



TRAINING WORKSHOP ON ENHANCED TRANSPARENCY FRAMEWORK (ETF) REQUIREMENTS UNDER UNFCCC FOR THE WASTE SECTOR IN CAMBODIA



Date 08–09 October 2025

Venue Cambodiana Hotel, Phnom Penh, Cambodia

Organized by: General Directorate of Policy and Strategy, Ministry of Environment (MoE)

In collaboration with: Climate Smart Initiatives (ClimateSI)

Supported by: Initiative for Climate Action Transparency (ICAT) – Phase 3 Project



Initiative for Climate Action Transparency - ICAT

Development of an MRV Framework for the Waste Sector, including Application of the WasCAD and GACMO Tools, Cambodia

Output D – Report of the Training Workshop on the ETF Requirement under UNFCCC for the Waste Sector in Cambodia.

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PREPARED UNDER

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1. Overview

Workshop Name	Training workshop on Enhanced Transparency Framework (ETF) Requirements, IPCC Software, and Data Quality Management for the Waste Sector in Cambodia
Date	08 th and 09 th October 2025
Topics	<ul style="list-style-type: none"> • Introduction to the Enhanced Transparency Framework (ETF): Reporting requirements and reporting cycles • ETF in practice: Cambodia’s progress of ETF reporting and lessons from other sectors • Introduction to UNFCCC Reporting tool, including presentation on structure and purpose of UNFCCC reporting (Biennial Transparency Report (BTR), CRT tables, common tabular formats) • Technical Training on IPCC Software by introduction to IPCC guidelines and IPCC software for the preparation of the GHG Inventory. • QA/QC procedures, uncertainty analysis, and institutional roles
Organizing institutions	<ul style="list-style-type: none"> • Ministry of Environment (MoE), General Directorate of Policy and Strategy (GDPS) • Initiative for Climate Action Transparency (ICAT) / UNOPS • Climate Smart Initiatives (Private) Limited (ClimateSI - International Consultant Team).

2. Background

The Paris Agreement, adopted at the twenty-first session of the Conference of the Parties (COP 21) to the United Nations Framework Convention on Climate Change (UNFCCC), entered into force on November 4, 2016. It aims to strengthen the global response to climate change by limiting the increase in global temperature to well below 2°C above pre-industrial levels, while pursuing efforts to limit it further to 1.5°C.

A core component of the Agreement is the Enhanced Transparency Framework (ETF), outlined in Article 13, which seeks to build mutual trust and confidence among Parties and ensure transparency in climate actions. The ETF enables the tracking of progress toward each country’s Nationally Determined Contributions (NDCs) and provides a foundation for the Global Stocktake process that evaluates collective efforts every five years, beginning in 2023.



Cambodia, a Party to the UNFCCC since 1996, ratified the Paris Agreement and submitted its first Intended NDC in 2015. The second NDC in 2020 marked a significant advancement, expanding mitigation efforts to the agriculture and waste sectors, while strengthening adaptation, reducing deforestation, and promoting inclusivity by addressing gender and vulnerable populations. The most recent NDC 3.0 highlights specific mitigation actions in the waste sector, including the construction of bio-digesters of varying capacities, landfill gas extraction, centralized recycling for industrial waste, and improved wastewater management beyond the food and beverage sector.

In accordance with the Paris Agreement, all Parties are required to enhance transparency of climate actions and support through the ETF. Recognizing the importance of strengthening national capacities for ETF implementation, a series of training workshops were conducted to enhance understanding and technical capacity on ETF reporting requirements, UNFCCC reporting tools, and IPCC software for GHG inventory compilation.

3. Objectives of the workshop

The overall objectives of the training workshop were:

- 1) To provide practical training on Enhanced Transparency Framework requirements under the Paris Agreement, ensuring that national and sub-national stakeholders understand reporting obligations and their role;
- 2) To strengthen technical capacity by delivering onsite training on the application of IPCC software for GHG Inventories, UNFCCC reporting platforms, and any other tools useful in reporting.

4. Main Activities

The two-day training workshop comprised of a series of interactive technical sessions combining theoretical presentations, practical demonstrations, and group discussions. The sessions were designed to build the participants' understanding of the ETF under the Paris Agreement, IPCC Software and to strengthen their technical capacity in national GHG inventory compilation, data management, and reporting for the waste sector.

4.1 Day 1 – ETF Requirements and UNFCCC Reporting Tools

4.1.1 Welcome and Opening Session

The Welcome and Opening Session of the Training Workshop on “*The Enhanced Transparency Framework (ETF) Requirements under the UNFCCC for the Waste Sector*” was held on 08 October 2025 at the Cambodiana Hotel, Phnom Penh. The session marked the



official commencement of the two-day capacity-building program jointly organized by the Ministry of Environment (MoE), in collaboration with ClimateSI as the technical partner, and with the financial and logistical support of the Initiative for Climate Action Transparency (ICAT) Phase 3.

The opening ceremony was attended by approximately 50 participants, including senior officials from the Ministry of Environment, representatives from line ministries involved in NDC implementation, development partners, and members of the private sector engaged in Cambodia's waste management sector. The session set the tone for the workshop by highlighting the significance of transparency, data integrity, and international reporting obligations under the Paris Agreement.

4.1.2 Welcome Remarks

The session began with opening coordination and registration managed by the Admin and Project Team, followed by Welcome Remarks delivered by **Mr. Oleg Bulanyi**, Senior Programme Manager, ICAT/UNOPS.

In his remarks, Mr. Oleg had warmly welcomed all distinguished participants and appreciated the strong partnership with the Ministry of Environment and commended Cambodia's ongoing efforts to strengthen national climate transparency systems. He emphasized that the ICAT Phase 3 project serves as a crucial vehicle for supporting developing countries in establishing robust Monitoring, Reporting and Verification (MRV) systems, in line with the ETF requirements of the UNFCCC. Mr. Oleg reiterated ICAT's commitment to continue providing technical assistance, capacity-building, and tool development to help Cambodia effectively operationalize the ETF for the waste sector—one of the most challenging yet important areas for national GHG accounting.

4.1.3 Opening Remarks

Following the welcome address, the official Opening Remarks were delivered by **H.E. Sum Thy**, Director General of the General Directorate of Policy and Strategy (GDPS), Ministry of Environment, who presided over the opening ceremony.

H.E. Sum Thy warmly welcomed all national and international participants and expressed sincere appreciation to the ICAT Secretariat, UNOPS, and ClimateSI for their continued collaboration and technical support in advancing Cambodia's climate transparency agenda.



He underscored that the training was part of the Government’s broader efforts to strengthen institutional and human resource capacities to meet international reporting obligations under the Paris Agreement—particularly in the context of the Biennial Transparency Reports (BTRs) and the National Inventory System.

H.E. Sum Thy highlighted that, while Cambodia has made commendable progress through the submission of its Initial Biennial Transparency Report (BTR1) to the UNFCCC in December 2024, there remain critical challenges—especially in the waste sector, where data gaps, limited technical expertise, and coordination issues continue to hinder the preparation of high-quality GHG inventories.

He reaffirmed the Ministry’s commitment to establishing a comprehensive and sustainable MRV system for the waste sector, in alignment with the updated NDC 3.0 targets. He called upon all stakeholders—national institutions, sub-national authorities, development partners, and private companies—to collaborate actively and share data transparently to ensure the successful operationalization of Cambodia’s national ETF framework.

In closing, H.E. Sum Thy expressed optimism that the two-day workshop would not only enhance technical knowledge on ETF requirements, IPCC software, and UNFCCC reporting tools; but also strengthen cooperation among institutions involved in national climate action and reporting.

4.1.4 Introduction to the Workshop Objectives

After the opening remarks, Mr. Lun Lido, Project Manager, Department of Climate Change (DCC), Ministry of Environment, provided a concise introduction to the workshop objectives and expected outcomes. He outlined the main goals of the training as follows:

- a.) Providing practical training on the Enhanced Transparency Framework (ETF) requirements under the Paris Agreement, ensuring that both national and sub-national stakeholders understand their specific roles and reporting obligations;
- b.) Strengthening technical capacity through hands-on sessions on the use of IPCC software for GHG inventory preparation and UNFCCC reporting platforms, thereby enabling participants to contribute effectively to future national BTRs.

Mr. Lun Lido further explained the agenda and methodology, emphasizing that the program was structured to move from conceptual understanding in Day 1, to practical application in Day 2, enabling participants to apply ETF principles directly within their respective institutions. He encouraged participants to engage actively throughout the sessions, share



their institutional experiences, and identify practical challenges that could inform the design of Cambodia's forthcoming Waste Sector MRV Framework.

4.1.5 Session 1: Introduction to the Enhanced Transparency Framework (ETF) – Reporting Requirements and Reporting Cycles

Eng. Indike Dassanayake, Lead Trainer of ClimateSI, and Ms. Nilni Malsha, MRV Expert of ClimateSI, conducted this session. Mr. Indike presented an overview of the ETF, core elements to be reported under the BTR, and reporting cycles, while Ms. Nilni presented the reporting requirements of the four main groups of information in the BTR.

The ETF aims to foster mutual trust, confidence, and effective implementation of the Paris Agreement by improving existing MRV arrangements. It is crucial for comprehending key elements in achieving the objective of the Convention. It provides a framework for reporting:

- a. **Emissions:** Current emission levels, The ambition of existing efforts, and the progress on the national and international scale.
- b. **Climate Action:** Tracking progress towards NDC, and the progress of adaptation actions.
- c. **Support:** Support provided and received per Party, Global amounts of financial support provided

All Parties shall report on their National GHG Inventory, and information necessary to track progress of NDC under Article 4. Developed countries shall report information on support provided by them. All countries should report information on climate change impacts and adaptation as appropriate. Developing countries should report information on support needed and received. Information reported shall be subjected to Technical Expert Review (TER) and used for Facilitative, Multilateral Consideration of Progress (FMCP).

Some important features of ETF are: Using common modalities, procedures, and guidelines (MPGs) for all parties; Flexibility for developing country parties that need it in the light of their capacities; Building on and enhancing existing transparency arrangements; Facilitating continuous improvement; and avoiding double counting. Some benefits of ETF are: Informing policies, plans, strategies and programmes; Political buy-in; Improve access to support; Capacity building; and Increased awareness among stakeholders.



After the end of preparatory phase from 31st December 2024, all Parties shall submit BTRs every two years.

The four components of a BTR by developing countries are:

- a) National GHG inventory
- b) Information necessary to track the progress in implementing and achieving the NDC
- c) Information on climate change impacts and adaptation
- d) Financial, technology transfer and capacity-building support needed and received

The National GHG Inventory can be submitted as a separate National Inventory Document (NID), and a summary can be included in the BTR. Together with the BTR, which is a textual report, additional information shall be submitted in electronic form using the Common Tabular Format (CTF).

Key Takeaways:

- All Parties shall submit their BTR to UNFCCC every two years.
- They include information on: GHG inventory, progress in achieving the NDC, impacts of climate change and adaptation measures, and support needed and received.
- BTR shall be prepared as per the MPGs published by the UNFCCC
- Further information shall be provided electronically using CTF
- BTR enhances the transparency and political buy-in and improves availability of support and the acceptance of all stakeholders.

4.1.6 Session 2: ETF in Practice – Cambodia’s Progress and Lessons Learned

Mr. Sokhim Pich, GACMO Expert conducted this session, focusing on Cambodia’s practical experience in implementing the ETF and preparing its Initial Biennial Transparency Report (BTR1), submitted to the UNFCCC in December 2024. The presentation provided an overview of Cambodia’s achievements, including the development of national GHG inventories, adaptation reporting, and tracking of NDC progress across multiple sectors. Participants learned about Cambodia’s mitigation target of a 42% GHG reduction by 2030, key actions under NDC 3.0, and the country’s institutional arrangements supporting transparency reporting.

Mr. Sokhim also highlighted critical challenges such as data gaps, limited technical capacity, and reliance on donor funding, which affect the quality and frequency of reporting. Lessons from other sectors—such as energy, forestry, and agriculture—demonstrated that strong



coordination, standardized templates, and quality assurance processes are vital for effective ETF implementation.

Key Takeaways:

- Cambodia successfully completed and submitted its Initial BTR in 2024 under the Paris Agreement.
- The national transparency system covers GHG inventory, NDC tracking, adaptation, and support needed & received.
- Strengthening data quality and institutional cooperation remains a top priority.
- Continuous capacity building is essential for meeting future ETF and BTR obligations.

4.1.7 Session 3: UNFCCC Enhanced Transparency Framework (ETF) Reporting Tools

Ms. Wasundara Samarawickrama (Waste Sector Expert, ClimateSI) and Ms. Dinukshi Jayasena (Trainer, ClimateSI) conducted this session, which introduced participants to the official UNFCCC ETF Reporting Tools, that enable Parties to prepare and submit standardized climate reports under the Paris Agreement. Trainers explained the structure, purpose, and functions of the three key tools:

- a) **ETF GHG Inventory Tool** – for generating Common Reporting Tables (CRTs) for GHG emissions and removals;
- b) **ETF Progress Reporting Tool** – for tracking implementation and achievement of NDCs; and
- c) **ETF Support Reporting Tool** – for documenting financial, technological, and capacity-building support needed and received.

Participants learned how these tools align with the 2006 IPCC Guidelines, ensure consistency across sectors, and maintain interoperability with the IPCC Inventory Software through Excel and JSON format data exchanges. The trainers demonstrated how the tools support the preparation of Cambodia’s future BTRs and improve coordination among national agencies.

Key Takeaways:

- UNFCCC ETF tools standardize national climate reporting under the Paris Agreement.
- The tools link directly with IPCC software for seamless data exchange and accuracy.
- They strengthen institutional efficiency, consistency, and transparency in reporting.
- Hands-on training will further enhance Cambodia’s readiness for BTR-2 and beyond.



4.2 Day 2 – IPCC Software and Data Quality Management

The second day began with a recap session to summarize the key lessons learnt from the discussions of Day 1. Ms. Chheng Tharika, National Solid Waste Expert, provided an overview of the major themes including the ETF principles, Cambodia’s progress under the Biennial Transparency Report (BTR1), and the structure and purpose of the UNFCCC reporting tools introduced by ClimateSI.

Participants reflected on the importance of integrating these tools with national data systems and improving coordination between ministries and sub-national institutions. The overview also outlined the focus for Day 2—moving from conceptual understanding to practical application, specifically through the use of IPCC Inventory Software for GHG emission estimation in the waste sector.

Key Takeaways:

- Reinforced key concepts and outcomes from the sessions of Day 1.
- Linked theoretical knowledge to the technical training planned for Day 2.
- Ensured all participants had a shared understanding of ETF objectives and tools.
- Created expectations for hands-on exercises using IPCC software.

4.2.1 Session 4: Introduction to IPCC Guidelines and Software for GHG Inventory Preparation

Mr. UY Kamal, Deputy Director General, Ministry of Environment (MoE) as a key resource person in conducted this session, which introduced participants to the 2006 IPCC Guidelines for National Greenhouse Gas Inventories and the practical use of the IPCC Inventory Software for preparing GHG emission estimates. Mr. Kamal provided a clear overview of the methodological framework used to quantify emissions and removals across all sectors, with a particular focus on the waste sector.

Participants were guided through the core concepts of the IPCC Tier system: Tier 1 (default data), Tier 2 (country-specific data), and Tier 3 (advanced models). They learned how these tiers determine the accuracy and complexity of emission calculations. The session also highlighted the importance of following TACCC principles (Transparency, Accuracy, Consistency, Comparability, Completeness) to ensure credible reporting under the Enhanced Transparency Framework (ETF).



Mr. Kamal demonstrated and explained how to create an inventory, input data, and manage emission factors in the IPCC software, explaining how this process links directly to the preparation of Common Reporting Tables (CRTs) under the UNFCCC reporting system.

Key Takeaways:

- Introduced the IPCC 2006 Guidelines and their application in national inventories.
- Explained methodological tiers and data quality principles (TACCC).
- Demonstrated the structure and key functions of the IPCC Inventory Software.
- Strengthened participants' understanding of how IPCC outputs support ETF reporting.

4.2.2 Session 5: Applying IPCC Outputs in Support of National MRV and ETF Reporting

Mr. UY Kamal, Deputy Director General, MoE, conducted this session too, which focused on how the outputs generated from the IPCC Inventory Software can be effectively utilized to strengthen Cambodia's Measurement, Reporting, and Verification (MRV) system and fulfill reporting obligations under the ETF.

Mr. Kamal explained that the IPCC software produces standardized datasets and Common Reporting Tables (CRTs) that directly align with the UNFCCC's reporting requirements. He also demonstrated how data compiled in the IPCC system such as activity data, emission estimates, and sectoral summaries; provides the technical foundation for preparing Cambodia's BTRs. Participants learned how these outputs support national decision-making, policy formulation, and monitoring of progress toward NDC 3.0 mitigation targets.

Mr. Kamal emphasized the importance of maintaining data consistency between national inventories and ETF submissions, and the need for clear documentation and archiving to ensure traceability and long-term transparency.

Key Takeaways:

- IPCC software outputs serve as the core technical input for ETF and BTR reporting.
- Integration between IPCC and UNFCCC tools ensures data accuracy and consistency.
- Outputs inform national MRV systems and policy development.
- Proper data documentation and archiving are essential for transparency and institutional memory.



4.2.3 Session 6: Data Quality, QA/QC, and Uncertainty Analysis for the Waste Sector

Mr. Chanchhaya Chhom, National Team Lead consultant, conducted this session which addressed the critical importance of data quality assurance (QA), quality control (QC), and uncertainty analysis within Cambodia’s waste sector MRV and ETF framework.

Mr. Chhaya explained that robust QA/QC systems are essential for ensuring that GHG inventory data are reliable, transparent, and consistent over time. The session linked these procedures directly to the TACCC principles—Transparency, Accuracy, Consistency, Comparability, and Completeness—underpinning the 2006 IPCC Guidelines and the ETF.

Participants were introduced to Cambodia’s draft QA/QC workflow, outlining responsibilities for data collection, validation, and reporting across key institutions including the General Directorate of Policy and Strategy (GDPS), Department of Climate Change (DCC), Department of Solid Waste Management (DSWM), Department of Water Quality Management (DWQM), and the National Institute of Statistics (NIS).

Mr. Chhaya provided practical demonstrations using examples from the Phnom Penh Landfill and Sihanoukville Wastewater Treatment Plant, showing how data verification and cross-checking improve accuracy and reduce uncertainty. Mr. Chhaya further presented the IPCC’s default uncertainty ranges for key waste subsectors and explained Cambodia’s plan to refine these using national datasets from WasCAD and MoE systems.

Key Takeaways:

- QA/QC procedures are vital for reliable and transparent GHG inventories.
- Institutional coordination ensures data integrity across national systems.
- Uncertainty analysis supports prioritization of data improvements.
- Cambodia is developing a National QA/QC Plan (2025–2030) to strengthen ETF implementation.

5. Hands-on Discussion, Troubleshooting, and Q&A

All participants engaged in this activity with clear guidance from Mr. UY Kamal (MoE); Ms. Cheat Meardey (National Wastewater Expert) and Mr. Chamara Bandara (Project Coordinator, ClimateSI).

This interactive and concluding technical session provided participants with the opportunity to apply the knowledge gained throughout the two-day training and to clarify operational



challenges in using the IPCC Inventory Software for GHG estimation in the waste sector. Facilitated by the trainers, the session functioned as an open lab where participants practiced importing and exporting datasets, running sample calculations, and reviewing the outputs for accuracy and completeness.

During the troubleshooting and Q&A, participants raised practical issues related to data input formats, emission factor selection, and integration with national databases such as WasCAD and the NIS. The facilitators provided step-by-step guidance and solutions, reinforcing correct procedures for documentation, QA/QC logging, and the generation of Common Reporting Tables (CRTs) for ETF reporting.

The discussion also allowed participants to share experiences from their respective institutions, emphasizing the need for regular data updates, improved communication among agencies, and continued hands-on training to strengthen Cambodia's national MRV system.

Key Takeaways:

- Participants applied theoretical knowledge in a practical, guided environment.
- Common challenges in data entry and IPCC software use were addressed through real-time troubleshooting.
- Reinforced the importance of data verification and institutional collaboration.
- Prepared participants for future ETF and BTR data compilation and submission processes.

5.1 Q & A session

A dedicated Q&A session was held to capture key technical and institutional issues raised by participants during the two-day workshop. The discussion provided an opportunity for line ministries, sub-national authorities, development partners, and private-sector representatives to seek clarification on ETF reporting requirements, application of IPCC Inventory Software, QA/QC procedures, and roles within the national MRV system. Trainers and MoE focal points addressed questions related to data accuracy, institutional responsibilities, uncertainty reduction, and integration of IPCC outputs into the national transparency framework. The session helped consolidate participants' understanding and highlighted priority areas for continued capacity building and MRV system strengthening.



No.	Person / Institution Who Raised Question	Question / Issue Raised	Response / Clarification Provided
1	MoE – DCC	How frequently must Cambodia update and submit its Biennial Transparency Report (BTR)?	Trainers confirmed that under the ETF, BTRs are due every two years after BTR-1 submission (Dec 2024); updates should reflect latest inventory data and NDC progress.
2	MoE – DWQM	How does the IPCC Inventory Software ensure data accuracy across different tiers of calculation?	The software applies the 2006 IPCC Guidelines framework using Tier 1–3 methods; higher tiers allow country-specific data to reduce uncertainty and improve accuracy through QA/QC procedures.
3	Representative from NIS	What is the role of NIS in the waste-sector MRV system and ETF reporting?	NIS supports national data collection and validation for activity data (e.g., population, waste generation); MoE coordinates integration into the inventory system.
4	N/A	Can IPCC outputs be directly uploaded to the UNFCCC portal?	Not directly by non-focal points; MoE focal team reviews and transfers validated outputs into the official UNFCCC ETF Reporting Tool.
5	Representative from MPWT	How will solid waste and wastewater data from provinces be standardized for future reporting?	The planned Waste Sector MRV Framework (2025–2030) will establish standard templates and QA/QC protocols for provincial data submission to MoE.
6	N/A	How can we reduce uncertainty in methane emissions from landfills and	By using nationally derived activity data (WaSCAD records, field surveys) and locally adjusted emission factors validated through QA/QC checks.

		wastewater treatment plants?	
7	Representative from Red Cross	Will future ETF training include sectoral integration with energy and agriculture?	Yes, MoE and ICAT plan to expand sector-specific capacity building in later phases to ensure cross-sectoral consistency in BTR submissions.

6. Outputs and Results

The two-day training workshop on “The Enhanced Transparency Framework (ETF) Requirements under the UNFCCC for the Waste Sector” produced significant technical and institutional outcomes. The sessions successfully combined conceptual understanding with practical application, enabling participants to strengthen their knowledge, skills, and readiness to contribute to Cambodia’s future transparency and reporting obligations under the Paris Agreement.

Key Outputs

a) Enhanced Understanding of ETF Reporting Requirements

- Participants gained a comprehensive understanding of the ETF, including its objectives, structure, and relevance to Cambodia’s national climate commitments.
- The training clarified the reporting obligations under the BTR and the role of the National Inventory Report (NIR) in ensuring data consistency and comparability.

b) Improved Capacity in Using IPCC Inventory Software

- Participants were trained on the use of IPCC Inventory Software (Version 2.98, June 2025) for preparing GHG inventories in alignment with the 2006 IPCC Guidelines.
- The hands-on sessions provided practical experience in data entry, emission calculations, uncertainty analysis, and report generation.
- Participants learned how to generate Common Reporting Tables (CRTs) compatible with the UNFCCC ETF Reporting Tools.

c) Familiarization with UNFCCC Reporting Tools

- Participants were introduced to the UNFCCC ETF Reporting Tools, including the GHG Inventory Tool, Progress Reporting Tool, and Support Reporting Tool, and learned how to integrate these with national data systems.



- Trainers demonstrated how these tools facilitate standardized, transparent reporting and improve inter-ministerial coordination.

d) Application of QA/QC and Uncertainty Analysis Procedures

- The training strengthened understanding of Quality Assurance and Quality Control (QA/QC) and uncertainty assessment for the waste sector.
- Participants reviewed practical examples and discussed the establishment of a National QA/QC Plan (2025–2030) to ensure systematic data verification and transparency.

e) Institutional Coordination Strengthened

- The workshop promoted stronger collaboration between MoE departments, line ministries, sub-national administrations, and private sector operators in data sharing and reporting for the waste sector.
- The session discussions provided valuable feedback for improving the structure of the upcoming Waste Sector MRV Framework.

f) Knowledge Materials and Technical Resources Distributed

- Participants received presentation materials, the IPCC software user manual, and sample templates for QA/QC documentation, data archiving, and GHG estimation.
- These resources will support continuous learning and institutional application beyond the training event.

6.1 Key Results and Achievements

➤ Strengthened National Capacity:

Over 50 participants, representing key ministries, sub-national authorities, development partners, and the private sector, improved their technical capacity in GHG inventory preparation and ETF reporting.

➤ Operational Readiness for Future BTRs:

Participants are now better equipped to contribute to the preparation of Cambodia's Biennial Transparency Reports (BTR-2 and BTR-3), using standardized international methodologies and reporting platforms.

➤ Improved Understanding of ETF Integration:

The training clarified how IPCC software outputs directly support the ETF reporting process and the national MRV system, ensuring alignment between domestic data and UNFCCC submission requirements.



➤ **Commitment to Continuous Improvement:**

Participants expressed strong interest in future refresher courses and sector-specific hands-on training. The workshop concluded with a consensus on the need to institutionalize regular data sharing and capacity-building mechanisms under the MoE coordination.

6.2 Overall Outcome

The workshop achieved its primary objective of enhancing Cambodia’s technical and institutional capacity for implementing the Enhanced Transparency Framework (ETF) in the waste sector.

It established a shared understanding among national stakeholders, of the tools, methodologies, and coordination mechanisms required for accurate, transparent, and timely climate reporting.

The event also reinforced the Government’s commitment to maintaining transparency in climate action, improving data systems, and aligning national reporting processes with the UNFCCC guidelines—laying a strong foundation for the preparation of Cambodia’s upcoming Biennial Transparency Reports and the Waste Sector MRV Framework.

7. Closing Session

The Closing Session of the two-day training workshop on *“The Enhanced Transparency Framework (ETF) Requirements under the UNFCCC for the Waste Sector”* was held in the afternoon of 09 October 2025 at the Cambodiana Hotel, Phnom Penh.

In the closing remarks, Mr. Uy Kamal, Deputy Director General of the Ministry of Environment, expressed sincere appreciation to all participants for their active engagement and collaboration throughout the training. He acknowledged the valuable technical contributions from ClimateSI experts, and the strong support provided by the ICAT Secretariat and UNOPS in strengthening Cambodia’s national capacity for climate transparency.

Mr. Kamal emphasized that this workshop marked an important milestone in Cambodia’s efforts to implement the Enhanced Transparency Framework (ETF) and to operationalize the Waste Sector MRV Framework under the country’s NDC 3.0. He encouraged all



participants to apply the skills and knowledge gained, particularly in IPCC software operation, QA/QC procedures, and ETF reporting tools within their respective institutions to improve data quality and ensure transparent, consistent national reporting.

A brief evaluation session followed by Mr. Lun Lido, during which participants provided highly positive feedback, noting that the training significantly enhanced their understanding of both conceptual and technical aspects of ETF implementation. Participants also expressed their commitment to continued collaboration and capacity development toward future Biennial Transparency Reports (BTRs).

The event concluded with appreciation remarks from ClimateSI representatives, who commended the Ministry of Environment for its leadership and coordination, and thanked ICAT for their support.

Key Takeaways:

- Reinforced national commitment to transparency and effective climate reporting.
- Highlighted the importance of applying learned skills in future MRV and BTR activities.
- Strengthened cooperation among MoE, line ministries, and development partners.
- Marked the successful conclusion of the two-day ETF capacity-building workshop.



Annexes

- **Annex 1:** Workshop Agenda
- **Annex 2:** List of Participants
- **Annex 3:** Summary of Participant Feedback
- **Annex 4:** Photographs of the workshop



Annex 1: Workshop Agenda

Training Workshop on “The Enhanced Transparency Framework (ETF) Requirements under the UNFCCC for the Waste Sector”

Date: 08–09 October 2025

Avenue: Cambodiana Hotel, Phnom Penh

Organized by: Ministry of Environment (MoE), in collaboration with ClimateSI

In collaboration with: ClimateSI

Supported by: ICAT Secretariat / UNOPS

Day 1- ETF requirement and UNFCCC Reporting Tool

Time	Programme	Responsible
12:30-13:10	Registration	Admin & Project Team
13:10-13:20	Welcome Remarks (UNOPS/ICAT)	ICAT Representative
13:20-13:30	Opening Remarks	H.E. Sum Thy, Director General of the GDPS, MoE
13:30-13:35	Group Photo	All Participants
13:35-13:40	Objective of the workshop	Mr. Lun Lido Dept. of Climate Change
13:40 - 14:30	Introduction to the Enhanced Transparency Framework (ETF): Reporting requirements and reporting cycles	Mr. Buddika Hemashantha Team Lead, ClimateSI Ms. Nilni Malsha, MRV Expert, ClimateSI Mr. Indike Dassanayake, Lead Trainer, ClimateSI
14:30 - 14:45	Coffee Break	
14:45 - 15:30	ETF in practice: Cambodia’s progress of ETF reporting and lessons from other sectors	Mr. Sokhim Pich, National Expert
15:30 - 16:30	Introduction to UNFCCC Reporting tool, including, presentation on structure and purpose of UNFCCC reporting (Biennial Transparency Report (BTR), CRT tables, common tabular formats).	Ms. Wasundara Samarawickrama, Waste Sector Expert, ClimateSI Ms. Dinukshi Jayasena, Trainer, ClimateSI
16:30-17:00	Q&A and Group Discussion	All Participants
17:00	Closing Day 1	



Day 2- Training on IPCC Software

Time	Programme	Responsible
08:00 – 08:30	Registration & Morning Coffee	Admin & Project Team
08:30 – 09:00	Recap of Day 1 & Overview of Day 2	Ms. Chheng Tharika, National Solid Waste Expert
09:00 – 10:10	Introduction to IPCC guidelines and IPCC software for the preparation of the GHG Inventory	Mr. UY Kamal, Deputy Director General, MOE (Confirmed)
10:10 – 10:30	Application of IPCC software for the Waste sector	Mr. UY Kamal, Deputy Director General, MOE (Confirmed)
10:30 – 11:00	Coffee Break	All Participants
11:00 – 11:45	Applying IPCC Outputs in Support of National MRV and ETF Reporting: <ul style="list-style-type: none"> - Demonstrate how IPCC inventory outputs (activity data, emission estimates, summary tables) provide the technical basis for MRV in the waste sector. - Show how these outputs are aligned with ETF reporting requirements conceptually (without system login). 	Mr. UY Kamal, Deputy Director General, MOE (Confirmed)
11:45 – 12:00	Q&A (single session)	Facilitator: Mr. Dara Doeun, National Coordinator
12:00 – 13:00	Lunch time	All Participants
13:00 – 13:40	Data quality & QA/QC: A short session on QA/QC procedures, uncertainty analysis, and institutional roles (including Cambodia-specific case study)	Mr. Chanchhaya CHHOM National Team Lead
13:40 – 15:40	Hands-on training on application of IPCC software for the Waste sector	Mr. UY Kamal, Deputy Director General, MOE (Confirmed) Facilitator: Ms. Cheat Meardey, National Waste Water Expert Mr. Chamara Bandara, Project Coordinator, ClimateSI



15:40 – 16:20	Open lab: resolving participant issues: troubleshooting, export of results, quick checks vs. ETF fields	All Participants
16:20 – 16:30	Wrap-up, Evaluation & Closing Remarks	MoE



Annex 2: List of Participants

The workshop was attended by approximately **50 key stakeholders** representing:

- Ministry of Environment (GDPS, DCC, DSWM, DWQM, DHSM, and other technical departments)
- Line Ministries under the **CCTWG/NDC3.0 Sectors** (MISTI, MME, MPWT, MAFF, MoWRAM, MRD, MoH, MLMUPC, MoP, NIS)
- **Sub-National Administrations** (Phnom Penh, Siem Reap, Sihanoukville)
- **Development Partners and NGOs** (UNDP, UNICEF, UNIDO, ADB, JICA, GIZ, FAO, EU, GGGI, CCCA/NDC3.0)
- **Private Sector Representatives** (800 Super-GAEA, Khmer Beverages, Chip Mong Ecocycle, Sarom Trading, CINTRI Cambodia, Mizuda Sanitation Cambodia)

No	Participants	Role/Institutions	#
Project Management			
1	H.E. Sum Thy	Project Director, General Director of GDPS, MoE	1
2	Mr. Lun Lido	Project Manager	1
3	Representative	ICAT Secretariat	1
4	Representative	UNOPS	1
5	Consultants	International Consultant, ClimateSI	5
6	Consultants	National Consultant	5
		Sub Total	14
Ministry of Environment (MoE)			
7	H.E. Chuop Paris	Secretary of State <i>(only Opening Remarks)</i>	1
8	Mr. Sum Cheat	Department of Climate Change + 1 from GHG Office	2
9	Representative	Department of Water Quality Management	1
10	Representative	Department of Solid Waste Management	1
11	Representative	Department of Hazardous Substance Management	1
12	Representative	Enterprise for Managing Transfer Stations and Landfills for Solid Waste	1
		Sub total	7
Line Ministries from CCTWG/NDC3.0 sectoral			



13	Representative	MISTI	1
14	Representative	MME	1
15	Representative	MPWT	1
16	Representative	MoWRAM	1
17	Representative	MAFF	1
18	Representative	MRD	1
19	Representative	MoH	1
20	Representative	MLMUPC	1
21	Representative	MoP	1
22	Representative	National Institute of Statistics (NIS)	1
23	Representative	Cambodia Red Cross (Medical Waste Management)	1
	-	Sub total	11
Sub-National Institutions			
24	Representative	Phnom Penh Municipality	1
25	Representative	Siem Reap Provincial Administration	1
26	Representative	Sihanoukville Provincial Administration	1
		Sub total	3
Development Partners/NGOs Coordinating Sectoral Work			
27	Representative	UNDP	1
28	Representative	UNICEF	1
29	Representative	UNIDO	1
30	Representative	ADB	1
31	Representative	JICA	1
32	Representative	GIZ	1
33	Representative	FAO	1
34	Representative	EU	1
35	Representative	GGGI	1
36	Representative	CCCA/NDC 3.0 Team	1
		Sub Total	10
Private Sector			



37	Representative	800 Super-GAEA (Cambodia) Co. Ltd,	1
38	Representative	Khmer Beverages Co., Ltd.,	1
39	Representative	Chip Mong Ecocycle	1
40	Representative	Sarom Trading	1
41	Representative	CINTRI Cambodia Co. Ltd	1
42	Representative	Mizuda Sanitation Cambodia Co. Ltd	1
		Sub Total	6
		Total	50



Annex 3: Summary of Participant Feedback

At the end of the training, participants completed an evaluation form assessing the **relevance, effectiveness, and applicability** of the sessions.

Key findings included:

- **96%** rated the training as *highly relevant* to their work.
- **93%** expressed improved confidence in using IPCC software and understanding ETF requirements.
- **98%** agreed that the facilitators demonstrated clear expertise and practical guidance.
- Participants recommended more sector-focused refresher training and continuous coaching for MRV data management.



Annex 4: Workshop Photos

