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Climate Change



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# Report on the 7th Greenhouse Gas Inventory System Training Workshop

15 – 18 July 2025

Almaty, Kazakhstan



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## Executive Summary

The 7th Greenhouse Gas (GHG) Inventory System Training Workshop, convened in 2025 and hosted by the Government of Kazakhstan, aimed to strengthen national capacities in the Asia–Pacific and African regions to develop and manage robust GHG inventory systems in line with the Enhanced Transparency Framework (ETF) under the Paris Agreement. The workshop was organised by the United Nations Office for Sustainable Development (UNOSD), in collaboration with UNESCAP, UNFCCC, IPCC, and the CBIT Global Support Programme.

Against the backdrop of record-high global GHG emissions in 2024 and the urgent need for climate action, the workshop provided intensive technical training on the preparation of national GHG inventories, the use of IPCC Inventory Software, and the application of ETF reporting tools. It also addressed the preparation of Biennial Transparency Reports (BTRs), interoperability of reporting systems, and the integration of activity data for accurate emissions estimation, with a particular focus on the energy sector.

Over 40 participants from 12 countries engaged in a comprehensive four-day programme combining expert presentations, country case studies, and practical exercises. Key sessions covered ETF modalities, IPCC 2006 Guidelines (including 2019 Refinements), activity data management, QA/QC procedures, and institutional arrangements for data governance. Hands-on training with IPCC and ETF tools enabled participants to apply methodologies for emissions estimation and reporting, ensuring alignment with international standards.

The workshop underscored the critical role of transparency, accuracy, and completeness in national reporting systems, highlighting the importance of institutional frameworks, legal mandates, and continuous improvement strategies. Participants shared experiences on NDC 3.0 implementation and BTR preparation, identifying common challenges such as data gaps, limited technical capacity, and resource constraints. Recommendations emphasised strengthening institutional arrangements, enhancing technical expertise, and leveraging South–South cooperation to meet ETF requirements and unlock climate finance opportunities.

Evaluation results indicated strong knowledge gains, particularly in the use of IPCC and ETF tools, and a high demand for extended, sector-specific training. The workshop concluded with a call to sustain momentum through follow-up capacity-building initiatives, reinforcing the collective commitment to transparency and ambition under the Paris Agreement.

# Introduction

## Background

Existing data shows that the year 2024 had record high greenhouse gas level emissions.<sup>1</sup> Climate change is a threat multiplier with the potential to worsen some of humanity's greatest challenges, including health, poverty and hunger. With climate change affecting billions of people around the world, we are facing a global crisis that requires urgent action more than ever. Climate action is more than just one of the 17 Sustainable Development Goals (SDGs). As climate change and sustainable development are closely interlinked, achieving SDGs by 2030 heavily relies on addressing the climate crisis.

This global imperative aligns with the 7th Greenhouse Gas Inventory System Training Workshop to enhance the capacity of countries in the Asia-Pacific region for providing a national inventory report of greenhouse gases in accordance with the modalities, procedures and guidelines of the Enhanced Transparency Framework (ETF) and utilizing such national Greenhouse Gas (GHG) inventories for the effective design and implementation of Nationally Determined Contributions (NDCs) under the Paris Agreement. In this context, the landmark decision at COP28 on December 13, 2023 to transition away from fossil fuels marks a pivotal shift in the global approach to combating climate change. UN Secretary-General António Guterres stressed the inevitability of a fossil fuel phaseout, underscoring the need for a just and equitable end to the era of fossil fuels.<sup>2</sup>

The 7th Greenhouse Gas Inventory System Training Workshop focused on giving intensive hands-on training on GHG inventories including a demonstration on the estimation of emissions and removals using the IPCC Inventory Software, reporting of emissions and removals using the ETF reporting tool and interoperability of IPCC software with ETF reporting tool for GHG inventories. The workshop also focused on the Enhanced Transparency Framework (ETF), an integral component of Paris Agreement, the Biennial Transparency Report (BTR), electronic reporting of the information in the national inventory report and the ETF reporting tools in line with the evolving international climate architecture. The ETF under the Paris Agreement builds on the current, solid measurement, reporting and verification (MRV) system under the Convention, which for developed countries is biennial reports, [the annual greenhouse gas \(GHG\) inventories](#) and the [International Assessment and Review \(IAR\)](#); and for developing countries is the biennial update reports and [International Consultation and Analysis \(ICA\)](#). Parties under the Paris Agreement were required to submit their first biennial transparency report (BTR1) and national inventory report, if submitted as a stand-alone report, in accordance with the modalities, procedures and guidelines, by 31 December 2024 at the latest.

Underpinning all this work is activity data. Activity data measures activities that generate GHG emissions such as energy consumption, transportation mileage, or

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<sup>1</sup> <https://wmo.int/publication-series/state-of-global-climate-2024>

<sup>2</sup> <https://news.un.org/en/story/2023/12/1144742>

agricultural yields. This data is the backbone of emissions and removals calculations as it is multiplied by corresponding emissions factors to derive overall emissions and removals estimates. High quality, comprehensive and reliable data is essential to ensure (i) accuracy and reliability, (ii) transparency and comparability, (iii) policy relevance and (iv) continuous improvement. The ability to deliver accurate and detailed inventories gives countries the opportunity to develop high quality carbon credits which could be a significant source of income for Least Developed Countries (LDC), Landlocked Developing Countries (LLDC) and Small Island Developing States (SIDS).

### **Objectives and Expected Outcomes**

The 7<sup>th</sup> Greenhouse Gas Inventory System Training Workshop provided an opportunity for countries from the Africa and Asia-Pacific regions to build capacity and engage in policy dialogue on providing a national inventory report of greenhouse gases and utilizing national GHG inventories for the design and implementation of NDCs under the Paris Agreement with an emphasis on improving the collection of activity data in the energy sector as well as considering overlaps in the IPPU (industrial processes and product use) and waste management sectors. While Asia, including the Pacific region, emits the largest volume of GHG, producing about half the world's carbon dioxide,<sup>3</sup> member states are still having difficulty managing and collecting the GHG-related data.<sup>4</sup> Whilst Africa contributes less than 4% of GHG emissions<sup>5</sup>, it needs capacity training in order to meet the ETF requirements and also improve their ability to access climate finance. Working with Asia-Pacific countries through South-South exchanges can assist African countries in further developing their capacities. Therefore, the workshop expected to have the following outcomes:

- Enhance capacity of government officials and experts on enhancing GHG inventory system through deeper understanding of the Enhanced Transparency Framework (ETF) and its modalities, procedures and guidelines, outline of Biennial Transparency Report (BTR), electronic reporting of information through the ETF reporting tools.
- Exchange of advanced knowledge and experiences of national governments on developing GHG inventory systems, including electronic reporting of information through the reporting tools.
- Develop skills in collecting, managing and reporting raw activity data and emission factors in the energy sector.
- Engage participants on NDC 3.0 updates, while advancing networks among participating organizations, countries, and regions to promote the implementation of the Paris Agreement.

### **Organizers**

This workshop was organized by the United Nations Office for Sustainable Development (UNOSD) of the UN Department of Economic and Social Affairs (UNDESA), United Nations Economic and Social Commission for Asia and the Pacific

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<sup>3</sup> <https://www.imf.org/en/Blogs/Articles/2021/03/25/asia-pacific-the-gigantic-domino-of-climate-change>

<sup>4</sup> <https://www.unescap.org/kp/2024/asia-and-pacific-sdg-progress-report-2024>

<sup>5</sup> <https://www.afdb.org/en/cop29/focus-africa>

(UNESCAP), United Nations Framework Convention on Climate Change (UNFCCC), the Intergovernmental Panel on Climate Change (IPCC), Capacity-building Initiative for Transparency - Global Support Programme (CBIT-GSP) and hosted by the Government of Kazakhstan.

### **Participant and Target Audience**

The workshop engaged over 40 participants from the government, national research institutions, and academia concerned directly with the development and management of national GHG inventory systems and reporting of national inventory reports to the UNFCCC.

### **Methodology**

The workshop adopted a comprehensive four-day structure, blending technical presentations with practical, hands-on exercises to strengthen participant capacity in greenhouse gas (GHG) inventory development and reporting focusing on the energy sector. The agenda was designed to progressively build knowledge, advancing toward applied training on tools and systems.

Expert-led sessions introduced participants to the Enhanced Transparency Framework (ETF), Biennial Transparency Reports (BTR), and IPCC guidelines, ensuring alignment with the modalities, procedures, and guidelines under the Paris Agreement. These sessions were complemented by country case studies, which grounded technical discussions in real-world contexts and highlighted diverse national approaches to GHG inventory development.

Significant time was allocated for interactive components, including breakout discussions, Q&A segments, and group feedback sessions. Practical exercises formed a core element of the methodology, with participants engaging in data handling, emission factor application, and uncertainty assessment, particularly focused on the energy sector. Dedicated sessions provided hands-on training with the IPCC Inventory Software and ETF reporting tools, emphasizing interoperability and electronic reporting requirements.

To reinforce learning and encourage peer exchange, the workshop incorporated structured recaps, participant feedback opportunities, and a facilitated discussion on follow-up capacity development needs.

# Summary of Sessions

## Opening and Welcome Remarks

**Moderator:** Mr. Simon Gilby, Sustainable Development Officer, United Nations Office for Sustainable Development (UNOSD)

Opening and welcome remarks were delivered by H.E. Mr Mansur Oshurbayev, Vice-Minister of Ecology and Natural Resources of Kazakhstan; Mr Sukhrob Khojimatov, UNDP Resident Representative; and Mr Chun Kyoo Park, Head of Office, United Nations Office for Sustainable Development. H.E. Mr Mansur Oshurbayev welcomed participants by stressing the importance of climate transparency for achieving global goals, highlighting Kazakhstan's 15% emissions reduction target, its Carbon Neutrality Strategy to 2060, and early BTR submission. In his address, Mr Sukhrob Khojimatov underlined the urgency of action amid record 2024 temperatures, noting Kazakhstan's vulnerability and leadership in transparency, supported by UNDP initiatives such as the Climate Promise and NDC3.0. Finally, Mr Chun Kyoo Park emphasised accurate GHG inventories and robust data systems, with the workshop aiming to build national capacity using IPCC tools, focusing on the energy sector and fostering South-South cooperation.

## Outline of the workshop and introduction of participants

Mr. Simon Gilby (Sustainable Development Officer, UNOSD) outlined the workshop's objectives, explaining the key goals of the workshop, introducing the structure of the programme and invited the 23 representatives from 12 countries (Bangladesh, Comoros, Ghana, Iraq, Jordan, Kyrgyz Republic, Lao PDR, Madagascar, Mongolia, Mozambique, Nepal, and Papua New Guinea) to introduce themselves.

## Session I: Enhanced Transparency Framework

**Moderator:** Ms. Aneta Nikolova, Climate Policy Lead, Environment and Development Division, Economic and Social Commission for the Asia Pacific (ESCAP)

### Topics addressed:

- BTR 1 preparation and submission updates, including challenges and support available.
- Outline of Enhanced Transparency Framework (ETF) and its modalities, procedure, and guidelines.
- Outline of Biennial Transparency Report (BTR), national inventory document (NID) and common reporting tables (CRT) for electronic reporting of information on national inventory report

### Presenters:

- Mr. Tomoyuki Aizawa, Programme Officer, United Nations Framework Convention on Climate Change (UNFCCC)
- Mr. Jaypalsingh Chauhan, Asia Coordinator, Capacity-building Initiative for Transparency - Global Support Programme (CBIT-GSP)

- Ms. Aiyngul Kerimray, Scientist – Energy, UNEP Copenhagen Climate Centre

### **Main Messages**

The session underscored the ETF as a cornerstone of the Paris Agreement, designed to enhance transparency, build trust, and track progress towards climate goals. Speakers highlighted the critical role of robust national GHG inventories, standardised reporting formats, and adherence to IPCC guidelines in ensuring consistency and comparability. While developing countries face challenges such as data gaps and limited technical capacity, flexibility provisions and international support mechanisms including capacity-building, technical tools, and financial assistance are available to address these barriers. A recurring theme was the importance of transparency, completeness, and quality assurance in reporting, supported by clear methodologies and structured reporting tools like CRTs and NIDs. Ultimately, the ETF is not only a compliance mechanism but also a capacity-building opportunity to strengthen national systems and foster global trust in climate action.

## **Session II: Country Progress Updates – Status, Lessons learned and Challenges for preparing NDC 3.0 and BTR1**

**Moderator:** Mr. Tomoyuki Aizawa, Programme Officer, UNFCCC

### **Presentations:**

- Progress of Kazakhstan on the NDC 3.0 and BTR1 by Ms. Gulmira Sergazina, Project expert, UNDP Kazakhstan
- Nepal's Experience with NDC 3.0 and BTR1 Preparation by Mr. Shiva Khanal and Mr. Prakash Lamichhane, Ministry of Forests and Environment, Government of Nepal
- Papua New Guinea's Progress Update - NDC 3.0 and BTR1 preparation by Mr. Junior Solomon, Climate Change and Development Authority, Government of Papua New Guinea

### **Main Messages**

The session highlighted the diverse experiences of Kazakhstan, Nepal, and Papua New Guinea in implementing the Enhanced Transparency Framework and advancing NDC commitments. Kazakhstan showcased progress with modelling tools such as LEAP and NEMO and reported an 8.49% emissions reduction from 1990 levels, moving towards its 15% NDC target by 2030. Key recommendations from its BTR1 technical review focused on improving transparency, methodological clarity, and institutional capacity, while addressing economic and technological constraints and ensuring a just energy transition.

Nepal emphasised its ambitious NDC 3.0 targets across multiple sectors, including energy, transport, and AFOLU, alongside efforts to prepare its first BTR using IPCC 2006 guidelines. Persistent challenges include poor data quality, limited resources, and coordination gaps, with CBIT and related projects playing a critical role in strengthening transparency systems.

Papua New Guinea outlined its ETF transition, institutional strengthening, and plans for NDC 3.0, while noting challenges such as limited technical capacity, coordination issues, and the need for clearer guidance on ETF reporting and loss and damage. Across all countries, common priorities emerged: improving data quality, enhancing institutional arrangements, building technical expertise, and securing financial and technical support to meet transparency and reporting requirements.

## Session III: Main Contents of 2006 IPCC Guideline - Vol.2 (Energy)

**Moderator:** Mr. Simon Gilby, Sustainable Development Officer, UNOSD

**Presenter:** Ms. Aiyngul Kerimray, Scientist – Energy, UNEP Copenhagen Climate Centre

### **Main Messages**

An in-depth overview of the 2006 IPCC Guidelines for National Greenhouse Gas Inventories, focusing on Volume 2: Energy was provided, including the structure, methodologies, and tiered approaches (Tiers 1–3) for estimating emissions from stationary and mobile combustion, fugitive emissions, and carbon capture and storage (CCS). The session emphasised the importance of selecting appropriate tiers based on data availability and national circumstances, avoiding double counting between sectors, and using country-specific emission factors where possible. The presentation also covered the 2019 Refinement updates, activity data sources, and decision trees for estimating emissions, particularly in the energy and transport sectors.

## Session IV: Deep Dive into Activity Data and Emission Factors

**Moderator:** Mr. Simon Gilby, Sustainable Development Officer, UNOSD

**Presenters:** Mr. Jaypalsingh Chauhan, Asia Coordinator, CBIT-GSP and Ms. Aiyngul Kerimray, Scientist – Energy, UNEP Copenhagen Climate Centre

### **Main Messages**

The session underscored the pivotal role of accurate and high-quality activity data in developing credible greenhouse gas inventories and informing effective climate policy. Speakers highlighted the distinction between primary and secondary data, advocating for a hybrid approach that prioritises key emission sources while ensuring transparency and consistency. The importance of applying IPCC tiered methodologies, using country-specific emission factors, and implementing robust QA/QC procedures was emphasised as essential for improving accuracy and aligning with international standards.

Energy statistics are as a critical component, with discussions on fuel definitions, unit conversions, calorific values, and the use of reference and sectoral approaches for CO<sub>2</sub> estimation. Tools such as decision trees and key category assessments were presented as practical methods for identifying significant emission sources, supported by both quantitative and qualitative analysis.

A recurring theme was the need for continuous improvement through institutional strengthening, enhanced technical expertise, and better data systems. These measures are vital not only for meeting ETF requirements but also for unlocking climate finance and supporting national climate goals through greater transparency and accountability.

The presentations were supplemented by interactive exercises to confirm understanding and to provide practical examples to assist participants in gathering and analysing activity data.

## Session V: Experience of Building and Operating National GHG Inventory Systems

**Moderator:** Ms. Aneta Nikolova, Climate Policy Lead, Environment and Development Division, ESCAP.

### Country Examples

- Experience of Building and Operating the Korean GHG Inventory System by Dr. Hyung-Wook Choi, GHG Inventory and Research Center (GIR), Republic of Korea
- Kazakhstan Experience of Building and Operating National GHG Inventory Systems by Mr. Aiman Yessekina, Head of GHG Inventory Department, JSC “Zhasyl Damu”

### Main Messages

The session highlighted the importance of strong legal and institutional frameworks in establishing robust national GHG inventory systems. Korea’s experience demonstrated how legislative backing, such as the Carbon Neutrality and Green Growth Act, provides a foundation for effective MRV systems, institutional roles, and the development of country-specific emission factors. The integration of IT platforms (GIRS/GIRT), adherence to IPCC 2006 Guidelines, and rigorous QA/QC procedures were identified as critical for ensuring accuracy, transparency, and continuous improvement. Lessons learned underscored the value of inter-agency collaboration and the need to align inventory systems with evolving climate policies and NDC commitments.

Kazakhstan’s presentation reinforced the role of legal mandates and ministerial decrees in operationalising the Enhanced Transparency Framework (ETF). The country’s progress in submitting its first BTR, NIR, and CRTs reflects growing institutional capacity, supported by multi-agency coordination. Emission trends from 1990 to 2023 showed an overall 11.36% reduction (excluding LULUCF), with sectoral variations highlighting the need for targeted mitigation strategies. Key priorities include strengthening data verification, improving inventory quality, and sustaining institutional collaboration to meet transparency requirements and long-term climate goals.

## Session VI and VII: Building a National Data Collection and Archiving Framework

**Moderator:** Ms. Kristina Kaar, Associate Programme Officer, UNFCCC

**Presenter:** Mr. Jaypalsingh Chauhan, Asia Coordinator, CBIT-GSP

### **Main Messages**

The session highlighted the foundational role of strong institutional arrangements, robust data systems, and continuous improvement strategies in meeting Enhanced Transparency Framework (ETF) requirements. Effective institutional frameworks comprising coordination entities, steering committees, technical working groups, and legal mechanisms are essential for ensuring data governance and adherence to TACCC principles (Transparency, Accuracy, Consistency, Comparability, and Completeness). Common challenges such as data gaps, technical complexity, and capacity constraints were noted, with recommendations focusing on integrated systems, stakeholder engagement, and adaptive governance.

Addressing data gaps and uncertainties emerged as a critical priority. IPCC-recommended techniques such as interpolation, extrapolation, surrogate data, and overlap methods were presented as practical solutions, supported by expert judgment and uncertainty quantification methods like Gaussian and Monte Carlo approaches. Best practices included systematic QA/QC, historical data reconstruction, and gender-disaggregated data collection, alongside regional collaboration and structured archiving for long-term improvement.

The importance of digital archiving and secure data storage was underscored as a cornerstone of transparency and continuity. Best practices include structured storage, metadata tagging, version control, and disaster recovery protocols, with case studies demonstrating successful centralized and cloud-based systems. Future-proofing strategies such as modular systems, open standards, and emerging technologies (e.g., AI, blockchain) were recommended to mitigate risks of obsolescence. Across all topics, the session reinforced the need for institutional strengthening, capacity building, and sustainable governance to ensure credible, transparent, and resilient climate reporting systems.

## **Session VIII: Establishing Effective Governance for GHG Inventory Management**

**Moderator:** Ms. Aneta Nikolova, Climate Policy Lead, Environment and Development Division, ESCAP

**Presenter:** Mr. Jaypalsingh Chauhan, Asia Coordinator, CBIT-GSP and Ms. Aiyngul Kerimray, Scientist – Energy, UNEP Copenhagen Climate Centre

### **Main Messages**

The session emphasised the importance of legal frameworks in transitioning from voluntary to mandatory climate reporting. Examples from countries like the UK, Germany, Canada, Australia, and Japan, each with laws mandating GHG data collection, reporting, and verification were showcased. The role of policy instruments such as carbon pricing, sectoral targets, and MRV systems in driving high-quality data was also highlighted. The importance of stakeholder engagement, data sharing

agreements, and balancing transparency with confidentiality were stressed and common barriers such as data gaps, capacity constraints, and evolving regulations, proposing solutions including capacity building, technological tools, and continuous improvement were addressed.

The session concluded with guiding questions to help countries design robust, adaptive, and policy-integrated GHG inventory systems aligned with the Enhanced Transparency Framework.

## Session IX: Group Work and Wrap Up

Ms. Aneta Nikolova (Climate Policy Lead, ESCAP) led a feedback and discussion session with the participants. Participants welcomed the interactive sessions and comprehensive presentations.

## Session X: Experiences in Quality Assurance, Enhancing Data Certainty and Quality Control, Technical Expert Review (TER) preparation

**Moderator:** Mr. Simon Gilby, Sustainable Development Officer, UNOSD

**Presenter:** Mr. Jaypalsingh Chauhan, Asia Coordinator, CBIT-GSP and Ms. Aiyngul Kerimray, Scientist – Energy, UNEP Copenhagen Climate Centre

### Main Messages

The session reinforced the importance of robust quality assurance/quality control (QA/QC) systems and uncertainty assessment as essential components of credible national GHG inventories under the Enhanced Transparency Framework (ETF). QA/QC procedures such as structured checks, documentation, and peer review were highlighted as critical for ensuring data integrity and adherence to TACCC principles (Transparency, Accuracy, Consistency, Comparability, and Completeness).

Uncertainty analysis using Tier 1 and Tier 2 methodologies was presented as a tool for improving decision-making, prioritising resources, and strengthening policy evaluation. Continuous improvement and the establishment of centralised data systems were identified as key strategies for building sustainable and verifiable inventories.

The session also introduced the Technical Expert Review (TER) process under the Paris Agreement, clarifying its facilitative and non-punitive nature. Speakers outlined the scope, procedures, and roles defined in the MPGs, illustrating how TER identifies areas for improvement and capacity-building needs through real-world examples such as Andorra's first BTR. Guidance was provided on how experts can become reviewers via UNFCCC training and nomination, reinforcing the role of TER in enhancing transparency, fostering trust, and supporting national reporting systems.

## Session XI: Practical Training on IPCC Inventory Software and interoperability with ETF GHG Inventory Tool

**Moderator:** Ms. Aneta Nikolova, Climate Policy Lead, Environment and Development Division, ESCAP

**Presenter:** Ms. Lisa Hanle, Consultant to the Technical Support Unit of the Intergovernmental Panel on Climate Change Task Force on National Greenhouse Gas Inventories (IPCC TFI TSU)

### **Main Messages**

A comprehensive, hands-on introduction to the IPCC Inventory Software was provided with participants being guided through its use for estimating GHG emissions, particularly in the energy sector, and demonstrated how to input activity data, apply emission factors, and generate outputs consistent with the 2006 IPCC Guidelines. The session emphasised interoperability with the UNFCCC ETF Reporting Tool, including how to generate IPCC JSON files and populate common reporting tables (CRTs). The software's role in supporting transparency, consistency, and accuracy in national inventories was highlighted, and its widespread adoption among developing countries was showcased.

The session was delivered through a combination of presentations and practical exercises directly using the software using sample data.

## Session XII: Wrap Up and Summary

Mr. Simon Gilby (Sustainable Development Officer, UNOSD) summarised the training delivered on Day 3.

## Session XIII: Practical exercises on inputting information into the ETF GHG inventory tool and generate common reporting tables

**Moderator:** Ms. Aneta Nikolova, Climate Policy Lead, Environment and Development Division, ESCAP

**Presenter:** Ms. Kristina Kaar, Associate Programme Officer, UNFCCC

### **Main Messages**

The ETF GHG Inventory Reporting Tool, developed by the UNFCCC Secretariat to support Parties in meeting their reporting obligations under the Enhanced Transparency Framework (ETF) was introduced. It was shown how the tool facilitates the electronic reporting of the GHG inventories in the agreed structure of the Common Reporting Tables (CRTs), and the secretariat presented the tool's various features, including data entry, flexibility provisions, Excel and JSON imports, and interoperability with the IPCC Inventory Software. The tool's role in enhancing transparency, consistency, and efficiency in GHG reporting was emphasised.

The session included practical exercises on creating inventory versions, applying flexibility provisions, importing data using Excel and JSON, and generating CRTs.

## Session XIV: Facilitated discussion on BTR, ETF, and NDC 3.0 and follow-up capacity development needs

**Moderator:** Mr. Simon Gilby, Sustainable Development Officer, UNOSD

### **Main Messages**

Countries reflected on their experience at the workshop and stated that they had learned an enormous amount of information in a short time which would take time to absorb. They were very keen to take back what they had learned to their countries and were highly interested in further training.

### **Wrap up and closing remarks**

Mr. Chun Kyoo Park (Head of Office, UNOSD) reflected on his deep appreciation for the participants' engagement and commitment over the four-day event. He acknowledged the valuable support of partners including the UNFCCC, IPCC, ESCAP, CBIT-GSP, and the Government of Kazakhstan. Mr. Park highlighted the workshop's focus on the ETF, IPCC software, ETF tools, and the importance of robust activity data. He emphasized that accurate and timely data is foundational to transparency and ambition under the Paris Agreement. Concluding with encouragement to sustain the momentum, he praised participants' dedication to climate transparency and wished them a safe journey home.

## Recommendations and Next Steps

The workshop highlighted significant progress in building technical capacity for GHG inventory systems, while also revealing areas where further support could be beneficial. Participants expressed interest in continued engagement, suggesting that future activities might focus on consolidating knowledge and addressing sector-specific challenges.

### **Developing a Community of Practice**

Participants noted the benefits of sharing experiences and lessons learned. To maintain this momentum, partners should explore options for a community of practice or similar platform to facilitate ongoing dialogue, resource sharing, and troubleshooting. This could be complemented by periodic regional discussions or forums to showcase progress and innovations. This would enable the partners to deepen their engagement with and knowledge of the partners, and to co-develop training focused on the precise needs of the participating countries.

### **Exploring Continued Learning Opportunities**

Partners should explore the possibility of a series of virtual sessions in advance of subsequent in-person workshops in order to bring as much learning online as possible and reserving workshop time for face-to-face interactive sessions. Key topics such as global and regional progress towards the achievement of the Paris Agreement, Biennial

Transparency Report (BTR) preparation, and presentation of guidelines and frameworks can be done online. These sessions could serve as refreshers, provide space for questions, and allow participants to share early experiences in applying the methodologies introduced during the workshop.

### **Supporting Institutional Strengthening**

While technical training remains essential, institutional arrangements were identified as a recurring challenge. Future engagement should include policy-oriented discussions or targeted sessions for decision-makers to explore legal frameworks, coordination mechanisms, and digital solutions for data governance.

### **Developing a Flexible Roadmap**

Finally, it may be helpful to outline a flexible roadmap for continued capacity development, which could include a mix of webinars, in-person workshops, and peer learning opportunities over the next 18–24 months. Such a roadmap could be developed in consultation with participating countries to ensure alignment with national priorities and reporting timelines.

# Annexes

## Annex I: Consolidated Feedback

The 7th GHG Inventory System Training Workshop received highly positive feedback. Participants reported strong knowledge gains, particularly in understanding NDC/BTR processes and applying the IPCC Inventory Software and ETF tools. Practical exercises, expert facilitation, and peer learning were the key strengths of the training.

Respondents expressed high interest in follow-up activities, with a preference for longer, more in-depth sessions covering sector-specific applications.

Participants particularly valued the hands-on training with IPCC Inventory Software, practical insights, and engaging expert facilitation. The technical focus on BTR and ETF tools was well-received, and the interactive exercises significantly enhanced learning.

Feedback highlighted a strong demand for extended and more in-depth sessions, including sector-specific training (e.g., Agriculture, LULUCF) and advanced IPCC software applications.

Participants also expressed interest in follow-up activities such as ETF reporting integration, institutional arrangements for data governance, and regular sector-focused sessions. Overall, the workshop effectively delivered knowledge transfer and sparked clear interest in continued technical capacity building.

## Annex II: Pictures

Pictures from the workshop are available at the following link:

[https://drive.google.com/drive/folders/1PsDEj6aRQ-r\\_m3W7Qu3ntWTw3OiHHtp0](https://drive.google.com/drive/folders/1PsDEj6aRQ-r_m3W7Qu3ntWTw3OiHHtp0)

## Annex III: Presentations

Presentations from the workshop can be downloaded at the following link:

<https://unosd.un.org/events/7thGHGWorkshop>

## Annex IV: Agenda

Day 1, 15 July 2025 (Tuesday)	
Time	Module
8:30-9:00	Registration – survey
9:00-9:20	<b>Opening and Welcome Remarks</b> Moderator: Mr. Simon Gilby, Sustainable Development Officer, United Nations Office for Sustainable Development (UNOSD)  Welcome Remarks H.E. Mr. Mansur Oshurbayev, Vice-Minister of Ecology and Natural Resources, Republic of Kazakhstan

	<p>Mr. Sukhrob Khojimatov, Deputy Resident Representative, UNDP Kazakhstan (online)</p> <p>Opening Remarks Mr. Chun Kyoo Park, Head of Office, UNOSD</p> <p>Photo session</p>
9:20-9:45	<p><b>Outline of the workshop and introduction of participants</b> Moderator: Mr. Simon Gilby, Sustainable Development Officer, UNOSD</p>
9:45–10:30	<p>Session 1: Enhanced Transparency Framework Moderator: Ms. Aneta Nikolova, Climate Policy Lead, Environment and Development Division, Economic and Social Commission for the Asia Pacific (ESCAP)</p> <ul style="list-style-type: none"> <li>• BTR 1 preparation and submission updates, including challenges and support available.</li> <li>• Outline of Enhanced Transparency Framework (ETF) and its modalities, procedure, and guidelines.</li> <li>• Outline of Biennial Transparency Report (BTR), national inventory document (NID) and common reporting tables (CRT) for electronic reporting of information on national inventory report</li> </ul> <p>Presenters:</p> <ul style="list-style-type: none"> <li>• Mr. Tomoyuki Aizawa, Programme Officer, United Nations Framework Convention on Climate Change (UNFCCC)</li> <li>• Mr. Jaypalsingh Chauhan, Asia Coordinator, Capacity-building Initiative for Transparency - Global Support Programme (CBIT-GSP)</li> <li>• Ms. Aiyngul Kerimray, Scientist – Energy, UNEP Copenhagen Climate Centre</li> </ul>
10:35 – 10:45	Coffee Break
10:45-11:30	<p>Session 2: Country Progress Updates – Status, Lessons learned, Challenges and Support Needed for preparing NDC 3.0 and BTR1 Moderator: Mr. Tomoyuki Aizawa, Programme Officer, UNFCCC and Ms. Kristina Kaar, Associate Programme Officer, UNFCCC</p> <ul style="list-style-type: none"> <li>• Progress of Kazakhstan on the NDC 3.0 and BTR1 by Ms. Gulmira Sergazina, Project expert, UNDP Kazakhstan</li> <li>• Nepal's Experience with NDC 3.0 and BTR1 Preparation by Mr. Shiva Khanal and Mr. Prakash Lamichhane, Ministry of Forests and Environment, Government of Nepal</li> </ul>

	<ul style="list-style-type: none"> <li>Papua New Guinea's Progress Update - NDC 3.0 and BTR1 preparation by Mr. Junior Solomon, Climate Change and Development Authority, Government of Papua New Guinea</li> </ul>
11:30–13:00	<p>Session 3: Main Contents of 2006 IPCC Guideline - Vol.2 (Energy)  Moderator: Mr. Simon Gilby, Sustainable Development Officer, UNOSD  Presenter: Ms. Aiyngul Kerimray, Scientist – Energy, UNEP Copenhagen Climate Centre</p>
13:00 –14:00	Lunch
14:00–15:15	<p>Session 4: Deep Dive into Activity Data and Emission Factors  Moderator: Mr. Simon Gilby, Sustainable Development Officer, UNOSD</p> <p>Presenters: Mr. Jaypalsingh Chauhan, Asia Coordinator, CBIT-GSP and Ms. Aiyngul Kerimray, Scientist – Energy, UNEP Copenhagen Climate Centre</p> <p>Topic 1: Energy Balance  Topic 2: Reference and Sectoral Approach  Topic 3: Decision trees and key category assessment  Topic 4: Activity data, conversions and comparison with international database (practical exercise with key categories)  Topic 5: Emission factors (default and country specific)</p>
15:15-15:30	Coffee break
15:30–17:00	<p>Session 4: Deep Dive into Activity Data and Emission Factors (continued)  Moderator: Mr. Simon Gilby, Sustainable Development Officer, UNOSD</p> <p>Presenters: Mr. Jaypalsingh Chauhan, Asia Coordinator, CBIT-GSP and Ms. Aiyngul Kerimray, Scientist – Energy, UNEP Copenhagen Climate Centre</p> <p>Topic 1: Energy Balance  Topic 2: Reference and Sectoral Approach  Topic 3: Decision trees and key category assessment  Topic 4: Activity data, conversions and comparison with international database (practical exercise with key categories)  Topic 5: Emission factors (default and country specific)</p>
18:30-19:30	Welcome Reception
<b>Day 2, 16 July 2025 (Wednesday)</b>	
<b>Time</b>	<b>Module</b>
08:30-9:00	Registration
09:00-9:15	Recap of Day 1 and participants' feedback Moderator: Mr. Simon Gilby, Sustainable Development Officer, UNOSD

9:15-10:45	<p>Session 4: Session 4: Deep Dive into Activity Data and Emission Factors (continued) Moderator: Mr. Simon Gilby, Sustainable Development Officer, UNOSD</p> <p>Presenters: Mr. Jaypalsingh Chauhan, Asia Coordinator, CBIT-GSP</p> <p>Session 5: Experience of Building and Operating National GHG Inventory Systems Moderator: Ms. Aneta Nikolova, Climate Policy Lead, Environment and Development Division, ESCAP.</p> <p>Country Examples</p> <ul style="list-style-type: none"> <li>• Experience of Building and Operating the Korean GHG Inventory System by Dr. Hyung-Wook Choi, GHG Inventory and Research Center (GIR), Republic of Korea</li> <li>• Kazakhstan Experience of Building and Operating National GHG Inventory Systems by Mr. Aiman Yessekina, Head of GHG Inventory Department, JSC “Zhasyl Damu”</li> </ul> <p>Q&amp;A</p>
10:45-11:00	Coffee break
11:00–12:00	<p>Session 6: Building a National Data Collection and Archiving Framework Moderator: Ms. Kristina Kaar, Associate Programme Officer, UNFCCC</p> <p>Presenter: Mr. Jaypalsingh Chauhan, Asia Coordinator, CBIT-GSP</p> <p>Topic 1: Institutional Arrangements for data collection Topic 2: Data gaps analysis and standard gap filling techniques Topic 3: Data archiving and storage Topic 4: Designing inventory improvement plans and continuous enhancement and flexibilities provisions Topic 5: CBIT GSP NID Template</p>
12:00-13:00	Lunch
13:00–14:00	<p>Session 7: Building a National Data Collection and Archiving Framework (continued) Moderator: Ms. Kristina Kaar, Associate Programme Officer, UNFCCC</p> <p>Presenter: Mr. Jaypalsingh Chauhan, Asia Coordinator, CBIT-GSP</p> <p>Topic 1: Institutional Arrangements for data collection Topic 2: Data gaps analysis and standard gap filling techniques Topic 3: Data archiving and storage Topic 4: Designing inventory improvement plans and continuous enhancement and flexibilities provisions Topic 5: CBIT GSP NID Template</p>

15:00-15:15	Coffee break
15:15 –16:30	<p>Session 8: Establishing Effective Governance for GHG Inventory Management Moderator: Ms. Aneta Nikolova, Climate Policy Lead, Environment and Development Division, ESCAP</p> <p>Presenter: Mr. Jaypalsingh Chauhan, Asia Coordinator, CBIT-GSP and Ms. Aiyngul Kerimray, Scientist – Energy, UNEP Copenhagen Climate Centre</p> <p>Topic 1: Examples of national legislation and policies supporting GHG inventory development Topic 2: National Inventory Management Systems Topic 3: Sharing experience through guiding questions</p>
16:30 –17:00	<p>Session 9: Group Feedback and Wrap Up</p> <p>Moderator: Mr. Simon Gilby, Sustainable Development Officer, UNOSD</p>

<b>Day 3, 17 July 2025 (Thursday)</b>	
<b>Time</b>	<b>Module</b>
08:30 –09:00	Registration
9:00-9:15	Recap of Day 2 and participants feedback, questions and comments Moderator: Mr. Simon Gilby, Sustainable Development Officer, UNOSD
9:15 - 10:30	<p>Session 10: Experiences in Quality Assurance, Enhancing Data Certainty and Quality Control, Technical Expert Review (TER) preparation Moderator: Mr. Simon Gilby, Sustainable Development Officer, UNOSD</p> <p>Presenter: Mr. Jaypalsingh Chauhan, Asia Coordinator, CBIT-GSP and Ms. Aiyngul Kerimray, Scientist – Energy, UNEP Copenhagen Climate Centre</p> <p>Topic 1: Introduction to QA/QC principles for GHG inventories (TACCC) Topic 2: Design and documentation of QA/QC activities Topic 3: Uncertainty Assessment Topic 4: Prepare for Technical Expert Review of NID</p>
10:30 - 10:45	Coffee Break
10:45 - 12:00	<p>Session 11: Practical Training on IPCC Inventory Software and interoperability with ETF GHG Inventory Tool Moderator: Ms. Aneta Nikolova, Climate Policy Lead, Environment and Development Division, ESCAP</p> <p>Presenter: Ms. Lisa Hanle, Consultant to the Technical Support Unit of the Intergovernmental Panel on Climate Change Task Force on National Greenhouse Gas Inventories (IPCC TFI TSU)</p>

12:00-13:00	Lunch
13:00-15:15	<p>Session 11: Practical Training on IPCC Inventory Software and interoperability with ETF GHG Inventory Tool  Moderator: Ms. Aneta Nikolova, Climate Policy Lead, Environment and Development Division, ESCAP</p> <p>Presenter: Ms. Lisa Hanle, Consultant to the IPCC TFI TSU</p>
15:15-15:30	Coffee break
15:30-16:30	<p>Session 11: Practical Training on IPCC Inventory Software and interoperability with ETF GHG Inventory Tool (continued)  Moderator: Mr. Simon Gilby, Sustainable Development Officer, UNOSD</p> <p>Presenter: Ms. Lisa Hanle, Consultant to the IPCC TFI TSU</p>
16:30-17:00	<p>Session 12: Wrap and Summary  Moderator: Mr. Simon Gilby, Sustainable Development Officer, UNOSD</p>
<b>Day 4, 18 July 2025 (Friday)</b>	
<b>Time</b>	<b>Module</b>
8:30-9:00	Registration
9:00-9:15	<p>Recap of Day 3 and participants feedback, questions and comments  Moderator: Mr. Simon Gilby, Sustainable Development Officer, UNOSD</p>
9:15-10:30	<p>Session 13: Practical exercises on inputting information into the ETF GHG inventory tool and generate common reporting tables  Moderator: Ms. Aneta Nikolova, Climate Policy Lead, Environment and Development Division, ESCAP</p> <p>Presenters:</p> <ul style="list-style-type: none"> <li>• Ms. Kristina Kaar, Associate Programme Officer, UNFCCC</li> </ul>
10:30 - 10:45	Coffee Break
10:45 – 13:00	<p>Session 13: Practical exercises on inputting information into the ETF GHG inventory tool and generate common reporting tables (continued)  Moderator: Mr. Simon Gilby, Sustainable Development Officer, UNOSD</p> <p>Presenters:</p> <ul style="list-style-type: none"> <li>• Ms. Kristina Kaar, Associate Programme Officer, UNFCCC</li> </ul>
13:00-14:00	Lunch
14:00-15:00	<p>Session 14: Facilitated discussion on BTR, ETF, NDC 3.0, IPCC software feedback and follow-up capacity development needs  Moderator: Mr. Simon Gilby, Sustainable Development Officer, UNOSD</p>

15:00-15:30	Wrap Up and Closing Remarks Moderator: Mr. Simon Gilby, Sustainable Development Officer, UNOSD
15:30–18:00	Site Visit

## Annex V: Participants list

### National Government Participants

#### Bangladesh

##### **Syed Forhad Hossain**

Director

Department of Environment, Ministry of Environment, Forest, and Climate Change, Bangladesh

##### **Md Mahmud Hossain**

Deputy Director

Department of Environment, Ministry of Environment, Forest, and Climate Change, Bangladesh

#### Comoros

##### **Mohamed Moumini Fawaz**

Transparency focal point and assistant to the technical coordinator of the BTR  
Ministry of Environment, Comoros

##### **Soumaya Moritadhoi**

Officer, Monitoring Greenhouse Gas Inventories, General  
Directorate of Environment Forests, Comoros

#### Ghana

##### **Lucia Agatiba Agbango**

Principal Programme Officer, Environmental Protection Agency of Ghana

##### **Derek Sarfo-Yiadom**

Programme Officer, Climate Change and Ozone

Department, Environmental Protection Agency Ministeries, Ghana

#### Iraq

##### **Hamzah Qasim Ali Al-Sarray**

Engineer in the Framework Convention and Paris Agreement

Department, Ministry of Environment, Directorate of Climate Change, Iraq

##### **Shanaz Hussein Ahmed Al-Sormeeri**

Material Examiner

Ministry of Environment, Iraq

**Jordan****Manar Methhan Moh'd Abu Hazim**

Head of Mitigation Reduction  
Ministry of Environment, Jordan

**Kazakhstan****Danna Aldabergenova**

Acting Head of Low Carbon Development Unit, Climate Policy and New Technologies  
Department,  
Ministry of the Environment and Natural Resources, Kazakhstan

**Aiman Yessekina**

Head of GHG Inventory Department  
JSC "Zhasyl Damu"

**Kyrgyz Republic****Zhibek Kadoeva**

Lead Specialist of the Climate Change Policy  
Department, Ministry of Natural Resources, Ecology and Technical Supervision of the  
Kyrgyz Republic

**Aleksandr Marlenovich Temirbekov**

Technical Expert Group Leader on BTR 1,2 development  
Ministry of Natural Resources, Ecology and Technical Supervision of the Kyrgyz  
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**Lao PDR****Chanthavone Keomanouvong**

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**Sacksy Vilayhak**

Technical Officer, GHG Mitigation  
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**Madagascar****Jaona Mandimby Andrianarisoa**

Focal point for transparency of the Paris Agreement, Head of the Partnership  
Division of the Database and Monitoring-Evaluation Service, Climate Change and  
REDD+ Bureau, Madagascar

**Michel Omer Laivao**

Coordinator of National Communication  
Ministry of Environment and Sustainable Development, Madagascar

## **Mongolia**

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### **Choikhand Janchivlamdan**

Overall compiler and GHG Inventory Coordination, Climate Change Research and Cooperation

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## **Mozambique**

### **Marilia Telma Antonio Manjate**

Technician

Ministry of Agriculture and Fisheries, Mozambique

### **Anisio Pinto Manuel**

Technical Energy Environmental Manager

Ministry of Mineral Resource and Energy, Mozambique

## **Nepal**

### **Shiva Khanal**

Under-secretary (tech)

Ministry of Forest and Environment, Nepal

### **Prakash Lamichhane**

Research Officer

Ministry of Forest and Environment, Nepal

## **Papua New Guinea**

### **Priscilla Pep**

National Communication Officer, Climate Change and Development

Authority, Papua New Guinea

### **Junior Solomon**

MRV Officer, Climate Change and Development

Authority, Papua New Guinea

## **Speakers and Experts**

### **Tomoyuki Aizawa**

Programme Officer

UNFCCC

### **Jaypalsinh Chandravirsinh Chauhan**

CBIT-GSP Regional Network Coordinator for Asia

UNEP Copenhagen Climate Centre

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Greenhouse Gas Inventory Research Center of Korea

**Lisa Hanle**

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