationally Determined Contributions (NDCs) and implementing effective climate action measures. The discussions covered areas such as data availability, capacity building, and tool integration, all of which are essential for ensuring the country's climate reporting systems are robust and efficient. Below is an expanded overview of the key issues raised and how they were addressed during the sessions.

4.1. Data Gaps

One of the most significant challenges highlighted by participants was the issue of data gaps, particularly in historical data related to GHG emissions, and energy use, in the energy sector. The energy sector is critical to Namibia's overall climate strategy due to its substantial contribution to both emissions and carbon sequestration. However, the lack of reliable, up-to-date data hampers accurate GHG accounting and makes it difficult to project future trends and mitigation potentials.

4.1.1 Challenges Identified

- **Inconsistent data collection:** Participants noted that data from various ministries and sectors were often inconsistent or incomplete, particularly in the energy sector. For example, data on energy sector emissions were often outdated or missing key variables required for comprehensive analysis.
- **Limited historical data:** A lack of detailed historical data makes it challenging to create accurate **baseline scenarios** for GHG emissions, which are critical for tracking progress toward NDC targets.
- **Difficulty in accessing disaggregated data:** In several cases, data were available only at the national level, while detailed, sector-specific, or regional data were scarce, further complicating efforts to create nuanced models in either LEAP or GACMO.

4.1.2 Recommendations

To address these data gaps, participants discussed several strategies:

- **Collaboration with regional and international partners:** It was recommended that Namibia actively engage in regional data-sharing initiatives and seek support from international organizations with expertise in data collection for climate reporting. For instance, collaboration with institutions like the UNFCCC and other regional climate programs could help improve the availability of historical data and provide access to advanced tools and methodologies for data collection.
- **Capacity-building for data management:** Another recommendation was to invest in building the capacity of local institutions and personnel involved in data collection and management. By improving the data-handling capabilities of government ministries and agencies, Namibia could ensure that high-quality data is consistently gathered, verified, and incorporated into national climate models.

4.2. Capacity Building

Participants underscored the need for ongoing capacity building to ensure that Namibia's climate reporting systems are both robust and aligned with international best practices. While the training workshops provided a strong foundation in the use of LEAP and GACMO,

it was recognized that continuous training and knowledge-sharing would be essential for maintaining and enhancing these skills over time.

4.2.1 Challenges Identified

- **Insufficient technical expertise:** While the workshops succeeded in providing initial training, participants expressed concerns that technical expertise in using modelling tools like LEAP and GACMO might diminish over time if there is no structured plan for ongoing education and skill enhancement.
- **Staff turnover and institutional knowledge:** A recurring challenge mentioned was the high turnover of staff in key government institutions, which can lead to the loss of institutional knowledge. Without continuous training and mentorship programs, the ability of these institutions to effectively use the tools for climate reporting could be compromised.
- **Need for sector-specific training:** Some participants highlighted the need for more sector-specific training that addresses the unique challenges faced in the energy and industrial sectors. For instance, certain sectors may require specialized knowledge in GHG emissions accounting or scenario building that goes beyond general training.

4.2.2 Recommendations

- **Establish a structured capacity-building program:** A major recommendation was to institutionalize a continuous training program focused on climate modelling, data collection, and reporting. Such a program would ensure that new staff are trained, and existing staff can enhance their skills regularly.
- **Knowledge transfer from international experts:** Namibia could benefit from ongoing collaboration with international climate experts who can provide tailored training in specific areas such as MRV (Monitoring, Reporting, and Verification) systems, data analysis, and GHG accounting. This would help bridge any knowledge gaps and ensure that local teams are equipped to handle evolving climate challenges.
- **Creation of a peer-to-peer learning network:** Another recommendation was to create a peer-to-peer learning network across institutions, where technical staff can share experiences, challenges, and solutions related to the use of LEAP, GACMO, and other tools. This network could serve as a forum for regular workshops, seminars, and exchanges between ministries and regional institutions.

4.3. Tool Integration

A key discussion point during the workshops was the integration of GACMO into the National MRV system to ensure consistent data flows between energy system projections and cost-benefit analyses. Participants recognized the value of GACMO in their respective areas but noted that better integration would enhance the overall climate reporting and decision-making process.

4.3.1 Challenges Identified

- **Data consistency between tools:** One of the primary concerns raised was that the data used for energy projections and in GACMO for cost assessments were sometimes inconsistent, leading to misalignment between the two models. This

inconsistency could result in inaccurate projections or evaluations of mitigation actions.

- **Fragmented workflows:** Participants observed that while GACMO provide critical insights, they are often used in isolation, resulting in a fragmented approach to climate modelling. Without integration, there is a risk of duplication of efforts and missed opportunities for synergizing the strengths of GACMO.

4.3.2 Recommendations

- **Develop a standardized data flow:** A strong recommendation was to establish a standardized data flow for GACMO. This would involve ensuring that the same datasets—whether related to energy consumption, emissions, or costs—are consistently used. This would allow for more accurate projections and ensure that cost-benefit analyses are based on reliable energy system data.
- **Create an integration framework:** Participants suggested developing an integration framework that clearly outlines how GACMO can be used for modelling and reporting within the National MRV system. This framework would include guidelines on how to transfer outputs from GACMO for effective reporting.
- **Automation of data transfer:** To reduce the risk of human error and improve efficiency, it was recommended that Namibia explore the possibility of automating data transfer for GACMO. By creating automatic links between the two tools, the workflow could be streamlined, reducing the burden on technical staff and improving the overall accuracy of reports.

The comments and feedback gathered during the workshops provided valuable insights into the challenges and opportunities facing Namibia in its climate reporting efforts. By addressing issues related to data gaps, capacity building, and tool integration with the MRV system, Namibia can improve its climate modelling capabilities and ensure that it is well-positioned to meet its NDC targets. The discussions underscored the need for collaborative efforts, both within the country and with international partners, to build a robust, data-driven climate reporting system that aligns with international standards and best practices.

5. CONCLUSION AND NEXT STEPS

The training workshops on LEAP (Long-range Energy Alternatives Planning System) and GACMO (Greenhouse Gas Abatement Cost Model) concluded with a consensus that these two tools, when used, offer Namibia a comprehensive framework for tracking, projecting, and managing its greenhouse gas (GHG) emissions. Both tools complement each other by addressing different aspects of climate action: LEAP allows for detailed long-term energy system modelling and scenario analysis, while GACMO provides a cost-benefit analysis of mitigation actions, offering quick insights into the financial and emissions reduction potential of various strategies.

The workshops also underscored the importance of maintaining momentum and taking the next steps to fully capitalize on the lessons learned and ensure that Namibia's climate action plans are robust, data-driven, and aligned with international best practices.

5.1. Strengthening Data Collection and MRV Systems

One of the critical areas identified for further improvement is the need to strengthen data collection and the country's Monitoring, Reporting, and Verification (MRV) systems. Accurate data is the cornerstone of reliable GHG projections and emissions tracking, and it is essential for ensuring that Namibia can accurately track its progress toward meeting its NDC targets. Moving forward, Namibia will focus on the following key actions:

- **Improving the quality and availability of data:** A primary focus will be on closing the data gaps, particularly in the energy sector, which is central to Namibia's emissions profile. Efforts will be made to ensure accurate, up-to-date, and disaggregated data is consistently collected. This will involve strengthening collaboration between different ministries, local authorities, and international partners to ensure that high-quality data flows smoothly into the GACMO model.
- **Expanding MRV capabilities:** The MRV system needs to be more comprehensive to ensure that all sectors contributing to emissions are tracked effectively. Namibia will work to align its MRV system with international standards, improving its capacity to report on climate action in a transparent and consistent manner. Enhancing the MRV systems will not only support NDC tracking but also position Namibia as a leader in regional climate action, ensuring compliance with global reporting frameworks set by the UNFCCC (United Nations Framework Convention on Climate Change).
- **Leveraging new technologies:** Namibia may also explore the use of data analytics to improve the monitoring of emissions, especially in sectors where traditional data collection methods are difficult or inefficient. These technologies can help provide real-time monitoring and enable more frequent updates of emission inventories, ensuring that the MRV system remains responsive and accurate.

5.2. Building Capacity within Ministries and Institutions

The success of Namibia's climate action relies not only on the tools themselves but also on the technical capacity of the institutions and individuals using them. The workshops clearly demonstrated that while LEAP and GACMO provide a solid technical framework, their effective implementation requires ongoing capacity building across all relevant ministries and institutions. To ensure that the tools are used effectively, Namibia will prioritize the following:

- **Ongoing training programs:** Regular training sessions and capacity-building initiatives will be crucial to ensure that the skills developed during the workshops are maintained and enhanced. This will involve providing further sector-specific training to technical staff in key ministries, such as the Ministry of Environment, Forestry, and Tourism (MEFT), the Ministry of Mines and Energy (MME), and the Namibia Statistics Agency (NSA). These institutions play central roles in data collection, energy planning, and climate reporting, and strengthening their expertise will be critical to the overall success of Namibia's climate strategy.

- **Institutionalizing knowledge sharing:** Another key step will be to institutionalize the knowledge gained during the workshops through the creation of cross-departmental teams that regularly share information, discuss challenges, and coordinate the use of GACMO across sectors. Establishing peer-to-peer learning networks within and between ministries can help foster a culture of continuous learning and ensure that expertise in these tools is retained even in the face of staff turnover.
- **Enhancing collaboration with international experts:** Namibia will continue to collaborate with international climate experts and organizations to stay up-to-date with the latest climate modelling methodologies, tools, and data collection techniques. Regular exchanges with experts from institutions like the UNFCCC and ICAT (Initiative for Climate Action Transparency) will help ensure that Namibia's technical teams remain at the cutting edge of climate action and reporting.

The training workshops provided a critical foundation for Namibia's journey toward meeting its climate goals under the Paris Agreement. By combining the strengths of LEAP and GACMO, Namibia is now better equipped to track GHG emissions, evaluate mitigation actions, and make informed decisions about its energy future. However, to sustain and build on this progress, it is clear that further steps are required.

Moving forward, Namibia's focus will be on strengthening its MRV systems, enhancing data collection, and building institutional capacity to ensure that both tools are used effectively for NDC tracking. Ongoing training and support from international partners will be essential to ensure that Namibia remains on track to meet its climate commitments and continues to play an active role in the global fight against climate change. By taking these next steps, Namibia can ensure that it meets its NDC goals, supports sustainable development, and contributes meaningfully to the global climate agenda.