



## VALIDATION WORKSHOP REPORT



*Final Validation Workshop on*

### **DEVELOPMENT OF AN MRV FRAMEWORK FOR THE WASTE SECTOR IN CAMBODIA**

Initiative for Climate Action Transparency (ICAT) – Phase 3  
Ministry of Environment • ICAT Secretariat • ClimateSI

**Date:** 26 May 2026, 08:30 AM – 12:00 PM

**Venue:** MoE, Phnom Penh, Cambodia

## 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 L – Final Validation Workshop on the Development of an MRV Framework for the Waste Sector**

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## 1. Overview

This report summarizes the proceedings, presentations, discussions, and outcomes of the Final Validation Workshop of the ICAT Phase 3 project, held to validate Cambodia’s Measurement, Reporting and Verification (MRV) framework for the waste sector and the Waste Sector Climate Action Data (WasCAD) tool. The summary table below captures the essential details of the event.

*Table 1 : Validation workshop summary.*

|                                |                                                                                                                                                                                                                                                                                                                                                                                            |
|--------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Workshop Name</b>           | Final Validation Workshop on “Development of an MRV Framework for the Waste Sector in Cambodia”                                                                                                                                                                                                                                                                                            |
| <b>Date &amp; Time</b>         | 26 May 2026, 08:30 AM – 12:00 PM (Cambodia time)                                                                                                                                                                                                                                                                                                                                           |
| <b>Venue</b>                   | Green Building Hall, Ministry of Environment, Phnom Penh                                                                                                                                                                                                                                                                                                                                   |
| <b>Topics</b>                  | <ul style="list-style-type: none"> <li>• Project results and key achievements of ICAT Phase 3 in Cambodia;</li> <li>• The fully adapted and deployed waste-sector MRV framework (WasCAD tool) for Cambodia;</li> <li>• Lessons learned, institutional arrangements and continued operation;</li> <li>• Stakeholder validation, feedback and recommendations (panel discussion).</li> </ul> |
| <b>Organizing Institutions</b> | Ministry of Environment (MoE), General Directorate of Policy and Strategy (GDPS); ICAT Secretariat / UNOPS; ClimateSI (implementing partner)                                                                                                                                                                                                                                               |
| <b>Participants</b>            | Approximately 53 stakeholders from government, line ministries, sub-national administrations, development partners, NGOs, academia and the private sector                                                                                                                                                                                                                                  |

## 2. Background

The Paris Agreement, adopted at COP 21 and entered into force on 4 November 2016, aims to strengthen the global response to climate change by limiting global temperature rise to well below 2°C above pre-industrial levels, while pursuing efforts to limit it to 1.5°C. A core component of the Agreement is the Enhanced Transparency Framework (ETF) under Article 13, which builds mutual trust among Parties, enables tracking of progress toward each country’s Nationally Determined Contribution (NDC), and underpins the Global Stocktake conducted every five years.

Cambodia, a Party to the UNFCCC since 1996, ratified the Paris Agreement and submitted its first Intended NDC in 2015. The second NDC (2020) expanded mitigation to the agriculture and waste sectors and strengthened adaptation and inclusivity. The most recent NDC 3.0 sets out specific mitigation actions in the waste sector, including bio-digesters of varying capacities, landfill gas extraction, centralized recycling for industrial waste, and improved wastewater management.

Despite progress in MRV systems for transport, energy and forestry, Cambodia previously lacked a comprehensive MRV framework for the waste sector. The existing NCSD NDC platform does not estimate the GHG impacts of NDC-related actions, obliging focal points to rely on external tools and manual

integration. This gap hindered the country's ability to estimate GHG impacts and track progress toward national targets.

To address this, the ICAT Phase 3 project was launched (July 2025 – May 2026) to establish a robust MRV system for the waste sector, in collaboration with the Ministry of Environment, the ICAT Secretariat / UNOPS, and ClimateSI as implementing partner. Key activities included stakeholder consultations, development of NDC tracking indicators, set-up and deployment of the WasCAD tool, training workshops on the ETF and related tools, application of the GACMO model for waste-sector NDC tracking, and integration of the sectoral MRV framework into the national MRV system.

As the project approached completion, this Final Validation Workshop served as a critical milestone to present consolidated outputs to stakeholders, validate the MRV framework and tools, gather final inputs and recommendations, and chart the path for long-term sustainability and institutional ownership.

### 3. Objectives of the Workshop

The overall objective of the workshop was to present the key outputs and achievements of the ICAT Phase 3 project to stakeholders for validation, and to gather inputs and recommendations to strengthen the waste-sector MRV framework and ensure its long-term sustainability. Specifically, the workshop aimed to:

- Present the overall process of ICAT Phase 3 in Cambodia;
- Present the proposed waste-sector MRV system using the WasCAD tool;
- Demonstrate the key functionalities and outputs of the WasCAD tool;
- Gather feedback and validation from stakeholders on the proposed framework, tools and recommendations to ensure alignment with national priorities and institutional capacities;
- Share lessons learned and key achievements from project implementation to inform future climate transparency initiatives; and
- Discuss the roles, responsibilities and capacity needs for continued operation of the WasCAD MRV system.

### 4. Participants

The workshop brought together approximately 53 stakeholders involved in or relevant to the development of Cambodia's waste-sector MRV framework, with attention to gender-balanced representation. Participants are summarized below by category, with key named officials and representatives identified. The Final Validation Workshop brought together 50 participants drawn from across the institutional landscape that underpins Cambodia's waste-sector MRV framework, with deliberate attention to gender-balanced representation. Of the 53 participants, 16 (30%) were women and 37 (70%) were men. In line with the ICAT Secretariat's request for a gender-disaggregated record, the complete participant list compiled from the official attendance sheets is presented below, with sex disaggregation by individual.

Table 2 : Gender disaggregation — summary

| Participation             | Number    | Share       |
|---------------------------|-----------|-------------|
| Male participants         | 37        | 70%         |
| Female participants       | 16        | 30%         |
| <b>Total participants</b> | <b>53</b> | <b>100%</b> |

Table 3 : Gender disaggregation by stakeholder category

| Stakeholder category                                                                                | Male      | Female    | Total     |
|-----------------------------------------------------------------------------------------------------|-----------|-----------|-----------|
| Project management & technical team (MoE project leadership, ClimateSI, ICAT, national consultants) | 7         | 4         | 11        |
| Ministry of Environment — departments & enterprise                                                  | 9         | 6         | 15        |
| Line ministries / agencies (CCTWG)                                                                  | 13        | 2         | 15        |
| Sub-national administrations                                                                        | 4         | 0         | 4         |
| Private sector                                                                                      | 2         | 1         | 3         |
| Development partners, NGOs & academia                                                               | 2         | 3         | 5         |
| <b>Total</b>                                                                                        | <b>37</b> | <b>16</b> | <b>53</b> |

The complete list of registered participants, with names, positions and institutions, is provided in Annex III.

Table 4 : Gender-disaggregated participant list

| No | Name                 | Sex <sup>1</sup> | Position / Designation | Organization / Institution          |
|----|----------------------|------------------|------------------------|-------------------------------------|
| 1  | Sep Seyhakvan        | M                | Chief of Office        | EMTS&LSW                            |
| 2  | Nhim Sovannarith     | M                | Officer                | Preah Sihanouk, PDoE                |
| 3  | Lo Kimsivgech        | F                | Officer                | Ministry of Rural Development (MRD) |
| 4  | Ly Chanthan          | M                | Officer                | MISTI                               |
| 5  | Rogier               | M                | Consultant             | GOPA                                |
| 6  | Srun Soriya          | M                | Officer                | Khmer Beverage                      |
| 7  | Ngin Rayauloy        | M                | CM                     | Chip Mong Group                     |
| 8  | Neou Reaksmey        | F                | Advisor                | GIZ                                 |
| 9  | Hong Hakheng         | M                | Officer                | Ministry of Environment             |
| 10 | Chan Dara            | M                | Officer                | Kampong Cham, PDoE                  |
| 11 | San Sovithiea        | M                | Deputy Director        | MoWRAM                              |
| 12 | Tuon Rathana         | M                | Chief of Office        | PPCA                                |
| 13 | Thoeurt Soviet       | M                | Head of Office         | Siem Reap Provincial Hall           |
| 14 | Prok Novida          | M                | Director of Department | MPWT                                |
| 15 | Nong Chha Vyvan      | M                | Chief of Office        | MME                                 |
| 16 | Pich Sokhim          | M                | National Consultant    | MoE                                 |
| 17 | H.M.K.K. Hindagoda   | M                | Software Engineer      | ClimateSI                           |
| 18 | Chhay Sareth Nongrak | M                | Chief of Office        | Battambang provincial Hall          |
| 19 | Pha Dylhour          | M                | Assistant to the MoE   | Ministry of Environment             |

<sup>1</sup> F = Female & M = Male

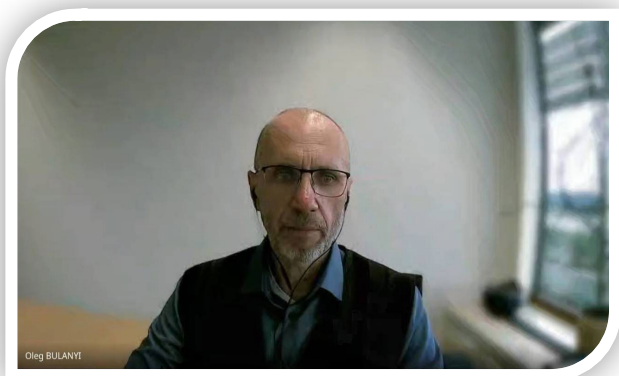
| No                                     | Name             | Sex <sup>1</sup> | Position / Designation        | Organization / Institution    |
|----------------------------------------|------------------|------------------|-------------------------------|-------------------------------|
| 20                                     | Bo Hann          | M                | Vice Chief of Officer         | MISTI                         |
| 21                                     | Va Chinda        | F                | Assistant to CEO              | Mizuda Sanitation             |
| 22                                     | Doeun Dara       | M                | Coordinator                   | Ministry of Environment       |
| 23                                     | Yith Vuthy       | M                | Officer                       | NIS / Ministry of Planning    |
| 24                                     | Chea Eliyan      | F                | Programme Officer             | GGGI                          |
| 25                                     | San Vannakreth   | M                | Director of Department        | Ministry of Planning          |
| 26                                     | Hong Sokuntheary | F                | Official                      | Ministry of Environment       |
| 27                                     | Bou Chandaneth   | F                | Official                      | Ministry of Environment       |
| 28                                     | Korn Kim On      | F                | Vice Chief of Office          | Ministry of Environment       |
| 29                                     | Huot Syradeth    | F                | Chief of Office               | Ministry of Environment       |
| 30                                     | Oung Kimly       | M                | Officer                       | Ministry of Environment       |
| 31                                     | Yin Roathminda   | M                | Vice Chief of Office          | NIS, Ministry of Planning     |
| 32                                     | Chrem Karoline   | M                | Vice Chief of Office          | EDC                           |
| 33                                     | Chhom Chanchhaya | M                | National Consultant Team Lead | MoE / JIRRA Green BIZ         |
| 34                                     | Morm Socheat     | M                | Vice Chief of Office          | MRD                           |
| 35                                     | Chan Sophanna    | M                | Vice Chief of Office          | MLMUPC                        |
| 36                                     | Meng Soklin      | F                | Advisor                       | GIZ                           |
| 37                                     | Cheat Meardey    | F                | National Consultant           | MoE                           |
| 38                                     | Neelni Malsha    | F                | MRV Expert                    | ClimateSI                     |
| 39                                     | Ouk Navann       | M                | Deputy Director General       | GDPS, Ministry of Environment |
| 40                                     | Keo Sreymul      | F                | Admin / Finance               | Contract staff, MoE           |
| 41                                     | Dok Doma         | M                | Director                      | CDC                           |
| 42                                     | Yem Sreyneath    | F                | Officer                       | Ministry of Environment       |
| 43                                     | Kim Kanha        | M                | Officer                       | Ministry of Environment       |
| 44                                     | Chiphong Sarasy  | M                | Deputy Director               | Ministry of Mines Energy      |
| 45                                     | Ngim Bun Thoeun  | M                | Chief of Office               | MoWRAM                        |
| 46                                     | Uy Kamal         | M                | Deputy Director General       | Ministry of Environment       |
| 47                                     | Hem Soknim       | M                | Officer                       | CDC                           |
| 48                                     | Gour Chunok      | M                | Official                      | MAFF                          |
| 49                                     | Phay Chanmakara  | F                | Officer                       | MoWA                          |
| 50                                     | Leng Lida        | F                | Officer                       | Ministry of Environment       |
| 51                                     | Lun Lido         | M                | Chief of Office               | Ministry of Environment       |
| 52                                     | Chheng Tharika   | F                | National Consultant           | MoE                           |
| 53                                     | Oleg Bunlanyi    | M                | Senior Program Manager        | ICAT Secretariat              |
| <b>Total: 50 (Male 37 / Female 16)</b> |                  |                  |                               |                               |

## 5. Main Activities

The workshop followed the agenda set out in Annex I, comprising an opening ceremony, two technical sessions, a stakeholder validation panel, a question-and-answer segment, and a closing ceremony. The sessions and their main points, outcomes and participant inputs are summarized below.

### 5.1 Opening Ceremony

#### Welcome Remarks — Mr. Oleg Bulanyi, Senior Programme Manager, ICAT Secretariat.



On behalf of the ICAT Secretariat, Mr. Oleg Bulanyi warmly welcomed all participants and opened the workshop by situating it within the Initiative for Climate Action Transparency's wider mission of helping developing countries build the institutional and technical capacity needed to meet their reporting obligations under the ETF of the Paris Agreement. He noted that robust, country-owned Measurement, Reporting and Verification systems are the foundation on which credible climate action rests, enabling governments to track

*Photo 1 : Welcome remarks by Mr. Oleg Bulanyi, Senior Programme Manager, ICAT Secretariat.*

progress against their Nationally Determined Contributions, demonstrate results to domestic and international audiences, and attract the finance required to scale up mitigation. Against this backdrop, he characterised Cambodia's work to establish a dedicated MRV framework for the waste sector that is often data-scarce and institutionally complex — as both timely and significant, and as a meaningful contribution to the country's transparency commitments under NDC 3.0 and its forthcoming Biennial Transparency Reports.

Mr. Oleg Bulanyi explained that the purpose of the validation workshop was not simply to present results but to subject the project's outputs on the WasCAD platform, the GACMO-based methodologies, and the proposed NDC tracking indicators to scrutiny by the very institutions that will use and sustain them, so that the framework reflects national realities and commands shared ownership. He emphasised that the true measure of the project's success would be its continued operation beyond the period of external support, which depends on clear institutional mandates, sustained data flows and the engagement of focal points across government, sub-national administrations and the private sector. He commended the Ministry of Environment, through the General Directorate of Policy and Strategy and its Department of Climate Change, for its leadership, and acknowledged the contributions of the national consultant team, ClimateSI and the participating stakeholders. He closed by encouraging participants to engage actively and candidly throughout the day, stressing that their feedback would directly shape the final MRV framework and its readiness for national reporting.

## Opening Remarks — Mr. Ouk Navann, Deputy Director General of GDPS, MoE.



Mr. Ouk Navann, representative of H.E. SUM Thy, Director General of GDPS and project director, officially opened the workshop and warmly welcomed participants from government institutions, Sub-national Administrative, development partners, the private sectors, civil society and other relevant stakeholders. He emphasized the significance of the workshop for measuring, reporting and verifying GHG emission reductions from the waste sector. Key points included:

*Photo 2 : Opening remarks by Mr. Ouk Navann, Deputy Director General, GDPS and Project Director, MoE.*

- As a Party to the Paris Agreement, Cambodia has committed to reducing GHG emissions by approximately 73.7 million tonnes of CO<sub>2</sub>-equivalent by 2035, reflecting national ambition and a new milestone on the international stage.
- Environmental sustainability and climate change are priorities under the Government's Pentagonal Strategy – Phase I (2023–2028) and the Rectangular Strategy – Phase IV.
- NDC 3.0 reflects enhanced ambition with clear waste-sector mitigation measures — bio-digesters, methane recovery, recycling and wastewater treatment — but ambition must be matched by systematic, reliable progress tracking.
- While MRV systems exist for energy, forestry and transport, the waste sector still requires a clear coordinating framework; the project deployed the WasCAD tool as an online platform for stakeholders to enter activity data and track GHG emission reductions.
- He highlighted three guiding principles for the way forward: the centrality of the waste sector to NDC 3.0 targets; a credible MRV system as the foundation for results tracking and finance mobilization; and the indispensable role of partnership and collective ownership.
- He encouraged active engagement with the GACMO programme alongside IPCC software and WasCAD for preparing NDCs, BURs and BTRs, and expressed gratitude to the ICAT Secretariat, UNOPS, ClimateSI and the working teams.

*A group photo session followed the opening remarks.*



*Photo 3 : Group photo session following the opening remarks.*

## 5.2 Session 1 — Project Results and Achievements

### Presentation 1: Project Results and Key Achievements — MRV Framework using WasCAD.

**Speaker: Mr. Lun Lido, Department of Climate Change, MoE.**



*Photo 4 : Session 1 presentation by Mr. Lun Lido, Department of Climate Change, MoE.*

The presentation set out the project background, scope, objectives, workplan and consolidated results. Main points covered:

- Background and rationale: the NCSD NDC platform do not estimate GHG impacts of NDC actions, and Cambodia lacked a national MRV framework for the waste sector. Therefore, WasCAD tool was deployed to fill this gap.
- Project scope: supporting the Government to develop and institutionalize a framework for tracking NDC actions in line with the ETF (Section III of the MPGs, decision 18/CMA.1).

- Objectives and outcomes: an MRV framework for the waste sector with capacity to implement and maintain it; an NDC tracking framework for the waste sector; and an overarching NDC tracking tool.

#### Key achievements presented, by activity:

- Activity 0 — Inception: identified the status, needs and gaps of the waste-sector MRV framework through a comprehensive review and validated stakeholder discussions.

- Activity 1 — ETF training: built capacity of national experts and data providers on ETF requirements, IPCC inventory software and the UNFCCC reporting tool, with refresher training on the TraCAD tool.
- Activity 2 — NDC tracking framework: identified NDC tracking indicators for NDC 3.0 waste-sector measures and developed the waste-sector NDC tracking framework.
- Activity 3 — WasCAD set-up: deployed the fully adapted WasCAD tool, developed Cambodia-specific methodologies (six new methodologies added), created user accounts, and delivered virtual and in-person hands-on training.
- Activity 4 — National integration: developed standardized data protocols, QA/QC procedures and a practical roadmap for addressing data gaps.
- Activity 5 — GACMO: provided introductory training and hands-on exercises on applying GACMO for GHG impact assessment.
- Activity 6 — Closure: identified key achievements and lessons learned and finalized institutional arrangements for waste-sector NDC tracking.

### Overarching challenges and mitigation actions presented:

- Data availability & quality: incomplete sub-national collection coverage, unrecorded open-burning and informal recycling, reliance on volume-based estimates, and incomplete 2020–2024 baselines. Mitigation action: standardized estimation guidelines, coordination with NIS to add waste questions to national survey.
- Institutional coordination complexity: dependence on data from 10+ ministries/agencies, 5 sub-national administrations and 6 private operators with differing cycles and formats. Mitigation action: bilateral consultations (Nov–Dec 2025), and configuration of institutional roles and data-reporting responsibilities for each ministry, sub-national administration and private operator within WasCAD, with focal points engaged and trained under the MoE Department of Climate Change and the NCSD.
- Sustained user engagement: 68% of survey respondents expect to use WasCAD regularly or daily (Section 8), but turnover and competing priorities threaten continuity. Mitigation: a structured support program (help-desk, office hours, peer network), recognition mechanisms, and inclusion of WasCAD duties in job descriptions.
- GACMO methodology gaps: open burning and post-industrial textile recycling are not directly addressable, and solid-waste reduction has only partial coverage. Mitigation: gaps documented transparently in training, with WasCAD providing full support for the measures GACMO cannot directly cover.

### Presentation 2: Delivering WasCAD and Strengthening Cambodia's Climate Transparency.

**Speaker: Ms. Neelni Malsha, MRV expert from ClimateSI).**



Photo 5 : Session 1 presentation by ClimateSI on the WasCAD tool.

ClimateSI presented the technical delivery of the WasCAD tool and its role in strengthening Cambodia's climate transparency. Main points covered:

- WasCAD functions as the system of record for the waste sector — providing systematic data collection, GHG impact assessment, cost-effectiveness analysis and marginal abatement cost (MAC) curves

- WasCAD was configured with a dedicated NDC tracking indicator set for each of Cambodia's seven NDC 3.0 waste-sector measures (covering MSW, organic waste, landfill management, RDF/waste-to-energy, textile waste and industrial wastewater) — the single largest configuration effort of the project.
- WasCAD exports CTF tables (CTF 5 and 11), which are aligned with IPCC inventory software, supporting BTR-ready reporting.
- 47 WasCAD users were trained and onboarded, with onsite training achieving a 93% Good/Very-good rating.

*Key outcome of Session 1: stakeholders received a complete picture of the project's results, the functionality of WasCAD, and the principal challenges and mitigation measures — providing the evidence base for the subsequent validation discussion.*

### 5.3 Session 2 — Sustainability, Ownership and Way Forward

#### **Presentation 3: Lessons Learned, Institutional Arrangements and Continued Operation of the MRV Framework using WasCAD.**

**Speaker: Mr. Chhom Chanchhaya, National Team Lead Consultant.**



*Photo 6 : Session 2 presentation by Mr. Chhom Chanchhaya, National Consultant Team Lead.*

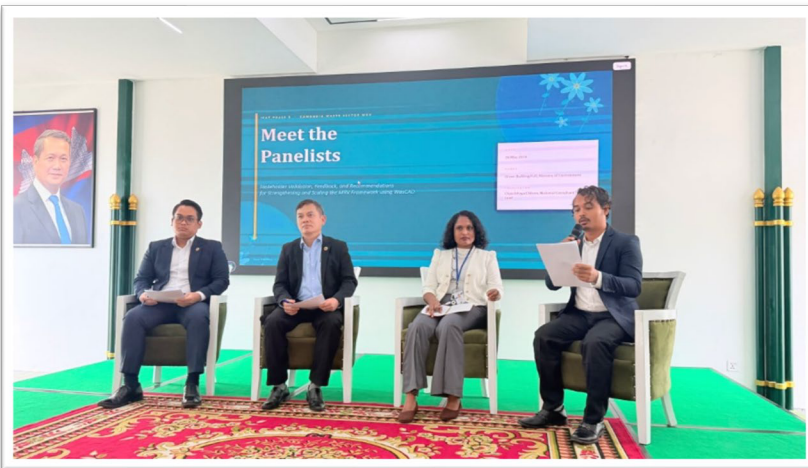
Drawing on 259 stakeholder participations across six capacity-building workshops and 100% on-schedule delivery, the presentation distilled six transferable lessons across three themes — training & capacity-building, stakeholder & institutions, and tools & data infrastructure. *The presentation underscored that the lasting impact of Phase 3 is the durability of the inter-institutional relationships it built — MRV being, fundamentally, a coordination technology — and that a formal mandate (Prakas) is needed to move data sharing from goodwill to obligation.*

- Practical tool readiness: In a context where Cambodia previously lacked a dedicated tool for NDC tracking in the waste sector, the adaptation and deployment of WasCAD represents a significant achievement. The tool provides a practical mechanism for monitoring and reporting progress of waste sector mitigation measures under NDC 3.0 and is expected to support future reporting requirements, including subsequent BTRs.
- Technical capacity building: anchoring each session in NDC 3.0 policy context before tool mechanics (“why before how”) drove genuine engagement.
- Stakeholder participation: bilateral engagement with each data-holding institution-built ownership rather than compliance.
- Early gap identification: early stocktaking surfaced data gaps before deployment.
- Contextual adaptation improved tracking practicality: configuring WasCAD with a dedicated NDC tracking indicator set for each of Cambodia's seven NDC 3.0 waste-sector measures — the project's single largest configuration effort — made the tool practically usable for national reporting.
- QA/QC embedded in WasCAD improved data accuracy: building quality assurance directly into the data-entry workflow, alongside clear assignment of responsible entities, shifted quality control from a post-submission audit to an integral step and strengthened the credibility of GHG estimates.

- Context-adapted tracking: WasCAD was configured by adding country specific methodologies to track Cambodia's seven NDC 3.0 measures.
- Onsite vs. online training: in-person delivery far outperformed hybrid sessions (93% vs 47% Good/Very-good).
- QA/QC & data accuracy: quality checks were built into the tool rather than bolted on afterward, with each indicator mapped to a named responsible entity.

## 5.4 Panel Discussion — Stakeholder Validation, Feedback and Recommendations

The panel discussion was the central validation moment of the workshop, bringing together perspectives from across the institutional spectrum to test the MRV framework against operational reality. It was moderated by Mr. Chhom Chanchhaya, National Consultant Team Lead, and convened three



*Photo 7 : Panel discussion with stakeholders.*

panelists chosen to represent the principal vantage points on the waste-sector MRV system. Mr. Ouk Navann, Deputy Director General of GDPS, Ministry of Environment, spoke to the government and institutionalization perspective, including the requirements of BTR reporting and the formal arrangements needed for sustained national reporting. Ms. Neelni Malsha, MRV Expert from the ClimateSI, brought the technical and international comparative perspective, drawing on experience from similar MRV

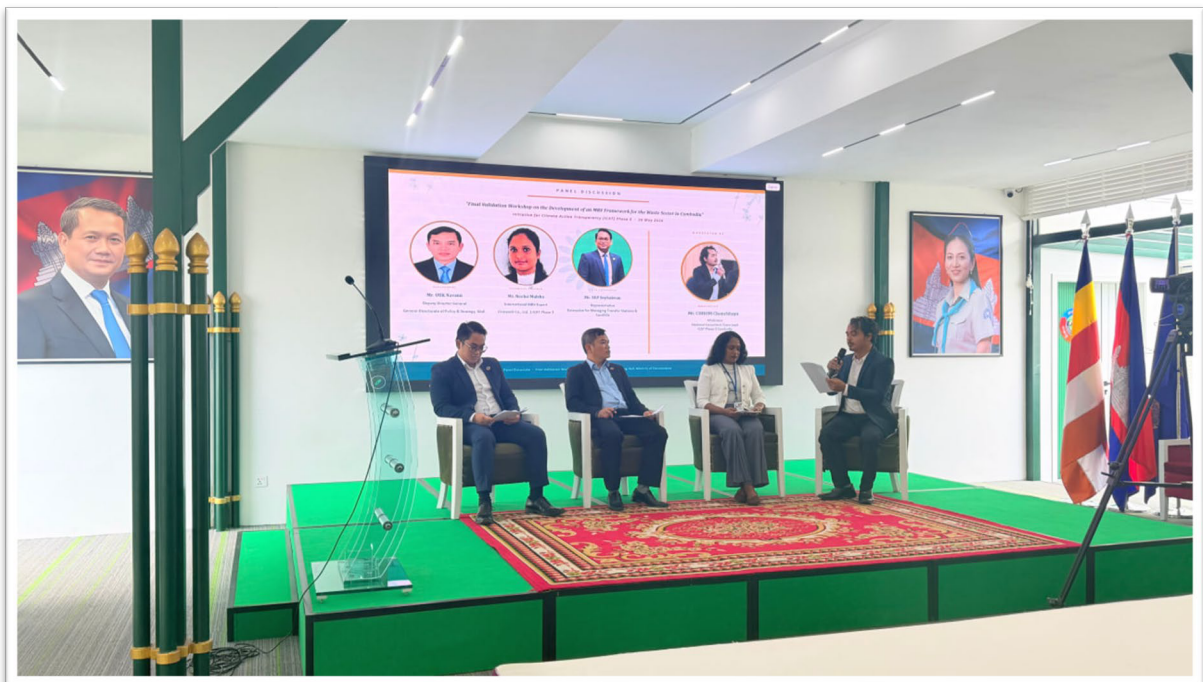
systems in other countries; and Mr. Sep Seyhakvan, Chief of office from the Enterprise for Managing Transfer Stations and Landfills for Solid Waste (EMTS&LSW), contributed the operational and private-sector view, grounding the discussion in the practical realities of data collection at the facility level. Together, the panel examined the credibility and feasibility of the proposed framework, the institutional mandates required to operate it, and the priorities for ensuring its continued use beyond the project period.

The panel was the central validation moment of the workshop, structured in opening reflections, targeted questions, cross-cutting open debate, audience questions and a closing round of one-sentence recommendations. Key points raised by panelists and participants:

- Overall reaction and readiness to adopting MRV framework in Cambodia: panelists broadly endorsed the MRV framework and WasCAD tool, with the consensus that the system is formal adoption subject only waste sector, it still need more support from relevant stakeholders from governments sector, development partners like ICAT to support the progress on institutional capacity building, data management system, MRV framework in different sectors and securing the institutional mandate and sustained data flows.
- First-year priorities (ClimateSI perspective): get core activity-data flows reliable and standardized, sustain user engagement, and align outputs with BTR/CTF requirements; anticipate common pitfalls including data gaps, irregular entry and over-reliance on individuals.
- Institutional pathway (MoE perspective): embedding WasCAD into the national MRV system and BTR cycle will require a formal instrument — a Prakas and/or inter-ministerial protocol with a clear mandate to emphasized of role and responsibility of relevant sectors and MoE will be a

coordinator institution and quality checked in this implementation process. Moreover, each institution shall be assigned focal points that will be strengthen the capacity to ensure data transparency and sustainability with responsibility and ownership..

- Private-sector data sharing (EMTS&LSW perspective): real barriers include data confidentiality, staff time and inconsistent formats
- Long-term financing and ownership: sustaining data collection, verification, tool updates and training was identified as the single biggest sustainability risk after ICAT Phase 3 closes is data accuracy, calling for a blended model of government budget, climate finance and private co-investment with clear institutional ownership in MoE.
- Key risks over the next 24 months: absence of a formal mandate, staff turnover, financing gaps and data-quality constraints — with mitigation centred on issuing the Prakas, institutionalizing roles and maintaining the support programme.



*Photo 8 : Panel discussion — closing recommendations from panelists.*

In closing, the panel converged on three priorities for carrying the project's achievements forward. First, the establishment of a clear mandate for each responsible institution, so that the roles and reporting responsibilities developed during the project are formally assigned and the waste-sector MRV system can be implemented and sustained on an institutional rather than an individual basis. Second, continued and deeper capacity building, recognising that operating Cambodia's MRV framework over the long term will require further training that goes beyond the foundations established during the project and equips national institutions to apply the tools and methodologies with greater depth and independence. Third, sustained financial and funding support to continue the work where the project leaves off, ensuring that the momentum, systems and relationships built to date are not lost for want of resources. Taken together, these conclusions framed institutional mandate, capacity and financing as the conditions on which the continued operation of the MRV framework beyond project closure will depend.

## 6. Q & A Session

The question-and-answer segment and the panel debate surfaced the following key issues and responses. Inputs are attributed to participants and panelists where identifiable.

Table 5 : Summary of the question-and-answer session.

| Name / Source                           | Questions / Inputs                                                                                                                                                              | Answers / Responses                                                                                                                                                                                                                                                                                                                                                                                                        |
|-----------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Panel Discussion</b>                 |                                                                                                                                                                                 |                                                                                                                                                                                                                                                                                                                                                                                                                            |
| <b>Panel / All panelists</b>            | Is the proposed MRV framework and WasCAD tool ready to be formally adopted as Cambodia's waste-sector MRV system?                                                               | Panelists broadly endorsed the framework and tool as ready for formal adoption, however, conditional on securing the institutional mandate (Prakas) and ensuring sustained, reliable data flows from contributing institutions need to be considered and require more support on MRV framework in other sectors to support NDC framework, institutional capacity building to enhance data transparency and sustainability. |
| <b>Ms. Neelni Malsha (ClimateSI)</b>    | From comparative experience, what must Cambodia prioritized to adopt in the first year for WasCAD to deliver reliable, BTR-ready data, and what pitfalls should be anticipated? | Cambodia should prioritize reliable, standardized activity-data flows, sustained user engagement, and alignment of outputs with CTF/BTR requirements. Strengthen common pitfalls include data gaps, irregular data entry, and over-dependence on individual staff. All relevant stakeholders need to involve in the process of data collection and integration.                                                            |
| <b>Mr. Ouk Navann (MoE)</b>             | What is the realistic institutional pathway to embed WasCAD into the national MRV system and BTR cycle? a Prakas, an inter-ministerial protocol, or an internal directive?      | A formal instrument is required, a formal mandate and/or inter-ministerial protocol, that clearly identify role and responsibility in the MRV framework. The MRV system is a foundation on data monitoring toward the carbon credit mechanism management as well. However, these frameworks need to have all relevant sector support and have capacity to involved in the progress of implementation.                      |
| <b>Mr. Sep Seyhakvan (EMTS&amp;LSW)</b> | What are the real barriers to consistent private-sector data sharing, and what would make WasCAD useful?                                                                        | Barriers include data confidentiality, staff time, and inconsistent formats. WasCAD becomes valuable tool when it returns operational and business value to data providers, not only reporting obligations. It also would be clearly emphasized by developing the operational manual that support the real technical implementation.                                                                                       |

| Name / Source                                                                                                    | Questions / Inputs                                                                                                                                                          | Answers / Responses                                                                                                                                                                                                                                                                                                                                                                                                            |
|------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Panel Discussion</b>                                                                                          |                                                                                                                                                                             |                                                                                                                                                                                                                                                                                                                                                                                                                                |
| <b>Q/A from Participation</b>                                                                                    |                                                                                                                                                                             |                                                                                                                                                                                                                                                                                                                                                                                                                                |
| <b>Ms. Neou Reaksmeay</b> ,<br>advisor of GIZ                                                                    | How will the long-term operation of WasCAD — data collection, verification, tool updates and training — be financed after ICAT Phase 3 closes, and who owns this challenge? | A blended financing model was recommended — government budget, climate finance and private co-investment with clear institutional ownership anchored in the MoE/GDPS.                                                                                                                                                                                                                                                          |
| <b>Ms. Hong Sokuntheary</b><br>official of the<br>department of Green<br>economy, MoE                            | What single risk could derail the MRV framework in the next 24 months, and what mitigation is recommended now?                                                              | The principal risks are the absence of a formal mandate, staff turnover, financing gaps and data-quality constraints. Recommended mitigations: issue the Prakas, institutionalize roles, focal points and maintain the support and refresher-training programme.                                                                                                                                                               |
| <b>Mr. Nhim Sovanarith</b><br>Vice Chief of office,<br>Preah Sihanouk<br>Provincial Department<br>of Environment | How are data gaps (sub-national coverage, open burning, informal recycling, baselines) being addressed?                                                                     | Before Cambodia implemented through standardized estimation guidelines, coordination with NIS to integrate waste questions into national surveys, and ring-fenced budget for pilot infrastructure such as weighbridges and composition-analysis equipment. The establishing MRV guidelines or manuals that provide a standardize technical supporting and provide the digital system, it would be great saving and efficiency. |

**Conclusion:** The workshop achieved its objectives. Stakeholders validated the waste-sector MRV framework and the WasCAD tool, endorsed the proposed institutional arrangements, and provided clear recommendations on the legal mandates, sustainable financing, continuous capacity-building and data-quality improvement to ensure the framework's long-term sustainability and national ownership.

## 7. Closing Ceremony

### Closing Remarks — Mr. Ouk Navann, Deputy Director General, GDPS, MoE.



Photo 9 : Closing remarks by Mr. Ouk Navann, Deputy Director General, GDPS, MoE

**Mr. Ouk Navann** thanked participants for their active engagement and valuable contributions and noted that the workshop marked an important milestone in Cambodia's journey toward strengthening transparency and accountability in the waste sector. He emphasized that a robust MRV framework is not only a technical undertaking but also a matter of policy alignment, governance and international credibility, reaffirming Cambodia's commitment to the ETF, NDC 3.0 and the Long-Term Strategy for Carbon Neutrality by 2050. He highlighted three reflections:

- Collaboration is key success depends on the collective engagement of line ministries, sub-national administrations, the private sector, civil society and development partners.
- Capacity-building is essential technical expertise and institutional arrangements must be strengthened at all levels to sustain and expand progress.
- This is not the end the results gathered through engagement and discussion mark a milestone for addressing remaining gaps and designing next steps.

He extended his gratitude to the ICAT Secretariat, the international and national teams, and national stakeholders, and presented Certificates of Appreciation to key contributing partners and stakeholders before formally declaring the workshop concluded.

## 8. Participant Feedback Survey

An anonymous participant survey was administered in connection with the Validation Workshop and collected 34 responses from government officials (MoE and line ministries), sub-national administrations, and development and private-sector partners. Respondents were 65% male and 35% female, with 91% aged between 26 and 45. The survey assessed self-rated capacity before and after the project, expected application of the knowledge gained, the overall assessment of the project, and suggestions for improvement. The closed-question results are summarised in Table 4.

Table 6 : Validation Workshop participant survey results (n = 34).

| Survey item                                | Result (n = 34)                                                          |
|--------------------------------------------|--------------------------------------------------------------------------|
| <b>Total responses</b>                     | 34 participants of the Validation Workshop                               |
| <b>Gender</b>                              | Male 22 (65%); Female 12 (35%)                                           |
| <b>Age group</b>                           | 26–35: 19 (56%); 36–45: 12 (35%); over 45: 2 (6%); 15–25: 1 (3%)         |
| <b>WasCAD knowledge before the project</b> | Very poor 19 (56%); Poor 10 (29%); Average 3 (9%); Good 2 (6%)           |
| <b>WasCAD knowledge after the project</b>  | Average 17 (50%); Good 16 (47%); Very good 1 (3%)                        |
| <b>Self-rated knowledge (1–5 scale)</b>    | Mean rose from 1.65 to 3.53 (+1.88); 94% (32 of 34) reported an increase |
| <b>Expected application of knowledge</b>   | Regularly 20 (59%); To a small degree 11 (32%); On a daily basis 3 (9%)  |
| <b>Overall project rating</b>              | Very good 17 (50%); Good 17 (50%) — 100% rated Good or Very good         |
| <b>Suggested improvements</b>              | Yes 28 (82%); Not sure 6 (18%)                                           |

The respondent profile and the self-assessed change in WasCAD knowledge are illustrated in Figures 1 to 4. Figures 1 and 2 show the gender and age distribution of the 34 respondents, while Figures 3 and 4 contrast their self-rated WasCAD knowledge before and after the project.

Q1: Please select gender:  
34 responses

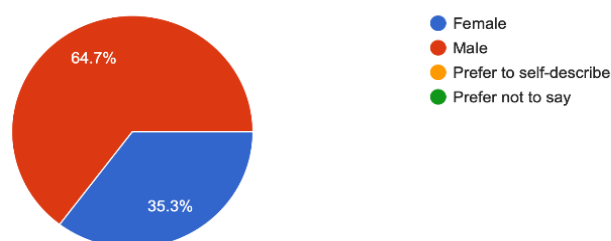


Figure 1 : Respondent gender (survey Q1).

The survey cohort was predominantly male, with men accounting for 64.7% (22 of 34) of respondents and women for 35.3% (12). This composition mirrors the broader profile of Cambodia’s technical climate and environment workforce, in which engineering, data-management and MRV roles in the waste sector remain male-dominated.

The figure nonetheless confirms a persistent gender gap that is directly relevant to Cambodia’s NDC 3.0 commitment to mainstream gender equality in climate governance and to expand women’s leadership and decision-making across priority sectors. Because WasCAD reporting responsibilities are still being assigned within and across institutions, this distribution offers a useful baseline against which the Ministry of Environment can monitor whether future training cohorts and designated data-reporting roles move closer to parity over time.

Q3: Please select your age category:

34 responses

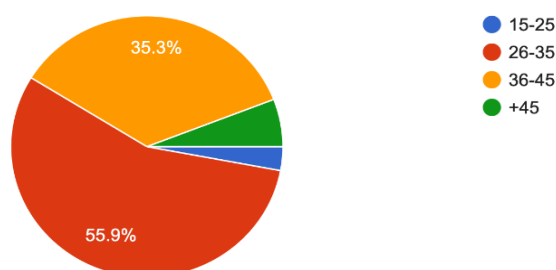


Figure 2 : Respondent age group (survey Q3)

Respondents were concentrated in the early-to-mid stages of their careers: 55.9% (19) were aged 26–35 and a further 35.3% (12) were aged 36–45, so that 91.2% of the cohort fell within the 26–45 band. Only 5.9% (2) were older than 45 and 2.9% (1) were under 25. The training therefore reached primarily the operational core of the institutions concerned – the officers who actually enter, manage and quality-check waste-sector data – rather than being weighted toward senior decision-makers or very junior entrants.

This profile is favourable for the institutional durability of the capacity built, since professionals in this age range are likely to remain within the system for a number of years and to carry the WasCAD and GACMO skills forward. At the same time, the very small share of respondents under 25 highlights a succession consideration: as staff rotate and new officers join, the knowledge gained will need to be transferred through structured onboarding and periodic refresher training if it is not to erode. This reinforces both the sustained-engagement challenge discussed below and the recommendation to institutionalise refresher sessions within the Ministry’s annual capacity-building plan.

Q4: How would you rate your knowledge on the application of ICAT WasCAD before the project?

34 responses

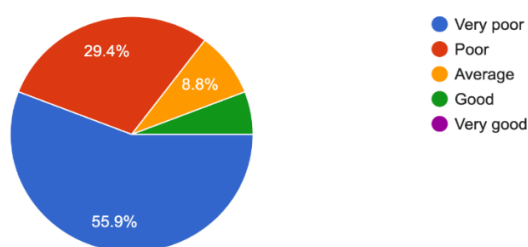


Figure 3 : Self-rated WasCAD knowledge before the project (survey Q4)

Self-rated competence in applying WasCAD before the project was very low. More than half of respondents (55.9%, 19) rated their prior knowledge Very poor and a further 29.4% (10) rated it Poor, so that 85.3% placed themselves in the two lowest categories; only 5.9% (2) considered their knowledge Good and none rated it Very good, giving a mean baseline of 1.65 on the five-point scale. This distribution confirms that WasCAD was effectively new to the waste sector and that the analytical and reporting practices it embodies were not previously established among the responsible officers.

The near-absence of prior competence is significant in two respects. First, it validates the project's central premise that a structured, hands-on capacity-building programme – rather than tool deployment alone – was a precondition for adoption. Second, because so little relevant knowledge pre-existed, the improvements recorded after the project (Figure 4) can be attributed with confidence to the training itself rather than to skills participants already held. The result also gives concrete, quantified substance to the lesson that early stocktaking revealed substantial baseline gaps in the sector.

Q5: How would you rate your knowledge on the application of WasCAD after the project?

34 responses

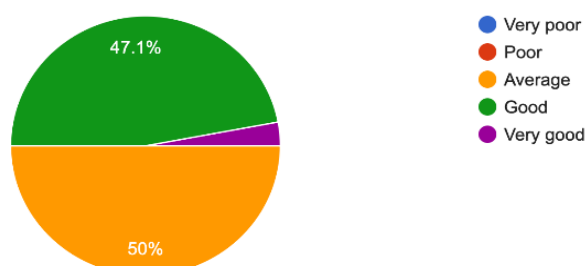


Figure 4 : Self-rated WasCAD knowledge after the project (survey Q5)

After the project, the self-assessment shifted markedly toward the upper half of the scale. The Poor and Very poor categories disappeared entirely, every respondent rated their knowledge at least Average, half (50.0%, 17) rated it Good or Very good, and the mean self-rating rose from 1.65 to 3.53 – an uplift of 1.88 points, with 94% of respondents reporting an individual increase. Read against Figure 3, the centre of gravity of the distribution moved from the bottom of the scale to its middle and upper range, providing clear evidence that the training delivered a substantial and broadly distributed gain in practical WasCAD competence rather than benefiting only a few participants.

In summary, the survey confirms a substantial and consistent capacity gain. Before the project, 85% of respondents rated their WasCAD knowledge as Poor or Very poor; after the project, 50% rated it Good or Very good and the mean self-rating rose from 1.65 to 3.53 on a five-point scale, with 94% reporting an increase. Application prospects are strong, with 68% expecting to use the knowledge regularly or daily. Overall satisfaction was unanimous: every respondent rated the project Good (50%) or Very good (50%).

## Annex I: Agenda

Table 7 : Validation workshop agenda.

| Time                                                        | Programme                                                                                                                           | Responsible                                                          |
|-------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------|
| 8:30 – 9:00                                                 | Registration and Welcome Coffee                                                                                                     | Organizing team                                                      |
| <b>Opening Ceremony</b>                                     |                                                                                                                                     |                                                                      |
| 9:00 – 9:10                                                 | Welcome Remarks (Video)                                                                                                             | Mr. Oleg Bulanyi<br>Senior Programme<br>Manager, ICAT<br>Secretariat |
| 9:10 – 9:25                                                 | Opening Remarks: Cambodia's Progress on Climate Transparency and the Role of the Waste Sector MRV Framework                         | H.E. Sum Thy, Director<br>General of GDPS, MoE                       |
| 9:25 – 9:35                                                 | Group Photo Session                                                                                                                 | All participants                                                     |
| <b>Session 1: Project Results and Achievements</b>          |                                                                                                                                     |                                                                      |
| 9:35 – 10:00                                                | Project Results and Key Achievements: MRV Framework using WasCAD                                                                    | Mr. Lun Lido, Dept. of<br>Climate Change, MoE                        |
| 10:00 – 10:20                                               | Delivering WasCAD and Strengthening Cambodia's Climate Transparency                                                                 | Ms. Neelni Malsha,<br>MRV Expert, ClimateSI                          |
| 10:20 – 10:35                                               | Coffee Break                                                                                                                        | All participants                                                     |
| <b>Session 2: Sustainability, Ownership and Way Forward</b> |                                                                                                                                     |                                                                      |
| 10:35 – 10:55                                               | Lessons Learned, Institutional Arrangements and Continued Operation of the MRV Framework using WasCAD                               | Mr. Chhom<br>Chanchhaya, National<br>Consultant Team Lead            |
| 10:55 – 11:30                                               | Panel Discussion: Stakeholder Validation, Feedback and Recommendations for Strengthening and Scaling the MRV Framework using WasCAD | Panelists facilitated by<br>Mr. Chhom<br>Chanchhaya                  |
| 11:30 – 11:45                                               | Q & A                                                                                                                               | All participants                                                     |
| <b>Closing Ceremony</b>                                     |                                                                                                                                     |                                                                      |
| 11:45 – 12:00                                               | Closing Remarks, Acknowledgements and Certificate of Appreciation to Key Contributing Partners and Stakeholders                     | Mr. Ouk Navann,<br>Deputy Director<br>General, GDPS, MoE             |

Note: The agenda was subject to change as deemed necessary.

## Annex II: Photos



*Photo 10 : Chairmans of the validation workshop.*



*Photo 2: [A welcome remark for the validation workshop]*



Photo 3: [Opening Remark]



Photo 11 : Presentation: Mr. Lun Lido, Ms. Neelni Malsha, Mr. Chhom Chanchhaya.



Photo 4: [Panel Discussion]



Photo 12 : Q&A from representatives — Green Economic Department, MoE (left) and GIZ (right).



Photo 13 : Preah Sihanouk Provincial Department of Environment.



*Photo 14 : Closing Remark.*



*Photo 15 : Group Photos of Validation Workshop.*