UNFCCC capacity-building activities on greenhouse gas inventories developed and implemented by the UNFCCC secretariat to support developing countries in effectively implementing the enhanced transparency framework under the Paris Agreement

September 2023*

*This document includes information updated until September 2023.

Technical paper

Taking stock of activities, achievements and impact, and long-term support relating to transitioning developing countries from the measurement, reporting and verification systems under the Convention to the enhanced transparency framework under the Paris Agreement

UNFCCC GHG SUPPORT UNIT

Achievements and impact of innovative technical and institutional capacity-building activities developed and implemented for supporting developing countries in establishing and maintaining sustainable national greenhouse gas inventory management systems and applying the *2006 IPCC Guidelines for National Greenhouse Gas Inventories* to serve as a basis for the effective implementation of the enhanced transparency framework under the Paris Agreement, and driving the transition of developing countries in the implementation of the modalities, procedures and guidelines for the transparency framework for action and support referred to in Article 13 of the Paris Agreement.

EXECUTIVE SUMMARY

Stocktaking: Achievements and Impacts

1. The stocktaking presents the achievement and impact of activities developed and implemented by UNFCCC GHG Support Unit from 2018 to September 2023; responding to developing countries capacity building needs for the effective implementation of measurement, reporting, and verification (MRV) systems towards meeting requirements of transparency framework for action and support referred to in Article 13 of the Paris Agreement.

ES.1 The Project Profile

2. UNFCCC/Sida proactive and innovative pilot project "Strengthening the capacity of developing countries to prepare and manage national greenhouse gas inventories as a basis for effective implementation of the Enhanced Transparency Framework under the Paris Agreement"; a sub-component of the aggregated project entitled "Support for developing countries to implement MRV and the ETF, including through the work of the CGE", 2015-2023.

Mandate

3. The project mandates were based on Article 8, paragraph 2(c) of the Convention; 1/CP.16, 2/CP.17, FCCC/SBI/2011/17, paragraph 43, FCCC/SBI/2015/10, paragraph 29, decision 1/CP.21, annex; decision 1/CP.24, decision 18/CMA.1, and decision 5/CMA.3.

Implementation Approach

4. The capacity-building activities are country-driven. It is based on 'Upon Request" from Parties not included in Annex I to the Convention (non-Annex I Parties) for further technical support. This was noted at Subsidiary Body for Implementation (SBSTA) 42 and 48 to ensure relevant training and capacity-building of developing countries. The scope of the activities is national, regional, and global.

Funding

5. The project was launched as pilot activities in 2016-2017 proactively to respond to the Paris Agreement then being negotiated; and subsequently developed and implemented activities over three Consecutive Biennium: 2018-2019, 2020-2021 and 2022-2023. The project has been funded by the Swedish International Development Cooperation Agency (Sida). Donor interest and support have been growing as a result of fundraising activities at the UN Climate Change Conferences over the implementation period. The project has attracted significant donor contributions from Germany, New Zealand, Switzerland, Spain, Norway, Belgium and USA. The project has been sustained by the growth of "Requests" received from developing countries, which demonstrate

the recognition of the achievements and impacts of the capacity building activities developed and implemented.

Strategic partners

6. The project has been implemented with key strategic partnership agreements developed, building on the comparative advantage of the institutions and synergy with the respective mandates. The partners include:
    a. FAO in the delivery of the quality assurance of national GHG inventory management systems (GHG-IMS) and GHG Inventories
    b. IEA in the delivery of the energy sector quality assurance for the improvement of energy statistics and energy balances;
    c. FAO, the IPCC, GFOI and GRA, and Moja Global in regional training workshops in building sustainable greenhouse inventory management system and the use of 2006 IPCCC guidelines in the agriculture, forestry and other land use sector
    d. GHG-MI in an online training of nominated national experts in the application of the 2006 IPCC Guidelines, and the development of Sectoral Activity Data for GHG Emissions tool[1] to support collection and management of activity data for the energy, IPPU, waste, and agriculture sectors.

ES.2 Key outputs and impact indicators

- Number of developing countries assisted in setting up sustainable national GHG-IMS; and contribution to the improvement of the quality of national GHG inventory reports on a continuous basis;
- Technical capacities of national inventory experts of developing countries strengthened in the implementation of the 2006 Intergovernmental Panel on Climate Change (IPCC) guidelines for national GHG inventories, including the use of the IPCC inventory software for transparent reporting of national GHG inventories;
- Number of national experts, with a requisite professional background, enrolled in e-learning and certification courses on the 2006 IPCC Guidelines for national GHG inventories, covering all IPCC sectors for GHG inventory, in English, French, or Spanish;
- Contribution to the enrolment of certified national experts on the UNFCCC Roster of Experts;
- Knowledge materials developed and disseminated including enhanced IPCC inventory software and reporting tools for application of the Common Reporting Tables (CRTs) and the outline of the national inventory document (NID) of the Biennial Update Report (BTR) by 2024 under the Paris Agreement.

[1] https://ghginstitute.org/sage/.

ES.3 Achievement and milestones

ES.3. 1 Countries Reached

7. **110+ developing countries,** upon request, have participated in the three key activities developed and implemented over the period of 2018-2023, namely: a) regional workshops on modalities, procedures and guidelines for the transparency framework for action and support referred to in Article 13 of the Paris Agreement (MPGs) and GHG-IMS, b) in-country quality assurance (QA) of national GHG inventory management system, and c) 4 Cohorts of annual on-line training and certification in 2006 IPCC Guidelines.

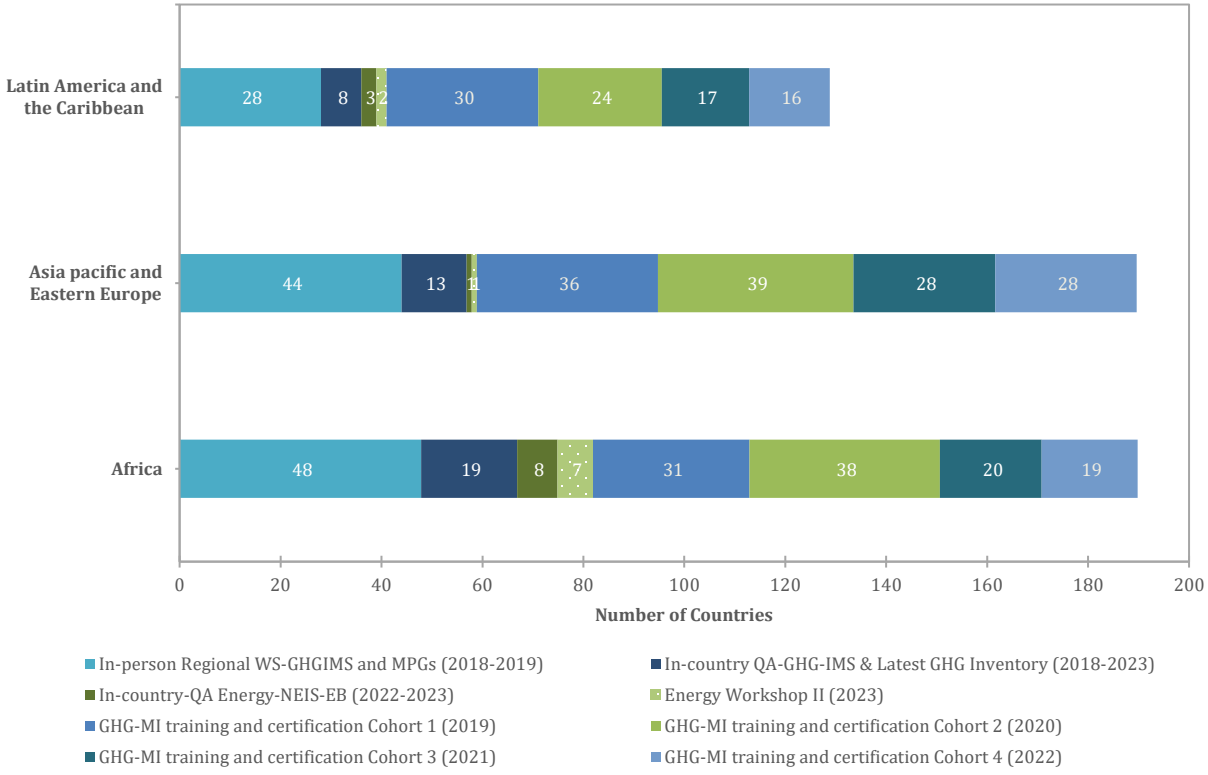

Figure 1: Number of developing countries that participated in key activities by region, 2018-2022

ES3.2 National Experts trained

8. **4200+ national experts** were trained in the following 4 key indicated activities. Of the 4200+ experts trained, 44% were trained in Africa region, 31% in Asia pacific and Eastern Europe (AP&EE), and 25% in Latin America and the Caribbean (LAC).

   a. in-country QA of GHG-IMS and latest GHG inventory;

   b. In-country QA on national energy information management systems and energy statistics;

c. regional training on MPGs, building sustainable national GHG-IMS and the use of the 2006 IPCC Guidelines;

d. annual training and certification in 2006 IPCC Guidelines with GHG-MI, USA. (See Figure 2).

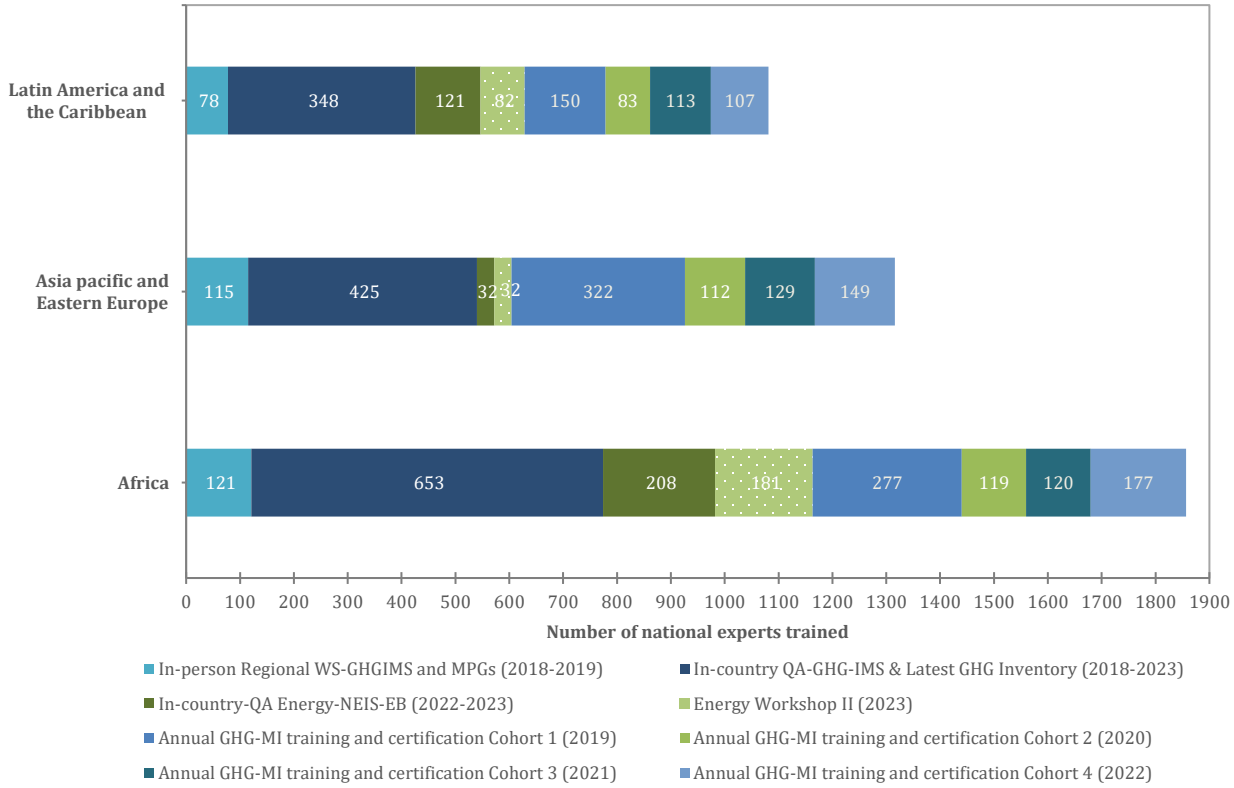

Figure 2: Regional distribution of national experts trained in specified activities, 2018-2023

9. Of the **4200+ trained national experts, the distribution by the indicated activities are elaborated in Figure 3.**

   a. **310+ trained in in-person regional workshops** on MPGs, building sustainable national GHG-IMS, and the use of the 2006 IPCC Guidelines;

   b. **1400+ trained during 40 in-country QA of the national GHG Institutional management system and the latest GHG inventory** organized from 2018 to September 2023. The QA results are used by the countries to revise their national inventory reports before submission to UNFCCC and for the improvement of future submissions;

   c. **360+** have been trained in 12 **in-country QA of national energy information systems and energy statistics and balance (Energy QA-NEIS-EB).** The activity is assisting the countries to establish/strengthen energy sector MRV, energy activity data collection strategy for GHG inventories, and develop and maintain/improve national energy balances and statistics as a means of reinforcing transparency in reporting national GHG inventories on a regular basis;

d. **290+** trained in 10 **energy workshops II**. This activity aims to assist the countries for implementation of the capacity building needs and key thematic areas identified during the Energy QA-NEIS-EB;

e. **1850+ nominated national experts supported financially to participate in online training and certification in 2006 IPCC Guidelines** in 4 cohorts (2019, 2020, 2021, and 2022) with the GHG-Management Institute from 2019 to 2022. In total 693 experts from Africa region, 712 from Asia Pacific and Eastern Asia and 453 from Latin America and the Caribbean participated in the trainings. This is contributing to increasing in the enrollment and the pool of national experts on the UNFCCC roster of experts critically needed for the BTR reviews from 2024 under the Paris Agreement.

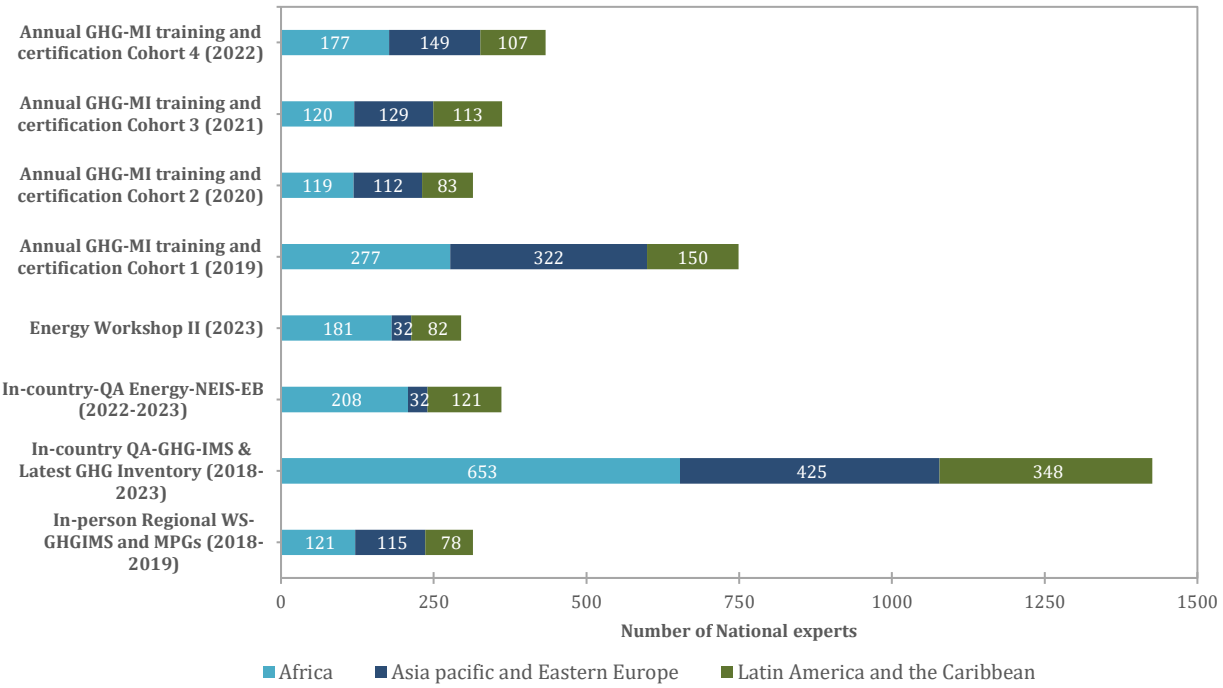

Figure 3: Activities implemented distribution of national experts trained by region

10. **735+ national experts of all the regions (Africa, AP&EE, LAC)** passed and obtained certificates in the UNFCCC 2006 IPCC Guidelines on greenhouse gas inventory on-line training and certification programme with the GHGMI over the period 2019-2022; and are potential experts for enrollment on the UNFCCC roster of experts and take part of the technical expert reviews under the Paris Agreement. Of the 756 passes recorded, the experts per IPCC sectors are Energy (228), IPPU (119), Agriculture (119), Forestry (144), and Waste sector (136) (See Table 1). The overall performance by cohort from 2019 to 2022 is also presented in Table 1.

11. **64 national experts from Francophone Africa (French) and 65 national experts from Spanish-speaking Latin America and the Caribbean** enrolled in 2022 Cohort 4 of the training as a result of the translation of the courses into French and Spanish. Of the 129 experts, 47% were female and 52% (69) passed and obtained certificates in one of the sectoral courses and can be considered as potential for enrollment on UNFCCC Roster of experts. The national experts

passed based on IPCC sectors were Energy sector (21.), IPPU (9), Agriculture (12), FOLU (11) and Waste sector (16) (See Table 2).

Table 1: National experts passed and obtained certificates in 2006 IPCC guidelines training and certification courses

Sector	Cohort 1 (2019)	Cohort 2 (2020)	Cohort 3 (2021)	Cohort 4 (2022)	Total
Energy	109	38	35	45	227
IPPU	40	21	18	32	111
Agriculture	46	24	17	32	119
Forestry	66	25	21	32	144
Waste	50	23	22	41	136
Total obtaining certificates	**311**	**131**	**113**	**182**	**737**
Total enrolled	**749**	**314**	**362**	**433**	**1858**
% Completing and obtaining certificates	**42%**	**42%**	**31%**	**42%**	**40%**

Table 2: Spanish and French speaking countries participation driven by translated courses

Cohort 4 Spanish-Speaking Participation				
Course	Participation		Passes	
	Total	Female	Total	Female
501 - INTRO	52	52%	31	58%
511 - ENERGY	15	40%	9	56%
521 - IPPU	10	70%	5	80%
531 - AGRIC	14	71%	9	78%
541 - FOLU	17	41%	9	56%
551 - WASTE	9	78%	8	75%
TOTAL IPCC SECTORS	65	57%	40	68%

Cohort 4 French-Speaking Participation				
Course	Participation		Passes	
	Total	Female	Total	Total
501 - INTRO	54	39%	28	39%
511 - ENERGY	18	22%	12	25%
521 - IPPU	8	25%	4	0%
531 - AGRIC	13	46%	3	67%
541 - FOLU	10	60%	2	50%
551 - WASTE	15	40%	8	38%
TOTAL IPCC SECTORS	64	38%	29	31%

Cohort 4 Spanish and French-Speaking Participation				
Course	Participation		Passes	
	Total	Female	Total	Total
501 - INTRO	106	45%	59	49%
511 - ENERGY	33	30%	21	38%
521 - IPPU	18	50%	9	44%
531 - AGRIC	27	59%	12	75%
541 - FOLU	27	48%	11	55%
551 - WASTE	24	54%	16	56%
TOTAL IPCC SECTORS	129	47%	69	52%

ES3.3 Workshops and Webinars Conducted in delivering the activities

12. The number of in-country workshops, in-person regional workshops and webinars, global training and certification, remote training in GHG-IMS, and national inventory improvement plans (NIIP) technical assistance delivered in the implementation of the activities developed are summarized in Table 3.

Table 3: Workshops of indicated activities organized, 2018-2023

Activity	Period	No of Countries	No Expert trained	No of Workshops/ Seminars/	Region		
					Africa	AP&EE	LAC
Regional WS-GHGIMS, MPGs & 2006 IPCC Guidelines	2018-2022	114	311	6	2	2	2
In-country QA-Latest GHG Inventory	2018-2023	40	1426	40	19	13	8
In-country-QA Energy-NEIS-EB	2022-2023	12	361	12	8	1	3
Energy Workshop II	2023	10	295	10	7	1	2
Global training and certification in IPCC 2006 Guidelines - Cohort 1 -2019	2019-2022	97	749	1	1	1	1
Global training and certification in IPCC 2006 Guidelines Cohort 2 -2020	2019-2022	102	314	1	1	1	1
Global training and certification in IPCC 2006 Guidelines Cohort 3 - 2021	2019-2022	72	362	1	1	1	1
Global training and certification in IPCC 2006 Guidelines Cohort 4 -2022	2019-2022	63	433	1	1	1	1
Joint Global training on FOLU	2019	22	48	1	-	-	-
Regional training on the enhanced Version 1.261 of the IPCC inventory	2021-2022	-	-	5	2	1	1
Sectoral Activity Data for GHG Emissions (SAGE) tool (dissemination)	2021	-	-	4	1	1	1
Remote TA/GHG-IMS	2022	17	-	-	-	-	-
Remote TA/GHG-NIIP	2022	15	-	-	-	-	-
Total	**2018-2023**		**4299**	**82**	**43**	**23**	**21**

ES3.4 Gender participation and inclusiveness

13. **31-46% female participation** was recorded for all activities implemented (See Figure 4). The lower values are found in the in-country QA of the national energy information system and Energy workshop II with 31%.

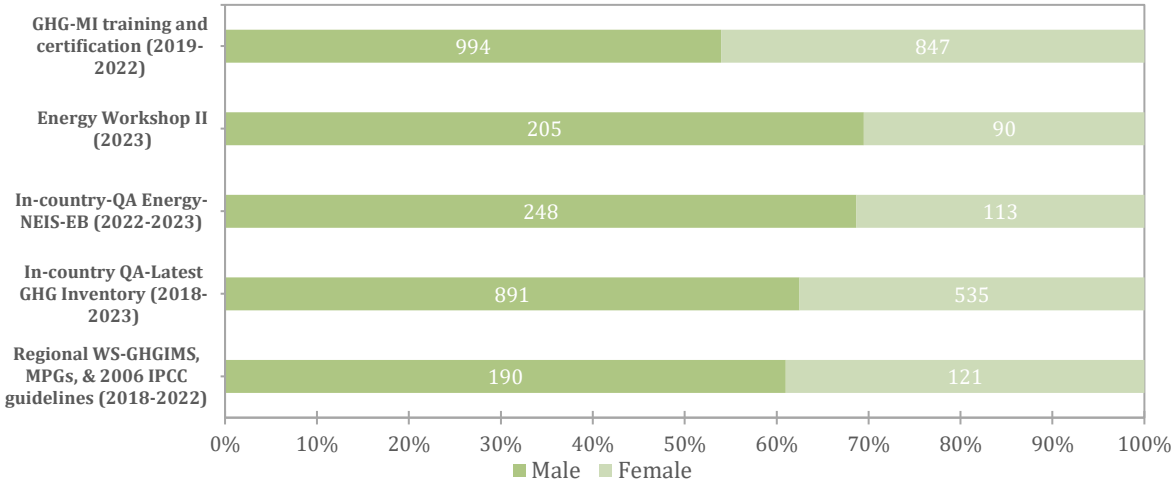

Figure 4: Gender participation in implemented activities, 2018-2022

ES3.5 Knowledge materials, tools and products

Table 4: *Knowledge materials developed, and products/tools supported, 2028-2022*

ITEM	Knowledge, awareness, and capacity-building products/tools	Year
I.	French[2] and Spanish[3] Translations of 2006 IPCC Guidelines covering ALL the IPCC sectors	2018-2020
II.	Enhanced new generation Versions 2.80 and 2.9 upgrade of 2.691 version of IPCC Inventory Software released during COP 27	2022
III.	Enhanced Version 2.85 upgrade of IPCC Inventory Software	2021
IV.	Sectoral Activity Data for GHG Emissions (SAGE) tool upgrade to include Agriculture	2022
V.	Sectoral Activity Data for GHG Emissions (SAGE) tool for Energy, IPPU, and Waste sectors	2021
VI.	A user manual for the Energy and IPPU sectors application of SAGE; [4] and a short video tour of SAGE [5]	2022
VII.	GHG-IMS and GHG Inventory quality assurance (QA) template tool in MS Word version, available through a dedicated SharePoint platform	2018
VIII.	Mitigation tool based on the IPCC inventory software	2022
IX.	Energy statistics and energy balances quality assurance (energy QA) template in MS Word version, available through a dedicated SharePoint platform	2018
X.	National inventory improvement plan (NIIP) Identifier Register Template	2020
XI.	French and Spanish Translation of ALL six courses of the GHG-MI e-Learning and certification training on application of 2006 IPCC Guidelines	2019
XII.	moja global Software: Full Lands Integration Tool (FLINT)[6]	

[2] Translated, yet to be published by IPCC-TFI on the website.
[3] https://www.ipcc-nggip.iges.or.jp/public/2006gl/spanish/index.html.
[4] https://unfccc.int/sites/default/files/resource/Attachment%201_SAGE_User%20Manual_2022%2005%2010.pdf.
[5] https://www.youtube.com/watch?v=3vLZ8P_VQKs.
[6] https://moja.global/flint/.

ES3.6 Satisfactory rating of achievements and impacts by experts of beneficiary countries

14. The achievements and impacts of the activities developed and implemented have been rated **Satisfactory** to **Highly Satisfactory** on a 10-point scale by 240 respondents from beneficiary developing countries made up of GHG sectoral experts (42.7%), GHG inventory coordinators (24.7%), activity data providers and institutions (17.6%), policymakers (9.6%), and UNFCCC focal points (5.4%) rated the achievements and impacts.

15. The relevance and effectiveness of the UNFCCC secretariat activities were also rated **Highly Satisfactory** in addressing capacity-building needs and competence enhancement of national experts in the application of the 2006 IPCC Guidelines, tools and software.

ES3.7 Critical future support activities beyond 2023

16. The critical capacity building activities recommended for future implementation focus on support for the implementation of the common reporting format of national inventory documents, common reporting tables and its interoperability with enhanced IPCC inventory software; and effective tracking of the impact of NDC mitigation actions beyond 2022. These are:

    a. Quality assurance of GHG inventory management system and latest GHG inventories should expand to include uncertainty analysis in national GHG inventories and MPG;

    b. Quality assurance of national Energy information management system (EIMS), energy statistics and national energy commodity balance and energy balance;

    c. Disseminate and build capacity in the application of SAGE tool for GHG data collection and management for the energy, IPPU, and Waste sectors;

    d. Disseminate and build capacity in the application of UNFCCC SAGE tool for GHG data collection and management for the energy, IPPU, and Waste sectors;

    e. support training on the use of the enhanced versions of the IPCC inventory software for improved transparency in their NIRs and the application of the interoperability functions of Versions 2.80 and 2.90 of the IPCC inventory software with the Common report tables of the national inventory document of biennial transparency report.

ES3.8 Conclusions and Recommendations

17. The UNFCCC GHG Unit capacity building activities, proactively initiated in 2015-2016 are responding to the needs of developing countries envisaged under the Paris Agreement. The country's requests for QAs are increasing, driven by the urgency of BTR readiness by 2024. The activities should be sustained beyond 2023.

18. The national experts recognize the UNFCCC secretariat's capacity building support as "implementing the mandate of the Parties". That perception drives country request and participation of national experts in in-country quality assurance exercises organized by the secretariat. This unique UNFCCC comparative advantage of implementing the activities

developed beyond 2023 should be sustained to deliver this growing support with the complementarity and synergy of the collaborating partners.

19. The QA exercise is acknowledged as constituting a very comprehensive and independent expert assessment of the national GHG inventory management systems and review of national reports that improve the quality while building in the national experts' capacity and strengthening the GHG institutional arrangement. This opportunity should be extended to other countries upon request.

20. The support of national experts on e-learning and certification courses on the 2006 IPCC Guidelines continues to contribute significantly to increasing the pool of UNFCCC roster of experts. The percentage of nominated experts who pass and obtain certificates has remained between 42% to 31%, and greater participation from the French-speaking Africa and Spanish-speaking LAC regions should also be considered. It is recommended that country-level in-person support of nominated experts be included in the activity to ensure formal follow-on training at country-level to complement the online GHG-MI support.
