



Debates and  
Results of the  
Kick-off Workshop  
for ICAT Botswana  
Phase 2 Project

## Initiative for Climate Action Transparency - ICAT

### Inception Workshop Report

### AUTHORS

Senny Masike PhD, Kakanyo F. Dintwa PhD, Alejandro Regatero

Date: March 31, 2026

### DISCLAIMER

All rights reserved. No part of this publication may be reproduced, stored in a retrieval system or transmitted, in any form or by any means, electronic, photocopying, recording or otherwise, for commercial purposes without prior permission of Botswana. Otherwise, material in this publication may be used, shared, copied, reproduced, printed and/or stored, provided that appropriate acknowledgement is given of Botswana and ICAT as the source. In all cases the material may not be altered or otherwise modified without the express permission of the Botswana.

### PREPARED UNDER

The Initiative for Climate Action Transparency (ICAT), supported by Austria, Canada, Germany, Ireland, Italy, and the Children's Investment Fund Foundation.



 Federal Ministry  
Republic of Austria  
Climate Action, Environment,  
Energy, Mobility,  
Innovation and Technology



Environment and  
Climate Change Canada

Environnement et  
Changement climatique Canada



Rialtas na hÉireann  
Government of Ireland



CHILDREN'S  
INVESTMENT FUND  
FOUNDATION



ICAT is hosted by the United Nations Office for Project Services (UNOPS)

## Table of Contents

|      |                                                               |    |
|------|---------------------------------------------------------------|----|
| 1.0. | Introduction .....                                            | 4  |
| 2.0. | Presentations and key content.....                            | 6  |
|      | Overview of the ICAT Initiative .....                         | 6  |
|      | Implementation Plan of ICAT Botswana Phase II .....           | 6  |
|      | Key Findings of First Deliverable: Stocktaking Exercise ..... | 8  |
| 3.0. | Discussions and Q&A .....                                     | 9  |
| 4.0. | Next Steps and Closing Remarks .....                          | 11 |
| 5.0. | Annex 1: List of Participants.....                            | 12 |

## 1.0. Introduction

The Initiative for Climate Action Transparency (ICAT) was established in 2017. It was founded to support developing countries (UNFCCC Party Members) in strengthening their institutional capacities to build robust transparency frameworks that enable them to effectively achieve the Paris Agreement and its Enhanced Transparency Framework targets. By providing tailored support and practical tools and proven methodologies, ICAT aims at empowering governments to develop the transparency frameworks necessary for effective climate policies that harmonize with their national development priorities (UNEP, 2024). Since its inception, the initiative has worked with over 40 countries globally in strengthening their monitoring and reporting framework to measure and report their Nationally Determined Contribution (NDCs) in a transparent manner.

Botswana joined ICAT programme in the late 2020. In pursuit to the ICAT objective of enhancing the member states capacity to measure and report their Greenhouse gas (GHG) emissions in a transparent manner, the Government of Botswana (GoB) in Partnerships with United Nations Environment Programme (UNEP) initiated ICAT Phase I in 2021. ICAT Phase I focused exclusively on the energy and transport sectors to strengthen the country's institutional capacities to meet the ETF requirements. Key deliverables of ICAT Phase I were: undertaking situational analysis on the Measuring, reporting and verification (MRV) and climate data analysis; Barriers assessment and recommendations to the MRV/EFT; development of the NDC tracking tools; identification of synergies and linkages to leverage mitigation to existing government initiatives in accordance with the Paris Agreement and its transparency framework; and tools and guidelines to monitor and track progress made in Botswana's NDCs.

As a continuous process, the GoB in partnerships with UNEP Copenhagen Climate Centre is commencing ICAT Phase II to further strengthen Botswana's MRV institutional capacity. The overall objective of ICAT Botswana Phase II project is to further support the government to plan, measure, manage and track the implementation of its NDC mitigation actions and expected GHG impacts, by continuing capacity building and strengthening frameworks for emissions projections of selected interventions, impact assessment and a regular data collection, tracking and management framework for the NDC. This will include those needed to project GHG emissions/removals, assess the impact of relevant policies and measures, and develop appropriate indicators for reporting on progress achieved.

In this context, an Inception Workshop was organized by Botswana's Department of Meteorological Services (DMS) and the UNEP Copenhagen Climate Centre (UNEP-CCC), to take place on 24 February 2026 in virtual format. The Inception Workshop was convened to:

- Introduce the ICAT initiative and its global transparency mandate to all relevant Botswana stakeholders
- Present the objectives, activities and timeline of ICAT Botswana Phase II
- Share findings of the first activity stocktaking exercise, which assessed progress made on Phase I recommendations and identified persisting data and capacity gaps
- Facilitate discussions on institutional arrangements, working group composition and priority data needs
- Agree on immediate next steps for establishing thematic working groups and commencing Phase II activities

The meeting was chaired by Mr. Balisi Gopolang (DMS). Opening remarks were delivered by Ms. Tracy Sonny, Vice-Chair of the National Climate Change Committee (NCCC), who welcomed participants and highlighted the importance of strong stakeholder engagement in advancing Botswana's climate transparency work.

Approximately 30 participants joined the virtual meeting, representing the following institutions:

| Institution                                                     | Role / Sector                                             |
|-----------------------------------------------------------------|-----------------------------------------------------------|
| UNEP Copenhagen Climate Centre (UNEP-CCC)                       | Lead implementing partner                                 |
| Department of Meteorological Services (DMS)                     | National focal point; project coordination; GHG inventory |
| National Climate Change Committee (NCCC)                        | Policy oversight                                          |
| Department of Energy                                            | Energy sector data                                        |
| Botswana Power Corporation                                      | Energy generation data                                    |
| Department of Roads, Transport and Safety (DRTS)                | Transport sector data                                     |
| Botswana Railways                                               | Transport mitigation (road-to-rail shift)                 |
| Civil Aviation Authority                                        | Transport sector                                          |
| Statistics Botswana                                             | Official statistics custodian                             |
| Department of Forestry and Range Resources                      | AFOLU / GHG inventory                                     |
| Department of Veterinary Services                               | Agriculture / GHG Inventory                               |
| NADI (National Agricultural Research and Development Institute) | Agriculture sector                                        |
| Department of Environmental Protection                          | GHG inventory team                                        |

|                                      |                                        |
|--------------------------------------|----------------------------------------|
| University of Botswana (UB) GHG team | Technical / academic                   |
| Sustain267                           | Private sector                         |
| National consultants                 | ICAT Phase II technical implementation |

## 2.0. Presentations and key content

### Overview of the ICAT Initiative

Mr. Alejandro Regatero (UNEP-CCC) provided an overview of the ICAT initiative, covering:

- ICAT's establishment in 2015 at COP21 and its mandate to support implementation of the ETF under the Paris Agreement
- ICAT as a multi-stakeholder partnership managed by UNOPS, supporting multiple countries globally through direct country support, a methodological toolbox and regional knowledge-exchange hubs
- Transparency as a cornerstone to measuring action, ensuring accountability, attracting international climate finance, and enabling governments to design targeted, evidence-based policies
- The specific ICAT tools to be applied in Phase II: the ICAT Renewable Energy methodology and the Transport Pricing methodology, as well as the Greenhouse Gas Abatement Cost Model (GACMO v2.3) for GHG projections
- A review of Botswana's national context, including NDC targets, sector priorities, and reporting obligations (three National Communications and one BUR submitted to date, with the 4th National Communication and 1st Biennial Transparency Report (BTR) currently under preparation)

### Implementation Plan of ICAT Botswana Phase II

Mr. Sennye Masike, Energy Sector National Consultant for the project, presented the Phase II implementation plan, structured around four main activities:

#### **Activity 1: GHG Impact Assessment of Selected Policies**

This activity focuses on assessing the GHG impact of two to four policy interventions in the energy and transport sectors using ICAT sector methodologies:

- Renewable Energy methodology: Focused on assessing renewable energy interventions (capacity, electricity generation, GHG emission reductions over time) and quantifies the substitution effect on fossil fuel-based generation
- Transport Pricing methodology: Focused on assessing transport-related policies including the price elasticity of demand for petrol and diesel to estimate the

responsiveness of transport fuel consumption to price changes, and consequent GHG emission reductions

The process will involve policy selection by thematic working groups; a series of capacity building workshops on ICAT methodologies; tailored policy impact analysis based on the selected policies and measures; and identification and addressing of data gaps for the development of a centralized data management platform.

### **Activity 2: GHG Projections using GACMO**

Building on the GACMO training previously conducted in 2022, this activity will:

- Deliver updated and complete training on GACMO v2.3
- Run model simulations for scenarios without mitigation (WOM) and with mitigation (WEM), projecting GHG emissions
- Validate projections with stakeholders and present results in report form
- Conduct cost-effectiveness analysis using Net Present Value (NPV) and Internal Rate of Return (IRR) to support policy prioritization

### **Activity 3: NDC Tracking Framework**

This activity addresses the absence of a formal NDC tracking framework in Botswana:

- Gap assessment of existing NDC tracking capacity and alignment with the national monitoring and evaluation (M&E) framework
- Development of a set of SMART indicators for tracking NDC implementation in the energy and transport sectors
- Development of an MRV/M&E framework for NDC tracking, including institutional arrangements (who tracks, how data is shared, reporting calendar aligned with BTR cycles)
- Training workshop and capacity building on the developed MRV framework and indicators, and validation of the tracking framework and indicators.

### **Activity 4: Project Closure**

A final validation workshop presenting all project outputs: policy GHG impact assessments, validated GHG projections, the NDC tracking framework, lessons learned and a finance scoping report.

## Key Findings of First Deliverable: Stocktaking Exercise

Mr. Kakanyo Fani Dintwa, Transport Sector National Consultant for the project, presented the main findings from the stocktaking exercise, which assessed the status of Phase I recommendations and current data readiness. Key findings are summarized below.

### **Institutional Arrangements for MRV**

- Botswana has a functioning MRV institutional arrangement centered on DMS as the national focal point to the UNFCCC.
- The QA/QC gap identified in Phase I has been addressed: a QA/QC coordinator has been designated and a QA/QC plan developed and implemented.
- Two additional personnel from the Department of Energy and Ministry of Lands and Agriculture have been added to the GHG inventory team, as recommended under Phase I.
- A persisting gap is the lack of expertise in data documentation and archiving, particularly cloud-based systems; the stocktake recommends investment in a cloud-based data management system.
- The recommendation to formally assign NDC tracking to the GHG inventory team has not yet been implemented and remains outstanding.

### **Data Systems and Availability**

Statistics Botswana serves as the custodian of official national statistics and manages the national statistical system, applying its Botswana Data Quality Assessment (BDQA) framework. An MOU on data flows between Statistics Botswana and DMS is currently under development.

The stocktake identified the following priority data gaps for the energy sector:

- Grid emission factors: calculated on an ad hoc basis; needs standardization using UNFCCC guidelines to reflect the evolving mix of domestic coal and South African power imports.
- Disaggregated fuel inputs: breakdown of diesel used for emergency backup at specific power plants required.
- Displaced generation methodology: no clear process to identify which source (coal vs. imports) is reduced when solar generation peaks; a merit-order data feed from BPC is needed.
- Future energy mix and capacity factors: solar and wind pilot data based on estimates rather than local measurements.

- IPP cost data: investment and operating costs for Independent Power Producers (IPPs) often proprietary; financial transparency clauses recommended for future power purchase agreements.

Priority data gaps for the transport sector include:

- Annual vehicle mileage (kilometres travelled per vehicle): identified as a critical gap; no national tracking system exists. A pilot mileage collection mechanism during annual vehicle licence renewal is recommended.
- Price elasticity of demand for transport fuels: no official country-specific elasticity coefficient exists; an econometric study using historical fuel prices and household expenditure survey data is needed.
- Fleet segmentation by engine capacity and fuel type: total vehicle registration is available, but disaggregation by efficiency class (grams CO<sub>2</sub>/km) is not fully digitalized.
- E-mobility: costs for electric vehicle adoption and charging efficiencies not yet documented.
- Revenue recycling from fuel levies: revenue collected centrally but no public tracking of funds recycled into green transport programmes.

### NDC Tracking

- No formal NDC tracking framework currently exists in Botswana.
- GASMO training was conducted during Phase I, but stakeholders have not had the opportunity to apply the tool in practice, leading to erosion of skills.
- Strong synergies exist between GHG inventory work and NDC tracking (both deal with GHG emissions and removals); it is recommended that the GHG inventory team be formally tasked with both functions.
- Several Phase I recommendations for ensuring continuity were not implemented, partly explaining the knowledge erosion and delayed progress.

## 3.0. Discussions and Q&A

Following the presentations, an open Q&A session was held. The main issues raised and responses given are summarized below:

**Energy Modelling and GACMO Scope:** The first question was whether standalone energy models would be run alongside GACMO. Mr. Masike clarified that GASMO v2.3 is capable of simulating energy demand and supply internally, using inputs such as population growth and demand projections, without requiring a separate energy model.

The model can therefore project emissions for WOM and WEM scenarios across multiple sectors including waste, agriculture and LULUCF.

**Cost-Benefit Analysis: NPV and IRR:** One participant asked for clarification on the relationship between Net Present Value and Internal Rate of Return in the project's economic analysis. Mr. Masike explained that NPV is the difference between discounted benefits and discounted costs, while the IRR is the discount rate at which NPV equals zero. A higher IRR indicates greater economic viability; comparing the IRR to a benchmark rate (e.g., a commercial bank rate) provides guidance on whether a mitigation measure is financially attractive.

**Centralized Data Management Platform:** One of the questions enquired about whether a centralized data management platform allowing multiple stakeholders to upload, access and share data would be developed under Phase II. Mr. Regatero acknowledged that this was considered during project design, but that creating a fully functional platform from scratch is resource-intensive and rather a project on its own. Instead, Phase II will include a dedicated consultancy to assess data gaps and needs as a preparatory step, laying the groundwork for a full platform to be developed in a subsequent phase.

**NDC Tracking and the GHG Inventory Team:** One participant noted that the GHG inventory team had recently been formally established and asked how the thematic working groups would be set up and how NDC tracking would be institutionalized. Mr. Masike confirmed that the thematic working groups would co-develop the NDC tracking framework, which would then be handed over to the GHG inventory team for ongoing use. This arrangement is consistent with the Phase I recommendation to formally assign NDC tracking to the inventory team, given its existing expertise in GHG accounting.

**Coal-to-Liquids Scenario and Elasticity Assumptions:** This question assumed the scenario in which rising petrol prices could incentivise a switch to coal-to-liquids (CTL) fuel, and asked whether such non-linear substitution effects are captured in the models. Mr. Masike explained that the price elasticity methodology captures consumption changes in response to price signals and that, at high elasticity, consumption would be expected to grow at a decreasing rate over time. The CTL scenario would represent a significant structural shift requiring separate assumption-setting; this point was flagged for further discussion during the modelling phase.

**Vehicle Mileage Data and Fleet Information:** A DRTS representative confirmed that DRTS holds data on fuel type and engine capacity for the registered fleet, but that annual mileage per vehicle is not currently collected, as there is no legal requirement to record it. He acknowledged this as a critical data gap and expressed willingness to explore, bilaterally with the consultants, how a mileage-recording mechanism could be piloted

during vehicle licence renewal. Participants also noted the potential value of import registration records for tracking the growing influx of hybrid and electric vehicles.

**Grid Emission Factor Standardisation:** A participant noted the ad hoc nature of current grid emission factor calculations and encouraged the working groups to establish a standardized, regularly updated emission factor for Botswana, ideally grounded in national data from Botswana Power Corporation and Murupule coal mine rather than relying on IPCC defaults.

## 4.0. Next Steps and Closing Remarks

The immediate next steps agreed at the close of the workshop are:

- Distribution of all workshop presentations to participants (national consultants / DMS)
- Formal establishment of thematic working groups and issuance of invitations to relevant stakeholders
- Commencement of policy identification and selection process (2–4 policies per sector) with the working groups
- Scheduling of the introductory capacity building sessions on ICAT Renewable Energy Addition and Transport Pricing methodologies
- DRTS to hold bilateral discussions with national consultants on vehicle mileage data collection options
- DMS to continue progressing the MOU with Statistics Botswana on data flows
- UNEP-CCC to update the project workplan to reflect the delayed start and circulate the revised timeline to all partners

The meeting was closed by Mr. Gopolang, who thanked all participants for their engagement and noted the importance of transparent climate reporting as the backbone of the Paris Agreement. He emphasized that Botswana's ambition to achieve a clean energy mix by 2050 and reach carbon neutrality requires robust, honest measurement of current emissions. He encouraged participants to remain responsive to future meeting invitations and to ensure institutional continuity by nominating alternates where needed.