WORKSHOP REPORT

Training Workshop for Anglophone African Countries on: “Preparation and reporting of results of national GHG inventories under the ETF of the Paris Agreement”

25 to 27 June 2024 | Kigali, Rwanda

Co-organized by The Partnership on Transparency in the Paris Agreement (PATPA) and The Capacity Building Initiative for Transparency - Global Support Programme (CBIT-GSP)

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Content

List of abbreviations

AFOLU	Agriculture, forestry, and other land use
BUR	Biennial Update Report
BTR	Biennial Transparency Report
CBIT-GSP	Capacity Building Initiative on Transparency – Global Support Programme
COP	Conference of Parties in the framework of the United Nations Framework Convention on Climate Change (UNFCCC)
CTF	Common Tabular Format
CRT	Common Reporting Tables
ETF	Enhanced Transparency Framework (of the Paris Agreement)
FAO	Food and Agriculture Organization of the United Nations
GHG	Greenhouse Gas
GPG	Good Practice Guidance
GIZ	Deutsche Gesellschaft für Internationale Zusammenarbeit
IPCC	Intergovernmental Panel on Climate Change
LULUCF	Land use, Land-use change and Forestry
MPG	Modalities, procedures and guidelines
MRV	Measurement, Reporting and Verification
NDC	Nationally Determined Contribution
NGHGI	National Greenhouse Gas Inventory
NIR	National Inventory Report
PATPA	Partnership on Transparency in the Paris Agreement
QA/QC	Quality Assurance/Quality Control
REMA	Rwanda Environmental Management Agency
SPA	Support Project for the Implementation of the Paris Agreement
TACCC	Transparency, Accuracy, Consistency, Comparability, and Completeness
UNEP-CCC	United Nations Environment Programme Copenhagen Climate Centre
UNFCCC	United Nations Framework Convention on Climate Change

1. Overview

1.1 Context of the event

Reporting of results of national Greenhouse Gas (GHG) inventories transparently is a key requirement under the Paris Agreement's Enhanced Transparency Framework (ETF). It comprises detailed planning work on how to use quantitative and qualitative information to estimate in a transparent, accurate, complete, comparable and consistent manner the GHG emissions and removals that occur in the country. The modalities, procedures and guidelines (MPGs) formulated to implement transparency in reporting under the Paris Agreement, newly define specific requirements for reporting the results of national GHG inventories for the BTR. As such, information on national GHG inventory results should be included in a specific chapter of the BTR and supporting information should be included in the annexes. In addition, all Parties must provide a national inventory report (NIR) to the UNFCCC as part of each Party´s BTR submission process, consisting of a national inventory document (NID) and common reporting tables (CRT). While many countries have developed the skills to prepare national GHG inventories as part of the formulation of their previous National Communications and Biennial Update Report (BUR), both reporting on the associated processes and using the new formats may present a challenge to countries when preparing their first BTR. Therefore, it is a priority, that the national teams of the Anglophone African Regional Group are provided with capacity building for propagating and reporting the national GHG inventory under the MPGs in order to submit a BTR on time

1.2 Purpose of the event

The main objective of the event was to enhance the capacities of national experts and staff in regard to the technical content of NIRs and BTRs and in particular reporting results of the GHG inventories, by providing a space for experts to learn, discuss and exchange in-person through practical and interactive sessions and exercises.

Specific objectives include:

- Provide the national inventory teams with useful information and international experiences to facilitate their reporting to the UNFCCC following the ETF under the Paris Agreement.
- Participate by implementing concrete situations of preparation and reporting of national inventories, considering reporting provisions under ETF.

- Exchange experiences and lessons learned, corresponding to the application of tools and systems for reporting inventory data with ETF provisions.
- Identify common challenges and opportunities for collaboration among country teams in inventory work, fostering south-south cooperation.

1.3 Delivery / Approach

The regional workshop followed a four-step approach. The first two stages were preparatory: an introductory webinar set the approach and provided instructions to the participants (Stage I). In the second stage information useful for the workshop activities was collected in each participating country. The third stage was then the face-to-face event in Kigali, Rwanda, where practical exercises and presentations, supported the capacity development for a successful reporting of the national inventory under the ETF. A final follow-up phase (Stage IV) aimed to provide feedback to the participants on the exercises and results produced by the country representatives during the face-to-face training. The delivery was implemented in English.

1.4 Summary – Preparation Webinar

The webinar was the initial stage of the whole training concept and instructed the participants on other parts of the training workshop. It summarized the most relevant content to be included in greater detail in the face-to-face training, prepared participants for the training and allowed space to pose any open questions. In order to set the scene, the webinar started with an interactive session, requiring participants to answer questions about themselves, their country and their expertise. An overview of the new requirements for reporting of inventories under the ETF, content of the Common Reporting Tables and insight into the UNFCCC reporting tools provided overall guidance on the new reporting expectations. These sessions provided valuable insight and understanding of the transition from the BUR and National Communication to the BTR and NIR. In preparation, participants were requested to fill out a template, reflecting on where they stand and which country specific needs they have. A recording of the webinar can be accessed online here:

https://www.youtube.com/watch?v=-b8CcElV7Fo

2. Summary and key messages of the sessions

Day 1: National Inventory Systems in Practice

Introduction to the new requirements for reporting national GHG inventories under the Paris Agreement: MPGs and associated flexibility provisions

Fernando Farias, UNEP-CCC

This interactive session aimed to introduce the new requirements for reporting national GHG inventories under the Paris Agreement as defined in the MPGs. It highlighted the structure of the MPGs, including the content of the National Inventory Report (NIR), the Common Reporting Tables, and details on the flexibility provisions that developing countries can apply. Inventory teams need to make use of the MPGs when preparing to report the National GHG Inventory under the ETF.

Institutional arrangement for national inventory systems (NIS)

Khetsiwe Khumalo, UNEP-CCC

The session highlighted the importance of institutional arrangements, identifying who is responsible, available legal instruments, and procedures. Following key points should be taken into consideration:

- **Implementing and maintaining national inventory arrangements**, including institutional, legal and procedural arrangement is **vital to ensure the continued estimation, compilation and reporting of national inventory reports** in accordance with the MPGs.
- **National inventory arrangements vary,** as they are dependent on national circumstances and preferences.
- A **sustainable process** for updating, quality and continuous improvement is an important aspect of institutional arrangements.
- It is suggested to include basic information in a **tabular format** in the NIR and use **a system structure diagram** to help understand and formalize the roles and responsibilities of the institutions involved.

- The **roles and responsibilities of all entities** should be **clearly defined** and communicated. Usually, the national coordinating entity is the leading organization that oversees inventory activities and with the responsibility of submitting the official inventory.
- Agreements with data providers are key. An agreement can be beneficial for both the inventory compilers and the data providers themselves, ensuring data provision in the future.

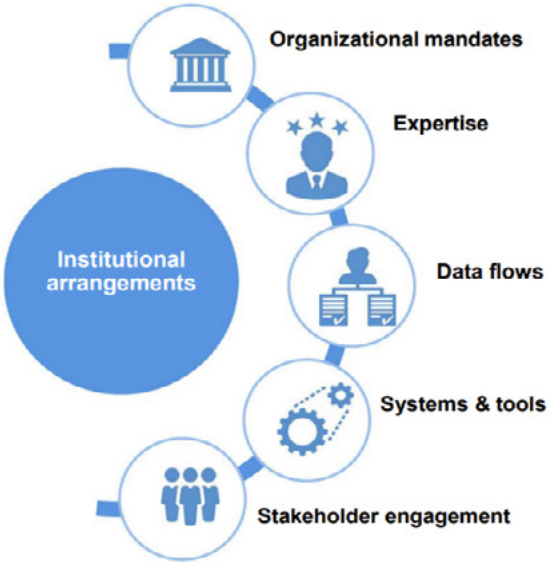

Figure 1: Key components of Institutional Arrangements (Source: CBIT-GSP)

Inventory workplan and management of the inventory cycle

Fernando Farias, UNEP-CCC

The session covered the inventory workplan and management of the inventory cycle as well as the design of the inventory improvement plan to facilitate improved reporting and transparency over time and was followed by a practical exercise.

- **GHG Inventory Management Tools (IMT):** The IPCC defines in the 2019 IPCC Refinements to the 2006 IPCC Guidelines a series of IMT aimed **at helping to ensure efficiency and transparency in the compilation activities of the inventory,** ensuring **Transparency, Accuracy, Consistency, Comparability, and Completeness** (TACCC), timeliness and good use of resources.
- The **workplan** clarifies the schedule of steps for generating GHG inventory outputs. Workplans should be reviewed, and where necessary, revised prior to the start of a new inventory update cycle.
- Stages to be considered in an Inventory workplan:
  - Planning, Data collection, Calculations, Filling of formats (report software), Report writing (BTR chapter), Internal/External reviewing, Submission (BTR or standalone), Documentation of future improvements, Archiving
- Teamwork planning:
  - Institutional coordination for data gathering, role assignation, consider staff availability, expertise, External support (QA), time schedule, resource management, Contingencies, documentation and archiving and identification of improvement

An exercise on assigning roles for the next cycle of preparation of the GHG inventory was done, inviting participants to reflect on who is involved in which part of the inventory cycle.

Figure 2: Assigning Roles in the GHG Inventory cycle. (Adapted from CBIT-GSP exercise template)

Management of QA/QC and documentation material

Sekai Ngarize, Independent Consultant

The session was designed to build the capacity on the **Management of QA/QC** and documentation material when compiling their NIR. It stressed the need to adhere to MPGs decision (18/CMA.1) paragraphs (34-36) on Quality Assurance/Quality Control and the IPCC 2006 guidelines for GHG inventories when conducting the Management of QA/QC and documentation of the GHG Inventory. Participants had the chance to practice filling in QA\QC tables using an exercise developed by the CBIT-GSP based on the IPCC 2006 Inventory guidelines checklist to support GHG inventory compilers in implementing management of QA/QC and documentation.

- Overall, a high-quality inventory of anthropogenic emissions and removals of greenhouse gases should be **credible & convincing** and **should follow Good Practice Guidance (GPG)** by using IPCC Indicators of quality based on TACCC principles.
- **There is a differentiation between QA and QC.** QC is a system of routine technical activities to assess and maintain the quality of the inventory as it is being compiled and is performed by personnel compiling the inventory.
- A **QC system is designed to:** (i) **Provide routine and consistent checks to ensure data integrity, correctness, and completeness,** (ii) **Identify and address errors and omissions,** (iii) **Document and archive inventory material and record all QC activities.**
- Whilst **QA is a planned system of review procedures** conducted by personnel not directly involved in the inventory compilation/development process (preferably by independent third parties) that is designed to verify and determine the conformity of the procedures taken and to identify areas where improvements could be made.
- Overall, under the MPGs, the following elements are required for reporting (i) QA/QC plan, (ii) QC procedures, and (iii) a Reference Approach.

The mandatory nature of the periodic review and revision of the QA/QC plan is an important element to drive the continued inventory improvement.

Design of the inventory improvement plan

Fernando Farias, UNEP-CCC

The presentation focused on the **design and content of the improvement plans**, which enables improved reporting and enhanced transparency over time.

- **Each country should have a plan to improve the quality** (TACCC) **of inventory over time** (continuous improvement).
- Source of ideas for improvement:
  - Own national team, External contributions, UNFCCC QA processes (BUR assessments, future Technical Expert Reviews (TER), Other QA processes.
- Benefits of improvement plans: Find better data, facilitate coordination, train current staff members, enhance QA/QC procedures, guide new staff, and more efficient use of resources.
- Resources needed to implement the plan: staff availability, staff expertise, cost and time.
- An improvement plan can be as simple as a table including information on the categorisation (type of improvement activity), description, origin, status, priority, and owner.

The Environmental Protection Agency from the USA provides a National Inventory Systems Toolkit, that includes a specific template for the inventory improvement plan.

Innovative experiences from country inventory teams

Uganda, Namibia, South Africa

Country inventory teams have developed and used various innovative approaches and activities to develop and improve their national GHG inventory. The session enabled countries, that have experiences with innovative approaches to share and discuss these with other countries, allowing an in-depth exchange among experts. Experts were encouraged to advice and reflect if the approaches can be replicated in a different country context and which considerations should be taken into account. The table group discussions provided the necessary space to discuss specific country examples and approaches.

Uganda, Namibia, and South Africa:

- Linking data collection and provision to other strategies (such as REDD+ in Uganda) is a useful approach to ensure the needed data for inventories is received.
- Developing data templates for sectors has proved useful for mainstreaming and easing data flows.
- Engaging with the statistic agency is a useful approach to retrieve data.
- Regulation compelling data providers to report emission if certain thresholds are met, ensure the needed data is provided.
- Establishing a web-based information platform to report on GHG emissions (example of SAGERS in South Africa) is helpful for data providers to ensure easy access to inform on data activities.
- A QA/QC system in place is key to measure and control the quality of the inventory as it is being developed. Additionally, verification regulations help ensure the correct data is submitted and reported.
- Countries advocate working together with universities to disseminate the results of their GHG inventory.

Day 2: Improving technical contents of the Inventory chapter of the BTR and the NID

Cross sectorial issues

Sekai Ngarize, Independent Consultant

This session was designed to enhance the understanding on cross sectorial issues including definitions, methodologies, parameters, and data; key category analysis; time-series consistency and recalculations; uncertainty assessment; assessment of completeness and notation keys and metrics (GWP from the Article 6) as written in the reporting provision of the MPGs. The workshop presented the MPGs for the reporting of the cross sectoral issues and application of flexibility in light of their capacities and the mandatory use the 2006 IPCC GHG inventory Guidelines for estimating GHG emissions\removals and any subsequent versions or refinements of the guidelines approved by the Conference of the Parties (COP).

- All countries must apply the MPGs reporting requirements (i.e., Decision 18/CMA.1), including the common reporting tables for the electronic reporting of the information in the national inventory reports of anthropogenic emissions by sources and removals by sinks of GHG (i.e., Decision 5/CMA.3).
- **Flexibility provisions on cross-sectorial issues for developing countries** that could be applied in light of their capacities:
  - Use nationally appropriate methodologies if these better reflect national circumstances and conform to IPCC guidelines. Transparently explain selection of national parameters, data, or methods;
  - Identify key categories using a threshold no lower than 85 per cent in place of the 95 per cent threshold defined in the IPCC guideline;
  - Provide, at a minimum, a qualitative discussion of uncertainty for key categories, using the IPCC guidelines, where quantitative input data are unavailable to quantitatively estimate uncertainties, and are encouraged to provide a quantitative estimate of uncertainty for all source and sink categories of the GHG inventory;
  - Consider emissions insignificance: if the likely level of emissions is below 0.1 per cent of the national total GHG emissions, excluding **Land Use, Land Use Change and Forestry** (LULUCF), or 1,000 kt CO_2 eq, whichever is lower. The total national aggregate of estimated emissions for all gases from categories considered insignificant, in

this case, shall remain below 0.2 per cent of the national total GHG emissions, excluding LULUCF;

- Encouraged to elaborate an inventory QA/QC plan in accordance with the IPCC guidelines, including information on the inventory agency responsible for implementing QA/QC;
- Report at least three gases (CO_2, CH_4 and N_2O) as well as any of the additional four gases (HFCs, PFCs, SF_6 and NF_3) that are included in the Party's NDC under Article 4 of the Paris Agreement, are covered by an activity under Article 6 of the Paris Agreement, or have been previously reported;
- Report data covering, at a minimum, the reference year/period for its NDC under Article 4 of the Paris Agreement and, in addition, **a consistent annual time series** from at least 2020 onwards; and
- Have their **latest reporting year as three years** prior to the submission of their national inventory report.
- Report **completeness** and use of **notation keys** when numerical data are not available.

Data Management System for Archiving the Inventory Data

Khetsiwe Khumalo, UNEP-CCC

The session summarised elements for compilation and combination of information in different formats: such as numerous datasets, documents references, a range of assumptions, expert judgements, data conversions or manipulations (e.g., combining data from multiple data sources).

- **Data Management Systems** for GHG Inventories serve to calculate estimation, sharing information, aggregating and reporting GHG inventory data and archiving.
- A **simple approach** can be a collection of spreadsheets, databases and software systems. A **more advanced system** entails database tools connected to the internet, which is available for users to upload data and operate form remote location. The tools appropriate to national circumstances should be chosen.
- Data management systems can **vary considerably** in terms of their functions, forms, operational resources, and system access arrangements, de-

pending on a country's specific context.

- Common practices for documentation within calculation tools guide users to ensure the most efficient usage.
- An **inventory archive** is a collection of information related to the GHG inventory compilation process, reporting, and institutional arrangements.
- **Content** of an inventory archive includes: inventory compilation plan, institutional arrangements, methods and data documentation, any files used for calculation (e.g., spreadsheets, models, databases, IPCC Inventory Software), QA/QC procedures, key category analysis, drafts and final electronic versions of the inventory report, internal and external review, comments and responses, archiving system and improvement plan
- It is advisable to use an **archiving procedures checklist** that helps guide this process.
- An **example from Chile** shows the benefits of developing a national inventory platform. The web platform, launched in 2014, includes general and specific information from the national and subnational inventory, open-source databases and a tool for visualizing GHG emissions and removals.
- Enhancements generated were:
  - both the platform and its visualization tool bring information and inventory results to all types of audiences
  - the user is provided with the possibility to interact dynamically and is information- friendly thereby encouraging exploration and self-learning by selecting different parameters to visualize.

International experiences on cross sectorial issues, including development of country-specific and regional emission factors

Round table discussion

Inventory teams were invited to share the various experiences with developing country-specific and regional emission factors during the round table discussions. The guiding questions looked at which country specific emission factors have been developed in the past, which were planned for the future and which priorities for training inventory teams have. The session enabled the participants through peer-to-peer learning, to discover which experiences have worked well and how these can be replicated in other country contexts.

- Countries have developed various emission factors based on their specific country context, such as seagrass in the Seychelles or forestry in Liberia.
- Many countries plan to develop emission factors for the AFOLU (livestock) and energy sector (grid).

Overall training on data collection and management for inventory teams is needed, including training on uncertainty analysis for activity data, splicing techniques as well as the IPCC guidelines and new software.

Dealing with inventory data gaps and time-series consistency

Sekai Ngarize, Independent Consultant

The session was designed to build the capacity on data gap filling techniques and ensuring time series consistency within the NIR, addressing issues with data availability, non-calendar year data, completion of missing data and recalculations. The IPCCs splicing techniques were presented namely, overlap method, surrogate method, interpolation and extrapolation methods. Gap filling exercises were conducted to fill in activity data gaps or emissions estimates and removals for missing years using splicing techniques. Workshop participants had the chance to practice gap filling techniques in excel exercises designed to simulate real life practical exercises.

- The workshop emphasized that time series is a central component of the greenhouse gas inventory because it provides information on historical emissions trends and tracks the effects of strategies to reduce emissions at the national level (IPCC 2006 GL).
- Inventories are not just an estimate of a single year. They include estimates for a number of years (time series of estimates). All emissions estimate in a time series should be estimated consistently, meaning the **same method** and **data sources** are used for all years.
- When it is not possible to use the **same method** and **data sources,** the IPCC recommends the use of gap filling or suitable splicing techniques.
- **Splicing is the combining or joining of more than one method or data series to form a complete time series** when there is (i) Methodological change and refinement, (ii) Data gaps is part of IPCC GPG when addressing issue of lack of data.

- **Periodic data**, i.e. when some data may not be available on an annual basis and is instead conducted every 5 -10 years (for example: national forest inventories and waste statistics), can also be used in the NIR.
- Higher Tier Methods should be used when **improvements in data availability** are made, even if these were not applied for earlier years.

It is advisable to **use calendar year data** if there is a lack of activity data, emission factors or other parameters resulting in data gaps.

Reporting Guidance: improving presentation of data from the national inventory in the BTR and the NID (using CBIT-GSP NID template)

Fernando Farias, UNEP-CCC

This session introduced the CBIT-GSP **NID template**. The document, prepared by CBIT-GSP with input from RedINGEI, offers an editable template for the National Inventory Document (NID) and the inventory chapter of National Communications (Natcom) or BTR. It provides a general structure and minimum content guidelines for each section, marked references to

the MPG arrangements implemented along with suggested tables and figures. The template, which includes over 300 pages, is designed to be extensive yet comprehensive and adaptable to each country's specific needs. It has undergone review by various organizations and is currently being piloted in Spanish-speaking Latin American and Caribbean countries. The finalized version is expected to be published in August 2024.

Sectorial module on collection of activity data for forestry and land use

Sekai Ngarize, Independent Consultant

Anglophone countries identified a knowledge gap in the **generation of activity data** for area and area change information of land use required for the **estimation of LULUCF GHG emissions / removals**. This session addressed this gap by increasing the understanding on transparency related topics and tools available to advance learning and capacity building on the collection of activity data for the LULUCF-sector, specifically with regards to generating land use change matrices and reporting in the GHG inventory. Participants had the chance to practice filling land use matrices exercises and understand how matrices are used in identifying area change information and track deforestation across time.

- The main challenge in relation to the LULUCF sector, refers to the collection and interpretation of **activity data (AD) related to land use and land use change within the 6 IPCC land use categories**: forest land, cropland, grassland, wetlands, settlements and other land.
- As part of the IPCC *Good Practices*, countries should develop a **land-use conversion matrix** to facilitate the reporting of the different land uses and land uses changes within all 6 IPCC land use categories.
- Another major challenge is related to **missing data/information** within the time series of land use area information. In this regard, the 2006 IPCC Guidelines offers several splicing techniques to resolve data gaps.

PART 1: Understanding the 2006 IPCC GL requirements on land representation for the creation of consistent time series of IPCC land use categories and land use area information for the generation of land use change matrix.

- There is a need for countries to **establish a land representation framework** to facilitate collection of activity data on land area and area change information required for the estimation of GHG emissions / removals.

- The data collection and analysis system (including land classification) should respect the **guiding principles of MPGs** to ensure quality of data outputs (i.e. the land representation) and sustainability of operations.
- The approach of **defining anthropogenic greenhouse gas emissions by sources and removals by sinks** as all those occurring on "**managed land**", meaning land where human interventions and practices have been applied to perform production, ecological or social functions, was introduced.
- The **land representation results in a stratification of the total area of the country into strata** (units of land) homogeneous for several variables, that explain the current level and dynamic of C stocks within the stratum, with the purpose of making the GHG inventory compilation practicable while enhancing accuracy of GHG estimates.
- The 2006 IPCC Guidelines require that countries stratify their land for the following:
  - Managed and unmanaged land
  - Six IPCC top-level (main) land use categories (forest land, cropland, grassland, settlements, wetlands and other land)
  - History of land use
  - Land conversion categories
- The IPCC provides **three methodological approaches for land representation**. An example of a land-use conversion matrix is presented in Figure 2. The choice of the approach depends on the availability of data over time and space.
- The most efficient tactic to build a consistent land representation is to **apportion the land in macro units** of land homogeneous for climate, ecological zone and soil and to build a land representation for each of the macro units.

TABLE 3.6
SIMPLIFIED LAND-USE CONVERSION MATRIX FOR APPROACH 2 EXAMPLE

Net land-use conversion matrix							
Final \ Initial	F	G	C	W	S	O	*Final sum*
F	15	3	1				*19*
G	2	80					*82*
C			29				*29*
W				0			*0*
S	1	1	1		5		*8*
O						2	*2*
Initial sum	*18*	*84*	*31*	*0*	*5*	*2*	*140*

Note:
F = Forest Land, G = Grassland, C = Cropland, W = Wetlands,
S = Settlements, O = Other Land
Numbers represent area units (Mha in this example).

Figure 2: Example of a simplified land-use conversation matrix using approach 2 of the 2006 IPCC Guidelines (Source: IPCC, 2006)

PART 2: Adapting national land classification systems to IPCC land use categories and using national statistical databases for the purpose of estimating GHG LULUCF emissions/removals

- Insight into the step-by-step approach to identifying land use definitions in the 2006 IPCC Guidelines: (Forest Land, Cropland, Grassland, Wetlands, Settlements and Other land)
- Understanding the unique national circumstances in adapting national land classification systems to IPCC land use categories
- Importance of IPCC good practices for aligning national land classification with IPCC6 land use classes
- These are examples of national land use definitions and adapting national land use with IPCC land use categories:
  - Generation of land use and land use change matrices including generation of annual matrices
  - Understand how to ensure that the national classification system should be used consistently over time.
  - Consistent Representation of Lands – Practical Exercise
  - Consistent Representation of Lands– Examples on Reporting
  - The Paris Agreement and the Common Reporting Tables: Land Use, Land Use Change and Forestry (LULUCF).

Energy data and approaches: international bunker fuel emissions, reference approach, and feedstocks and non-energy use of fuels

Fernando Farias, UNEP-CCC

The greenhouse gas emission profile for Sub-Saharan Africa shows that energy makes up a substantial part of the emissions, accounting for nearly one third of all emissions. These emissions are expected to increase within the upcoming years and thus it is of upmost importance to report transparently about it. In this session the source categories and definitions, the methodological approaches and other activities were examined in order to report of GHG emission in the energy sector.

- Emissions arise from activities by combustion, as fugitive emissions or escape without combustion thus source categories and definitions were discussed, by looking at **fuel combustion** both stationary and mobile, **fugitive emissions and the Carbon Capture and Storage (CCS)** process. The Energy Chapter from the IPCCC Guidelines (2006) was used as a source for the definitions and understandings. The CRT Tables for the energy sectors were shown.
- **Methodological approaches included the difference between using Tier 1, Tier 2, Tier 3** for stationary combustion when using a sectoral approach. The method for estimating CO2 emissions using Tier 1, that uses a default emission factor was explained. Likewise, the calculations using Tier 2 and Tier 3 were shown.
- The **sources for activity data** were shown and discussed. National agencies such as the National Statistical Offices and Ministry of Energy play a key role in providing activity data for data collection. Likewise, emission factors including good practices, depending on which Tier is used, were presented.
- The **reference approach methodology** is part of QA/QC activities and provided information regarding completeness of CO2 emission from Fuel combustion that can be seen as a verification cross-check. When only very limited resources and data structures are available it provides a useful first order estimate of national GHG emissions on the energy supplied to a country.
- The **Energy balance** is an accounting framework for the compilation and understanding of data on all energy products entering, exiting, and being used in a country.
- Main differences and dealing with between activity producers and auto producers, international bunkers and multilateral operations were introduced and discussed.

Day 3: IPCC Software and UNFCCC reporting tools Using IPCC software x CRT reporting

Lisa Hanle, IPCC

The IPCC Inventory Software is based on the IPCC Guidelines for National Greenhouse Gas Inventories and helps users to estimate and report GHG emissions and removals, covering all sectors and categories. The session made participants familiar with using the tool for estimating GHG emissions and show the interoperability with the UNFCCC reporting tool, which has been decided in Decision 5/ CMA.3. Through a step-by- step live demonstration, the session guided users on how to make use of the software and the interoperability function by looking at example data in the energy sector. Guidebooks are available for the different sectors.

The main **benefits of the software** are:

- Allows for the preparation of an inventory using IPCC default methods with minimal efforts, ensuring compliance with IPCC guidelines
- Avoids methodological and calculation errors
- User-friendly interface
- Comprehensive coverage of all sectors and categories
- Allows multiple experts in country to work of different categories or sectors simultaneously and provides an organising framework for data collection
- Establishes a single in-country archive
- Includes features to help users implement QA/QC procedures, ensuring accuracy and reliability of inventory
- Generates NGHGI estimates compiling with UNFCCC requirements and ready for reporting under the Paris Agreement

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Country experiences using the IPCC software

Group discussion

During this session, all participants were invited to share their experiences with using the IPCC software, in order to discuss advantages, challenges of the software and determine the further needs of countries.

- Most countries indicated that inventory teams have and plan to use the IPCC software for reporting on GHG emissions and removals.
- All countries indicated that national experts have received training on running the IPCC software, however not for all sectors and not with the newest version.
- Countries expressed the need for further hands-on and in-country capacity building measures on sectorial level using the software.
- Countries see the user friendliness, the easiness and rapidity to calculate data, alignment with IPCC guidelines, functioning like an archive system, flexibility of importing and exporting data as the main advantages of the tool.

It was noted that inputting data for specific sectors (LULUCF) is difficult, the software itself is complex and requires intensive training. The frequent modification requires constant capacity building measures of up-to-date version of the software.

Links between the national inventory data and common reporting tables (CRTs) with NDC tracking reporting and common tabular format (CTF)

Khetsiwe Khumalo, UNEP-CCC and Sekai Ngarize, Independent Consultant

This session emphasized the importance of following the MPGs in understanding the links between the national inventory data and common reporting tables (CRTs) with NDC tracking reporting and common tabular format (CTF).

- **Targets in the countries NDC need to be smart** to evaluate the GHG emission progress, identify the type of indicator, and timing, assess the impacts of mitigation measures and redraft the target if necessary to make it measurable.
- NDCs generally include mitigation targets and actions in terms of GHG emissions.

- BTR tables and CTF tables are essential tools for tracking progress on NDC mitigation commitments.
- National GHG Inventory data is crucial for NDC progress tracking and is reported in the NID narrative and in CRTs as filling out these tables provides practical experience in tracking progress.
- Tracking policies and measures that have a significant impact on GHG emissions is important.
- CTF tables related to the Inventory include:
  - Table 1: The Indicators selected to track the Party´s NDC can be defined in terms of national or sectoral GHG emissions, following the mitigation targets and actions included in the NDC
  - Table 4: Tracking progress of indicators in previous years, using data extracted from the Inventory (national or sectorial GHG emissions)
  - Table 5: Achieved mitigation policies, measures, actions and plans, if they are quantitative, their impact in terms of GHG emissions can be estimated using the Inventory
  - Table 6: Inventory summary

UNFCCC reporting tools, including the interoperability between electronic tools

Nashib Kafle, UNFCCC

This hands-on session by the UNFCCC enabled participants to access a training environment of the new electronic ETF Reporting Tool. Given the novelty of the reporting tool, it had been a particular request from countries to receive hands-on training to enable them to better understand and use the UNFCCC ETF Reporting tool. The session ensured that all participants had access to the tool and could familiarise themselves with its interface (navigation tree) and usage. On the spot assistance by the experts and exchange with other participants ensured, that individuals had the possibility to explore the new tool and address any challenges they may face. Furthermore, the interoperability with the IPCC software was discussed and participants could familiarise themselves with the possibility of importing data into the ETF reporting tool. The open discussion left room for unanswered questions to be addressed.

3. Evaluation

Overall, 44 participants (15 female, 29 male) from 21 Anglophone African countries attended the three-day workshop. The participants evaluated the satisfaction with the workshop on average with 4.0 points out of 5 points, and the relevance for their work with 4.3 points out of 5, whereby 5 points indicates strongly agreeing and 1 indicates strongly disagreeing.

4. Related Links

Workshop Website Article with all presentation links:
Anglophone African Regional Workshop on GHG Inventories, 25 – 27 June 2024, Kigali, Rwanda (transparency-partnership.net)

CBIT-GSP Platform:
Home | Climate Transparency Platform (climate-transparency-platform.org)

UNFCCC:
ETF Reporting Tools | UNFCCC

UNFCCC:
Launch of New Climate Reporting Tools for Enhanced Transparency | UNFCCC

IPCC:
Inventory Software - IPCC-TFI (iges.or.jp)

EPA:
Toolkit for Building National GHG Inventory Systems

PATPA:
Good Practices in GHG Inventories for the Waste Sector (transparency-partnership.net)

PATPA:
GIZ_NDC-Indicators-Paper_231031.pdf (transparency-partnership.net)

PATPA and FAO:
Biennial Transparency Report Guidance and Roadmap Tool (transparency-partnership.net)

5. Contact

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The organizers would like to express their gratitude and thankfulness to REMA for welcoming us to Rwanda and hosting the workshop in Kigali. Furthermore, a thank you goes out to all those involved in the organization of this workshop, ensuring a successful implementation.

6. Annex

Agenda

Day 1: 25 June 2024: National inventory systems in practice

Time	Activities	Speaker
08:30 - 09:00	Arrival and registration of participants	Organizers
09:00 – 09.55	Joint Opening by Host country and Organisers	**Speakers:** **Ms. Juliet Kabera**, Director General of Rwanda Environment Management Authority **Mr. Bert Versmessen**, Belgian Ambassador to Rwanda **Mr. Philippe Taflinski**, Head of Cooperation, German Embassy **Mr. Fernando Farias**, Senior Advisor, CBIT-GSP **Ms. Fatmata Lovetta Sesay**, Resident Representative, UNDP
09.55- 10.00	Joint Group Picture	
10.00- 10.30	Initial energizer to facilitate meeting among participants	Elizabeth Maloba
10.30- 10.40	Purpose and objective for the next three days and housekeeping	Elizabeth Maloba, Khetsiwe Khumalo, Rebecca Ackermann
10:40 - 11:00	**Health break**	

Time	Activities	Speaker
11.00-11.10	**Presentation:** Introduction to the new requirements for reporting national GHG inventories under the Paris Agreement (MPGs) and associated flexibility provisions. Presentation of contents of the Common Reporting Table (CRT)	Fernando Farias, UNEP-CCC
11:10 - 11:20	**Exercise**: applying different flexibility provisions for developing countries (tables and text)	Fernando Farias, UNEP-CCC
11:20 - 11:30	**Presentation**: Institutional **arrangement for** national inventory systems (NIS) following the MPGs and sustainable systems for data collection	Khetsiwe Khumalo, UNEP-CCC
11:30 - 11:40	Q&A and sharing of opinions	Elizabeth Maloba
11:40 - 12:10	Rwanda's experience on National Inventory System	Ms. Pear Nkusi, REMA, CBIT Coordinator
12:10 - 12:15	Announcements	Elizabeth Maloba
12:15 - 13:15	**Lunch**	
13:15 - 13:25	Small energizer	Elizabeth Maloba
13:25 - 13:35	**Presentation:** Inventory workplan and management of the inventory cycle	Fernando Farias, UNEP-CCC
13:35 - 14:00	**Exercises:** On inventory planning, preparation, and management	Fernando Farias, UNEP-CCC
14:00 - 14:20	**Presentation:** Management of QA/QC and documentation material	Sekai Ngarize
14:20 - 15:00	**Exercises**: On QA/QC of inventories	Sekai Ngarize
15:00 - 15:20	**Health break**	
15:20 - 15:40	**Presentation:** Data management system for archiving the inventory data and international examples of data management systems	Khetsiwe Khumalo, UNEP-CCC
15:40 - 16:00	**Presentation:** Design of the inventory improvement plan to facilitate improved reporting and transparency over time	Fernando Farias, UNEP-CCC
16:00 - 16:30	**Exercise:** Group work on designing an inventory improvement plan	Fernando Farias, UNEP-CCC
16:30 - 16:45	**Reporting** in the room from groups and discussion	Elizabeth Maloba

Time	Activities	Speaker
16:45 - 17:15	**Group discussions:** Innovative experiences from country inventory teams (including local training activities and inventory awareness and dissemination examples)	Country #3 Namibia Country #4 South Africa Country #5 Uganda
17:15 - 17:20	**Summary** of learning and take-aways from the day as well as outlook for Day 2	Elizabeth Maloba
17:20 - 17:25	Feedback from participants	Elizabeth Maloba
17:25 - 17:30	End of Day 1	

Day 2: 26 June 2024: Improving technical contents of the Inventory chapter of the BTR and the NID

Time	Activities	Speaker
08:30 - 08:55	Arrival of Participants	
08:55 - 09:00	Summary of lessons learned from previous day and presentation of the agenda of today	Khetsiwe Khumalo
09:10 - 09:20	Small energizer	Elizabeth Maloba
09:20 - 09:45	**Presentation:** Cross sectorial issues: Part I: methodologies, parameters, and data; key category analysis; time-series consistency and recalculations; uncertainty assessment; assessment of completeness and notation keys Cross sectorial issues: Part II: QA/QC; emission factors, and metrics	Sekai Ngarize
09:40 - 09:50	Q&A and sharing of opinions	Elizabeth Maloba
09:50 - 10:20	**Exercises** to apply the concepts of the previous presentation	Fernando Farias, UNEP-CCC
10:20 - 10:40	**Presentation:** Data management system for archiving the inventory data and international examples of data management systems	Khetsiwe Khumalo, UNEP-CCC
10:40 - 10:50	Q&A and sharing of opinions	Elizabeth Maloba
10:50 - 11:10	Health break	

Time	Activities	Speaker
11:10 - 11:30	**Group discussion:** International experiences on cross sectorial issues, including development of country-specific and regional emission factors Round table discussion	Khetsiwe Khumalo and Rebecca Ackermann
11:30 - 11:50	**Presentation:** Dealing with inventory data gaps and time-series consistency: issues with data availability; non-calendar year data; completion of missing data (splicing techniques) and recalculations	Sekai Ngarize
11:50 – 12:00	Q&A and sharing of opinions	Elizabeth Maloba
12:00 - 12:45	**Exercise:** Resolving data gaps using splicing techniques	Sekai Ngarize
12:45-12:50	Group Photo	
12:50 - 13:50	Lunch	
13:50 - 13:55	Small energizer	Elizabeth Maloba
13:55 - 14:10	**Reporting guidance:** improving presentation of data from the national inventory in the BTR and the NID (using CBIT-GSP DIN template)	Fernando Farias, UN-EP-CCC
14:10 - 14:40	**Exercise** on improving data presentation: how a good inventory chapter should look like	Fernando Farias, UN-EP-CCC
14:40 - 15:20	**Sectorial module** on **Collection of activity data for Forestry and Land use; IPCC Land representation approaches**: sectorial topics. Include examples and exercises	Sekai Ngarize
15:20- 15:40	Health break	
15.40 -16.20	**Sectorial module** on **Collection of activity data for Forestry and Land use; IPCC Land representation approaches Part II**	Sekai Ngarize
16.20 – 17.00	**Energy data and approaches**: international bunker fuel emissions, reference approach, and feedstocks and non-energy use of fuels. Include examples and exercises	Fernando Farias, UNEP--CCC
17.00- 17:20	**Summary** of learning and take-aways from the day as well as outlook for Day 3	Elizabeth Maloba
17:20 - 17:25	**Feedback** from participants	Elizabeth Maloba
17:25 - 17:30	End of Day 2	

Day 3: 27 June 2024: IPCC Software and UNFCCC reporting tools

Time	Activities	Speaker
08:20 - 08:30	Arrival of Participants	
08:30-08.50	**Summary** of lessons learned from previous day and presentation of the agenda of today	Elizabeth Maloba
08:50- 9:30	**Presentation:** Using IPCC software x CRT reporting	Lisa Hanle, IPCC online presentation
09:30 – 09.50	**Group Discussion:** Country experiences using the IPCC software	All
09:50-10:00	Energizer	Elizabeth Maloba
10:00 - 10:20	**Presentation**: Links between the national inventory data and common reporting tables (CRTs) with NDC tracking reporting and common tabular format (CTF)	Khetsiwe Khumalo, UNEP-CCC and Sekai Ngarize
10:20 - 10:35	Q&A and sharing of opinions	Elizabeth Maloba
10:35 - 10:55	Health break	
10:55 – 11:05	**Presentation:** Technical summary of NGI topics covered in the workshop	Fernando Farias, UNEP-CCC
11:05- 12:05	**Presentation:** UNFCCC reporting tools and interoperability between electronic tools, including login **Hands-on Exercises (First Part)**	Nashib Kafle, UNFCCC
12:05 - 13:05	Lunch	
13:05 - 15:30	**Hands-on Exercises (Continuation first part):** UNFCCC reporting tools **Including a health break of 25 min**	Nashib Kafle, UNFCCC
15:30- 16:45	Main learnings, reflection and evaluation	
16:45 - 16:55	**Closing** of the event	CBIT-GSP and PATPA

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