



Office of the President

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Climate Change Commission

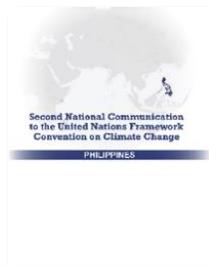
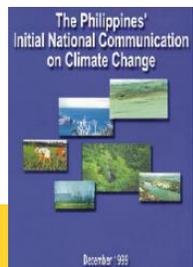
# PHILIPPINES: EXPERIENCE TRANSITIONING TO 2006 IPCC GL

Presented by: Ms. Sandee G. Recabar  
Chief, Implementation Oversight Division, Climate Change Commission  
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18<sup>th</sup> Session of the Workshop on Greenhouse Gas Inventories in Asia (MGI18)  
July 12-14, 2021

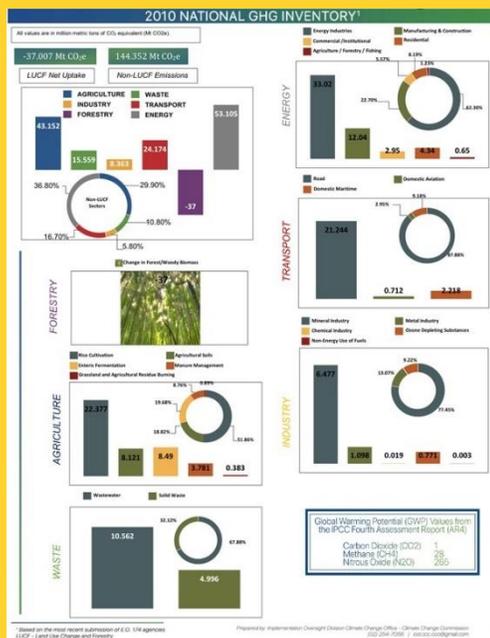
# SNAPSHOT OF PHILIPPINE GHGI INITIATIVES

**2** NATIONAL COMMUNICATIONS submitted (2004 & 2010)



**1994** 1996 IPCC GL.  
**2000** 1996 IPCC GL.  
**2010** 2006 IPCC GL

UNFCCC QA WORKSHOP (2019)



## PRIORITY 1 FINDINGS

- 33** General
- 07** Energy
- 09** Waste & IPPU
- 38** FOLU
- 17** Cross-cutting

**12** INTERAGENCY MEETINGS on NIR IMPROVEMENT

## EO 174

### Philippine Greenhouse Gas Inventory Management & Reporting System

**6** Legal issuances creating GHG inventory teams in various EO-174 agencies

Climate Change Commission

- Department of Environment & Natural Resources (waste, IPPU, FOLU)
- Department of Energy (energy)
- Department of Transportation (transport)
- Department of Agriculture & Philippine Statistics Authority (agriculture)

- ## 5 NATIONAL GHGI TOOLS
- EO 174 Guidance Document
  - Sectoral GHGI Templates
  - GHG Data Checklist
  - QA/QC Critical Fixes Tool
  - QA/QC Stocktake Tool

## AWITFE

sectors covered

- Agriculture
- Waste
- IPPU
- Transport
- FOLU
- Energy

transparency system for climate action and support



[niccdies.climate.gov.ph/](http://niccdies.climate.gov.ph/)

**50+** GHGI capacity building activities

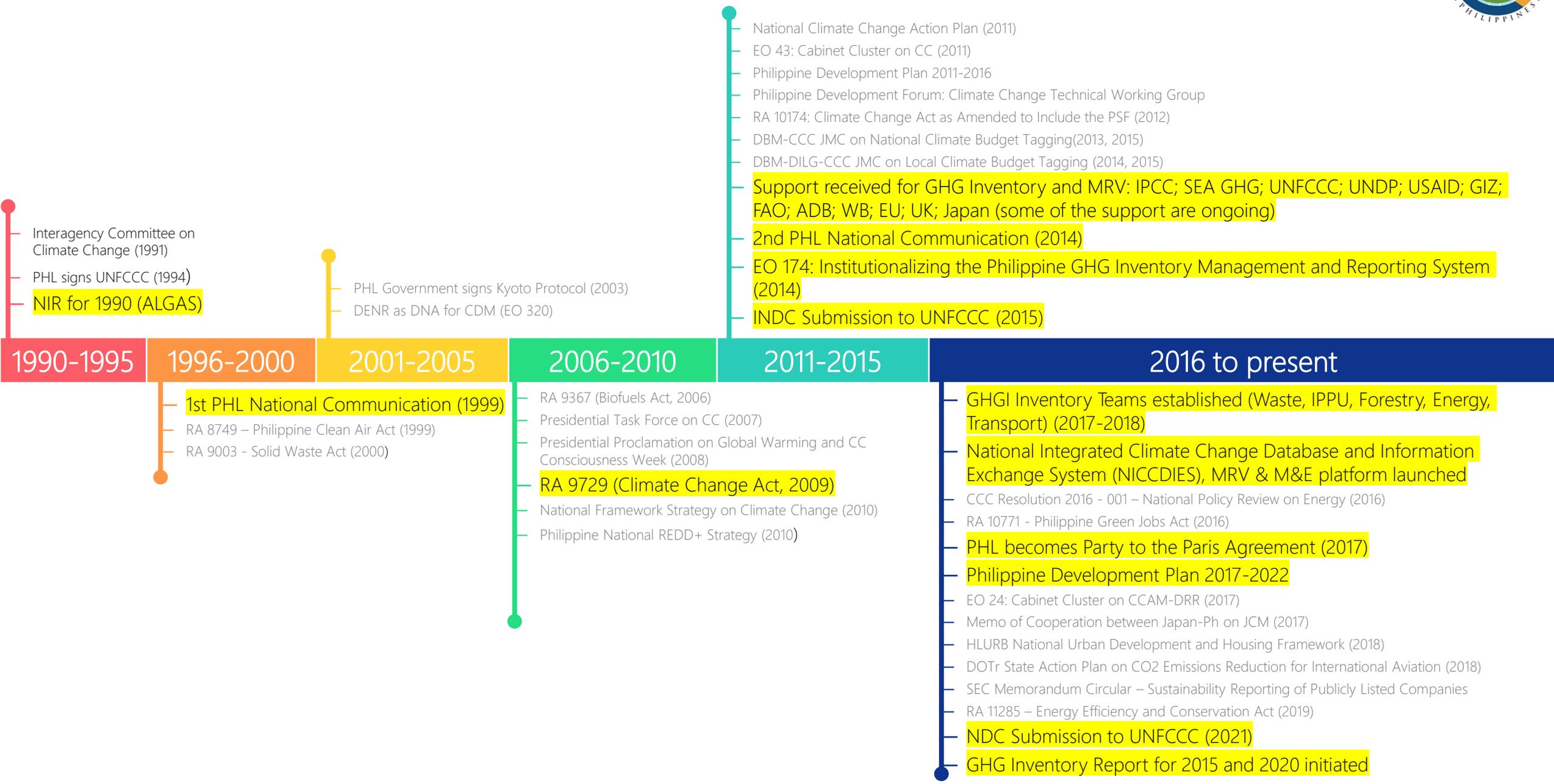
**20+** IPCC 2006 GHGI trainings

**2015** INDC submitted

**2021** NDC submitted

NATIONAL INVENTORY REPORTS

# PHL MITIGATION & TRANSPARENCY POLICIES & MEASURES



# NATIONAL INSTITUTIONAL ARRANGEMENTS



Climate Change Commission



Department of Environment & Natural Resources

waste, IPPU, FOLU



Department of Energy

energy



Department of Transportation

transport



Department of Agriculture & Philippine Statistics Authority

agriculture

Philippine Statistics Authority

- assist in data collection and analysis

local government units

academe

private sector

public institutions

- participate, complement, and assist in the implementation of the PGHGIMRS

- CCC as Overall lead
- Provide direction and guidance
  - Develop archiving reporting monitoring and evaluating GHGI
  - Provide continuous capacity building

- Lead Agencies:
- Conduct and monitor sector specific GHG inventory
  - Report GHGI to CCC based on agreed reporting scheme

Support Institutions

# Inter-Agency Meeting for the Conduct of the National GHG Inventory

17 November 2014

Crowne Plaza Hotel, Ortigas Center, Pasig City



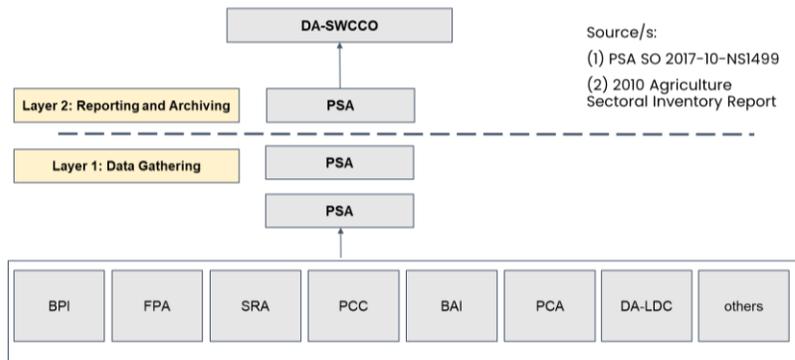
## AGREEMENTS REACHED:

- The 2006 IPCC Guidelines for National Greenhouse Gas Inventories will be used;
- The inventory year will be 2010;
- The frequency of reporting, i.e., every 2 or 4 years, etc. will be decided after the initial conduct of the GHG inventory; and
- Cap B activities will be provided to enhance or improve the capacity of NGAs to conduct GHG inventory.

# SECTORAL INSTITUTIONAL ARRANGEMENTS

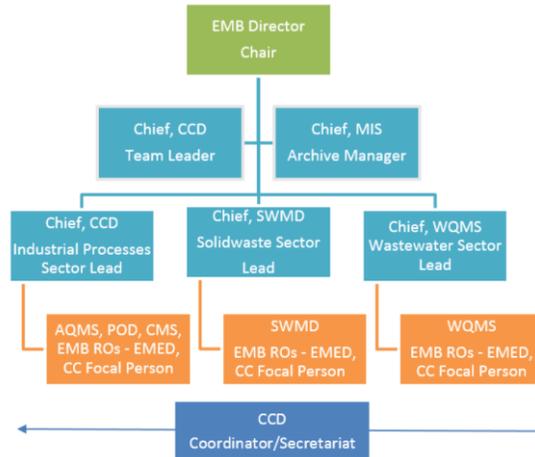
## AGRICULTURE

PSA SO 2017-10-NS1499



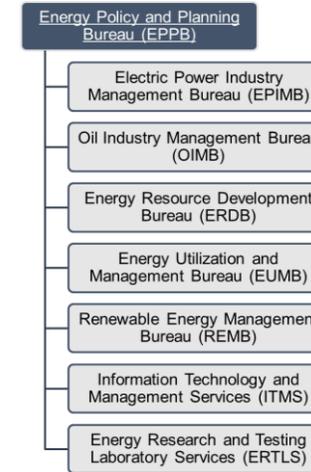
## WASTE & IPPU

EMB SO 2016-297



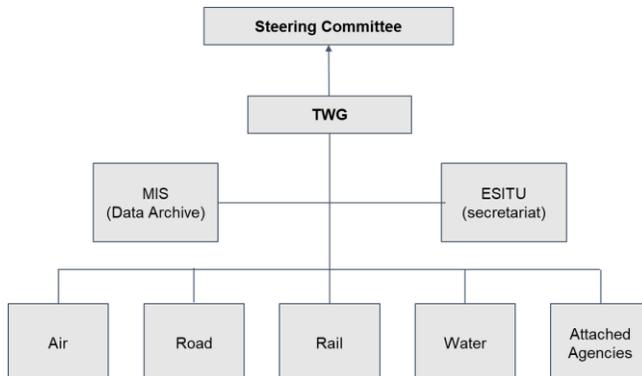
## ENERGY

DOE Department Order 2018-03-0005



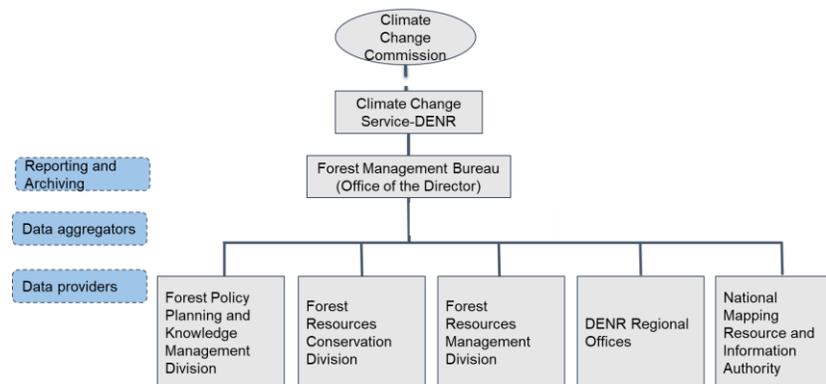
## TRANSPORT

DOTr DO SO 2018-001



## FOLU

FMB Special Order No. 2016-154



- ✓ Instrumental in NDC development
- ✓ currently being updated given updated data requirements and QA/QC

# Initiatives on Institutionalizing the National GHG Inventory

Conducted capacity building efforts and roundtable discussions to prepare these government agencies in their role as lead agencies for the different sectoral GHG inventory



# Series of Capacity Building Initiatives to Institutionalize the National GHG Inventory to key National Government Agencies

## Introduction to GHG and Climate Change Mitigation Concepts

- GHG Gases
- Accounting Principles of GHG inventory
- Benefits of GHG Inventory
- GHG Accounting Frameworks
- National GHG Inventory
- National GHG Inventory Plan

## Hands- On GHG Calculations

- Introduction of GHG Calculations for the Sector
- Introduction of GHG Calculations for the Sector

## Introduction to IPCC Guidelines

- Overview of IPCC GL
- 1996 vs 2006 GL

## Rapid Data Assessment of Data Availability

- Data Assessment
- Institutional Arrangement

## 2006 IPCC Tool Training

- Overview of Sectoral Emissions/Removals
- Training on the IPCC tool
- Actual data input

# Discussion with Agencies on 1996 vs 2006 IPCC GL

	1996 IPCC	2006 IPCC	Remarks
3			
4	<b>WASTE</b>		
5			
6	1. Population	NSCB	NSCB
7	2. BOD	0.04 <sup>a</sup>	SMR/CMR
8	3. COD	default	default
9	4. Total annual MSW deposited on SWDSs	Local data	NSWMC, MMDA, LGUs
10	5. MSW Generation rate	Local data	NSWMC, MMDA, LGUs or default = 0.19
11	6. Fraction of MSW disposed to SWDS	Local data	NSWMC, MMDA, LGUs or default = 0.62
12	7. MCF for type of SWDS	0.4 to 1.0	0.4 to 1.0
13	8. DOC	0.18*	0.15 to 0.43**
14	9. DOCf	0.77	0.5
15	10. Fraction of carbon released as methane	0.5	0.5
16	11. Recovered methane	PDOE, DENR	PDOE, DENR
17	12. Methane Oxidation factor	default = 0	default = 0
18	13. Fraction removed as sludge	Local data	Local data
19	14. Methane producing capacity	0.25	0.25 to 0.6
20	15. Fraction of WW treated (Dom)	5	N/A
21	16. Methane Correction factor for the treatment (Dom)	75	0.0 to 0.8
22	17. Fraction of sludge treated (Dom)	NAV	0.05
23	18. Methane recovered (WW and Sludge)	NAV	NAV
24	19. Vol of industrial WW produced	Local data	SMR/CMRs
25	20. Fraction of WW treated (Indus)	20	N/A
26	21. Methane Correction factor for the treatment (Indus)	90	0.0 to 0.8
27	22. Fraction of sludge treated (Indus)	NAV	NAV
28	18. Methane recovered (IndusWW and Sludge)	NAV	NAV
29	19. Per capita protein intake	Local data	NSIC, DOST
30	20. Fraction of Nitrogen in protein	0.16	0.16
31			
32			

<sup>a</sup> (1996) Default value. This can be taken from local water WWTF

\* (1996) Default value. May be calculated if % paper and textiles, garden waste and park waste or other non-food putrcibles, food waste and wood or straw is available; \*\* (2006) default

both default values

both default values

both default values

default values

both default values

default values

both default values

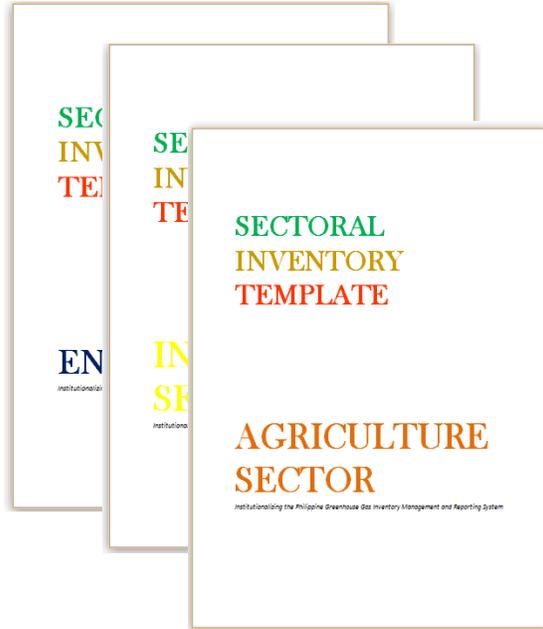
both default values

# Sample Data Collection Analysis for 2006 IPCC GL

2006 IPCC Guidelines: Energy Activities (see Vol. 2, Ch.1, p1.7)	Office that collects or could collect the data	Are the data being collected already?	Bureau/Dept. to which the collecting office sends or could send the data	Remarks
1 - Energy	DOE(EPPB)		CCC	
1.A - Fuel Combustion Activities				
1.A.1 - Energy Industries	Oil - OIMB; EPPB	Yes	EPPB	
1.A.1.a - Main Activity Electricity and Heat Production	Varies by sub-activity as detailed below	Yes	EPPB	
1.A.1.a.i - Electricity Generation	Coal - Coal Division, ERDB; Natural Gas - OIMB; Diesel - EPPB; EPIMB	Yes	EPPB	ERC. In the future, can possibly collect fuel consumption data from power plants; RE-REMB
1.A.1.a.ii - Combined Heat and Power Generation (CHP)	EPIMB	Yes	EPPB	
1.A.1.a.iii - Heat Plants	EPIMB	Yes	EPPB	
1.A.1.b - Petroleum Refining	OIMB	Yes	EPPB	
1.A.1.c - Manufacture of Solid Fuels and Other Energy Industries	ERDB	Yes	EPPB	
1.A.1.c.i - Manufacture of Solid Fuels	ERDB	Yes	EPPB	
1.A.1.c.ii - Other Energy Industries	ERDB	Yes	EPPB	
1.A.2 - Manufacturing Industries and Construction	EPPB	Yes	EPPB	

Sector	Data needed	Actual / Existing	%Avail.	Remarks
1. Agriculture	28	24	85%+	<ol style="list-style-type: none"> <li>Fertilizer data is limited to palay and corn only</li> <li>Fertilizers need lab test for NPK content</li> <li>No data on liming of coconuts, may be sourced from PCA</li> </ol>
2. Waste	11	8* (10)	72%+ (90%)	<ol style="list-style-type: none"> <li>Gaps in COD and BOD data, however, default values can be used</li> <li>Other data can be sourced from DOE, NSCB, and LGUs</li> </ol>
3. Industry	20	15	75%+	<ol style="list-style-type: none"> <li>Verify if data is in NSCB (clinker ex/im)</li> <li>Some POD data needs to be verified with AEROPAC to avoid under estimates</li> <li>Only ex/im data is available on clinker</li> </ol>

# SECTORAL Inventory Templates



2 WASTE SECTOR  
3 Summary of Sources  
4  
5

Worksheet No.	IPCC Source Categories	CO <sub>2</sub>	CH <sub>4</sub>	N <sub>2</sub> O
	<b>Solid Waste Disposal</b>		yes	
4A	Managed and Unmanaged Waste Disposal Sites		yes	
	<b>Biological Treatment of Solid Waste</b>		yes	
4B	Composting		yes	
	<b>Incineration and Open Burning of Waste</b>	yes	yes	
4C2	Open Burning of Waste	yes	yes	
	<b>Wastewater Treatment and Discharge</b>		yes	
4D1	Domestic Wastewater Treatment and Discharge			
4D1a	CH <sub>4</sub> Emissions from Domestic Wastewater			
4D1b1	Direct N <sub>2</sub> O Emissions from Treatment Plants			
4D1b2	Indirect N <sub>2</sub> O Emissions from Effluent Disposed			
4D2	Industrial Wastewater Treatment and Discharge			

20 WASTE SECTOR  
21 Summary of Emissions by Sources  
22  
23  
24  
25

Worksheet No.	IPCC Source Categories	Gg			Gg (CO <sub>2</sub> e)			TOTAL
		CO <sub>2</sub>	CH <sub>4</sub>	N <sub>2</sub> O	CO <sub>2</sub>	CH <sub>4</sub>	N <sub>2</sub> O	
	<b>Solid Waste Disposal</b>							
4A	Managed and Unmanaged Waste Disposal Sites							
	<b>Biological Treatment of Solid Waste</b>							
4B	Composting							
	<b>Incineration and Open Burning of Waste</b>							
4C2	Open Burning of Waste							
	<b>Wastewater Treatment and Discharge</b>							
4D1	Domestic Wastewater Treatment and Discharge							
4D1a	CH <sub>4</sub> Emissions from Domestic Wastewater							
4D1b1	Direct N <sub>2</sub> O Emissions from Treatment Plants							
4D1b2	Indirect N <sub>2</sub> O Emissions from Effluent Disposed							
4D2	Industrial Wastewater Treatment and Discharge							
<b>TOTAL</b>								

26  
27  
28  
29  
30

- Inventory Report (word)
- Inventory data sheets(excel)
- Applicable 2006 IPCC worksheets

# UNFCCC QA WORKSHOP (2019)

8.4.2(2) Forest land				
Potential key issues	Specific issues in forest land			
General references				
Detailed review element	Question	Elaboration/elaboration	Findings/comments	Recommendations
Land use category	Does unmanaged forest exist in a party?	Estimation should be done only on managed forest.	No, only managed forests.	
	Is the forest definition same as one that reported to FAD? If different, explanation of the difference explained?	FAD FRA also includes forest area data as well as GHG related data. Thus, FAD data is often compared with GHG inventory.	No, same as provided in the report.	
Methodology	Are carbon stock changes in pools estimated by using appropriate tier?	In forest land, all carbon pools have contribution. The Parties may use different methods and tiers for estimating each carbon stock change. The 1996 Revised IPCC guidelines only cover above-ground biomass pool.	Above and below ground biomass has been estimated.	
	Is there emissions due to natural disturbance?	Carbon stock change due to natural disturbance occurred on managed forest.	CO <sub>2</sub> emissions from natural disturbance.	



**National Greenhouse Gas Inventory  
Quality Assurance Consolidated Results  
Critical Fixes (Required prior to submission of National Inventory Report)**

**General Findings**

Item No.	Subject	Findings
1	Institutional Arrangements	Add additional clarification on the structure of the institutional arrangements per category (e.g. in graph indicating responsible organizations for data provision, emissions estimate, QA/QC) and the necessary links established between sectors.
2	Institutional Arrangements	Guidance document for operation framework from CCC: ensure sufficient details for sector specific methods and the data gaps and needs.
3	Institutional Arrangements	Gap filling of missing information on how the different sectoral reports are compiled together and how the databases are combined into one and share with all sectors.
4	Institutional Arrangements	No complete information on the process in the inventory report at this stage, need to be documented properly for application by all sectoral inventory teams.
5	Quality Assurance and Quality Control	Describe what is done as QA/QC in the current draft report.
6	Quality Assurance and Quality Control	Teams to perform a QA to correct possible misreporting that has crept in the report.
7	Quality Assurance and Quality Control	Provide a general description of official data collection management and procedures for data providers and a description how the overall report is validated.
8	Quality Assurance and Quality Control	Analyze underlying causes of the differences in emissions between time points.

## QA Findings were classified into three:

- Priority 1 – Critical fixes required prior to submission of NIR
- Priority 2 – Recommendation to be addressed during the next inventory cycle
- Priority 3 – Recommendation to be addressed in the medium/long term

## Number of Priority 1 findings:

- General – 33
- Energy – 7
- Waste and Industries – 9
- Agriculture – 35
- FOLU – 38
- Cross-cutting issues – 17

Coordination meetings with agencies on addressing critical fixes and other QA/QC concerns

Two (2) agencies already initiated work on sectoral QA/QC

# Next Inventory Cycle: 2015 and 2020

**Legal Basis and Timeline**

2000	Initial National Communication (INC) submitted to the UNFCCC GHG Inventory year: 1994	2016	Creation of a Technical Working Group for Forestry-related UNFCCC Matters DENR-FAB Special Order 2016-154
2009	Climate Change Act of 2009 Formulate strategies for mitigating GHG emissions, anthropogenic sources, and enhance removal by sinks	2016	Creation of the DENR-EMB GHG Team DENR-EMB Special Order 2016-297
2010	National Framework Strategy on Climate Change (NFS3C) Facilitate the transition towards low greenhouse gas emissions for sustainable development	2017	Philippine Development Plan (PDP) 2017-2022 Develop a database to measure emission reduction per sector
2011	National Climate Change Action Plan (NCCAP) Implement a national system for archiving, reporting, monitoring, and evaluating GHG emissions	2017	Conduct of National GHG Inventory by national government agencies as per E.O. 174 GHG Inventory year: 2010
2012	Republic Act 10174 amending R.A. 9729	2017	Reconstitution of PSA GHG Team
2014	Executive Order 174, s. 2014 Institutionalization of the Philippine Greenhouse Gas Inventory Management and Reporting System	2018	Institutionalization of the GHG Inventory Team of the Transport Sector DOT Department Order 2018-001
2014	Second National Communication GHG inventory year: 2000	2018	Institutionalization of the GHG Inventory Team of the Energy Sector DOE Department Order 2018-03-0005
2015	E.O. 174 Guidance Document #0 of E.O. 174, s. 2014	2018	National Integrated Climate Change Database and Information Exchange System (NICEDES) Finalization of the 2010 National GHG Inventory Quality assurance workshop and submission of sectoral inventory reports
2015	E.O. 174 Guidance Document #0 of E.O. 174, s. 2014	2019	Quality assurance workshop and submission of sectoral inventory reports

Participants (31)

- CCC - Joe Mari S. ... (Co-host)
- CCC - Sandee Rea... (Co-host)
- CCC - Aimee Evans... (Co-host)
- CCC - Mary Marth... (Co-host)
- CCC-IDO Alith Jea... (Co-host)
- CCC - Jerome Ilagan
- CCC Arnold GS Belver
- CCC RMD Mae Mangubos
- DA - Ella Baltazar
- DA CRAO Magraye
- DA CRAO Saturnina Halos
- DENR - Albert Magaling
- DENR - Li C. Silva
- DENR Rolando Abad Jr.
- DENR-CCS Gigi Merlo

Inception meeting w/ EO-174 agencies (March 2021)

**PSA SPECIAL ORDER 2017-10-NS 1499**

Designation	Name	Position/Office/Division
Team Leader	Virgina M. Bathen	Senior Technical Specialist (000-000-0000)
Assistant Team Leader	Abrila A. Regala	Senior Technical Specialist (000-000-0000)
GHG Team Composition, Institutional Arrangement & Data Gathering	Maria Clarinda E. De Guzman	Senior Technical Specialist (000-000-0000)
	Narda L. De Guzman	Senior Technical Specialist (000-000-0000)
	Sharon I. Martinez	Senior Technical Specialist (000-000-0000)
	Frederic G. Sumabat	Senior Technical Specialist (000-000-0000)
Members	Editha L. Balbano	Information Systems Analyst II (000-000-0000)
	Sara Alana R. Poliquit	Specialist (000-000-0000)
	Faith Lea B. Cabrera	Specialist (000-000-0000)
Technical Support Coordinators	Kathleen Gene R. Caldan	Specialist (000-000-0000)
	Paolo C. De Jesus	Specialist (000-000-0000)

Meeting w/ DA and PSA for Agri Sector

Meeting w/ DOE and DOTr For Energy and Transport Sector

Meeting w/ DOE and DOTr For Energy and Transport Sector

Meeting w/ DENR for Waste, FOLU and IPPU Sectors

Meeting w/ DENR for Waste, FOLU and IPPU Sectors



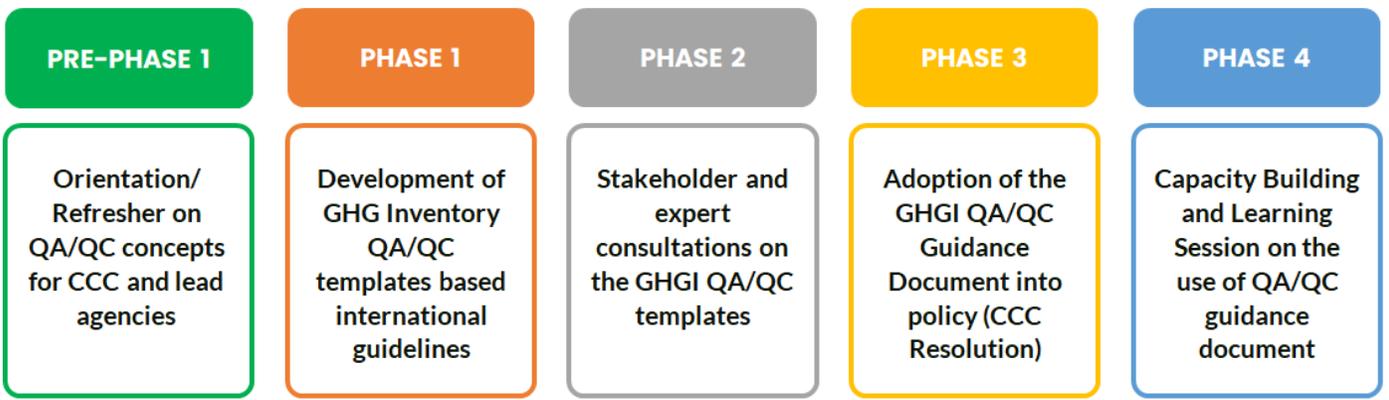
# QA/QC ACTION PLAN & STOCKTAKE TOOL



**CLIMATE CHANGE OFFICE  
IMPLEMENTATION OVERSIGHT DIVISION**  
Telephone No.: 8254-7050  
Email address: iod.ccc.cco@gmail.com

## NATIONAL GHG INVENTORY QA/QC PROCEDURAL GUIDANCE DOCUMENT

A detailed procedural manual on the conduct of GHG inventory QA/QC at a frequency that is responsive to national objectives and international reporting obligations



Stocktaking Tool for the Development of the QA/QC Plan and Templates for the Philippine Greenhouse Gas Inventory Management and Reporting System

### D. QC Procedures

#### 1. General QC Procedures

Per the 2006 IPCC Guidelines for National GHG Inventories, general quality control procedures, which "include generic quality checks related to calculations, data processing, completeness, and documentation that are applicable to all inventory source and sink categories", are:

- applied irrespective of the type of data used to develop the inventory estimates
- equally applicable to categories where default values or national data are used as the basis for the estimates
- designed to be implemented for all categories and on a routine basis

This matrix seeks to collect information on general QC procedures that are available, planned, or needed by your agency, including the units/sub-units responsible for the execution of the general QC procedures, and other agencies that should be involved as necessary. It is adapted from the QA/QC template from the 2020 U.S. EPA Templates for Creating a National GHG Inventory System Manual.

**INSTRUCTIONS:**

- (1) In Column 3, indicate the unit/sub-unit of your agency that is responsible for the execution of the QC procedure in the first two columns. Please indicate NA if the QC procedure is not applicable to your agency, and NO if the procedure has not yet been assigned. Reflect the proposed unit/sub-unit of your agency in Column 6 - Remarks if the procedure has not yet been assigned, as applicable.
- (2) In Column 4, indicate the proposed agency/ies that should be assigned to involved in the QC procedure.
- (3) In Column 5, reflect the status of the QC procedure. Indicate: Done, if the QC procedure has been implemented before, Planned, if the QC procedure has not been done before but is planned to be implemented, and None, if the QC procedure has not been accounted for/considered yet.
- (4) In Column 6, add any comments/insights on the QC procedure and other relevant information.

Source: IPCC (2006) Guidelines for National Greenhouse Gas Inventories, Volume 1: General Guidelines and Reporting Chapter 6

#### INPUTS HERE:

What general QC procedures does your agency have/should have, and who executes/should execute the QC procedures in your agency?

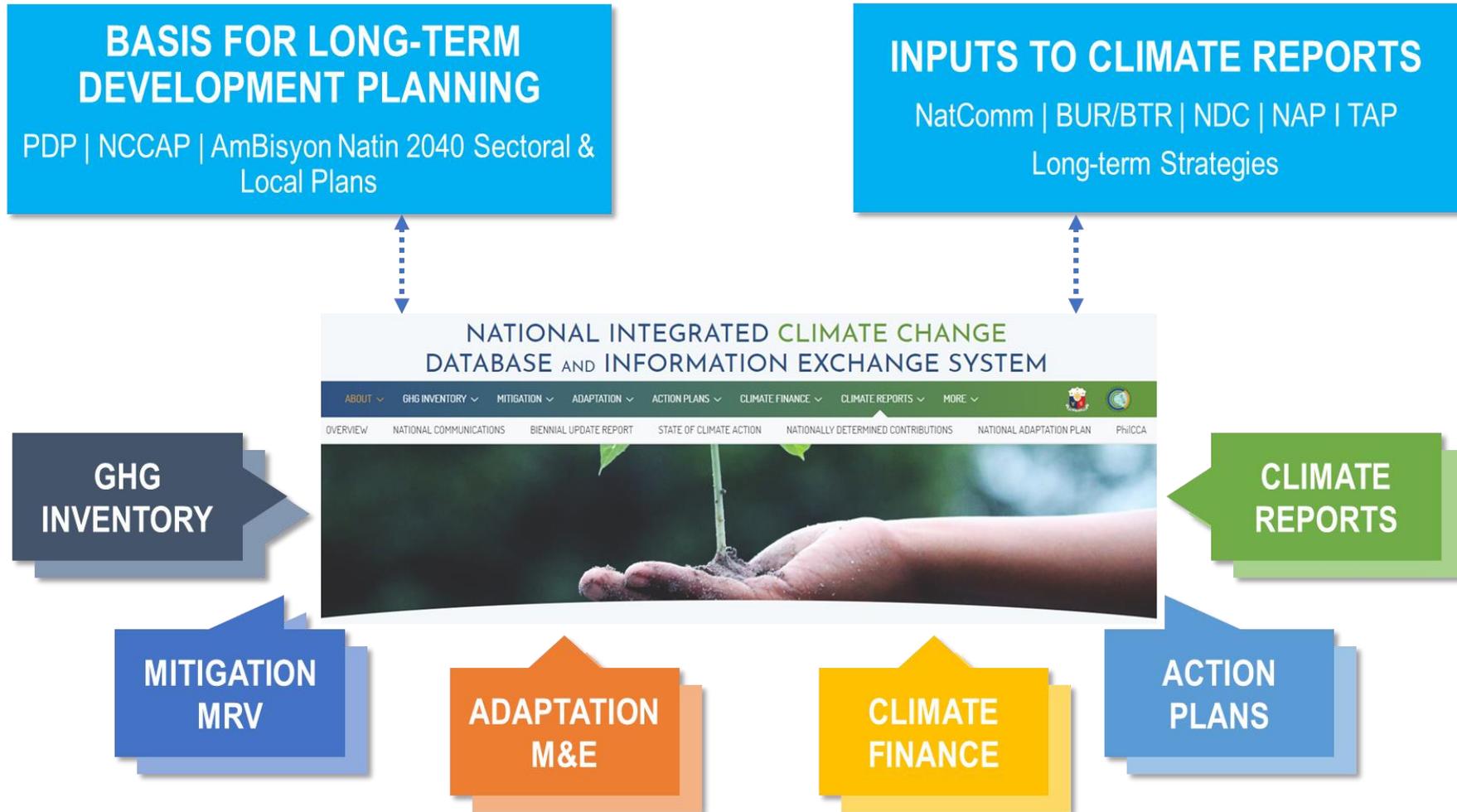
QC Activity [1]	Procedures [2]	Unit / Sub-Unit Responsible [3]	Agency Unit/Sub-Unit Responsible [4]	Status [5]	Remarks [6]
factors, and other estimation parameters are documented.	<ul style="list-style-type: none"> <li>Record if there are multiple sources of the same activity data, and if possible document the reasons for any differences.</li> <li>[Other procedure, add rows as needed]</li> </ul>	NA: not applicable NO: not assigned	indicate only if another agency is/should be involved	Done Planned None	you may also indicate here which unit/sub-unit of your agency should be assigned if the procedure has not yet been assigned
Check for transcription errors in data input and references	<ul style="list-style-type: none"> <li>Confirm that bibliographical data references are properly cited in the internal documentation (see completed Template 3, Methods and Data Documentation, if applicable).</li> <li>Cross check a sample of input data from each category (either measurements or parameters used in calculations) for transcription errors. Record the findings of these cross checks. Pay particular attention to systematic differences.</li> <li>Identify steps to reduce the error rate in the future. Add these improvement steps to the QA/QC development plan.</li> <li>Utilize electronic data where possible to minimize transcription errors.</li> <li>Check that spreadsheet features are used to minimize user/entry error:               <ul style="list-style-type: none"> <li>Do not "hardwire" factors into formulas.</li> <li>Create automatic look-up tables for common values used throughout calculations.</li> <li>Use cell protection so fixed data cannot accidentally be changed.</li> <li>Build in automated checks, such as computational checks for calculations, or range checks for input data, mass balance checks, internal consistency checks within and between spreadsheets.</li> </ul> </li> </ul>				

- ✓ to be initiated for 2015 and 2020 NIR, in preparation for the application of the ETF MPGs
- ✓ to be implemented for the first BTR and succeeding NIRs

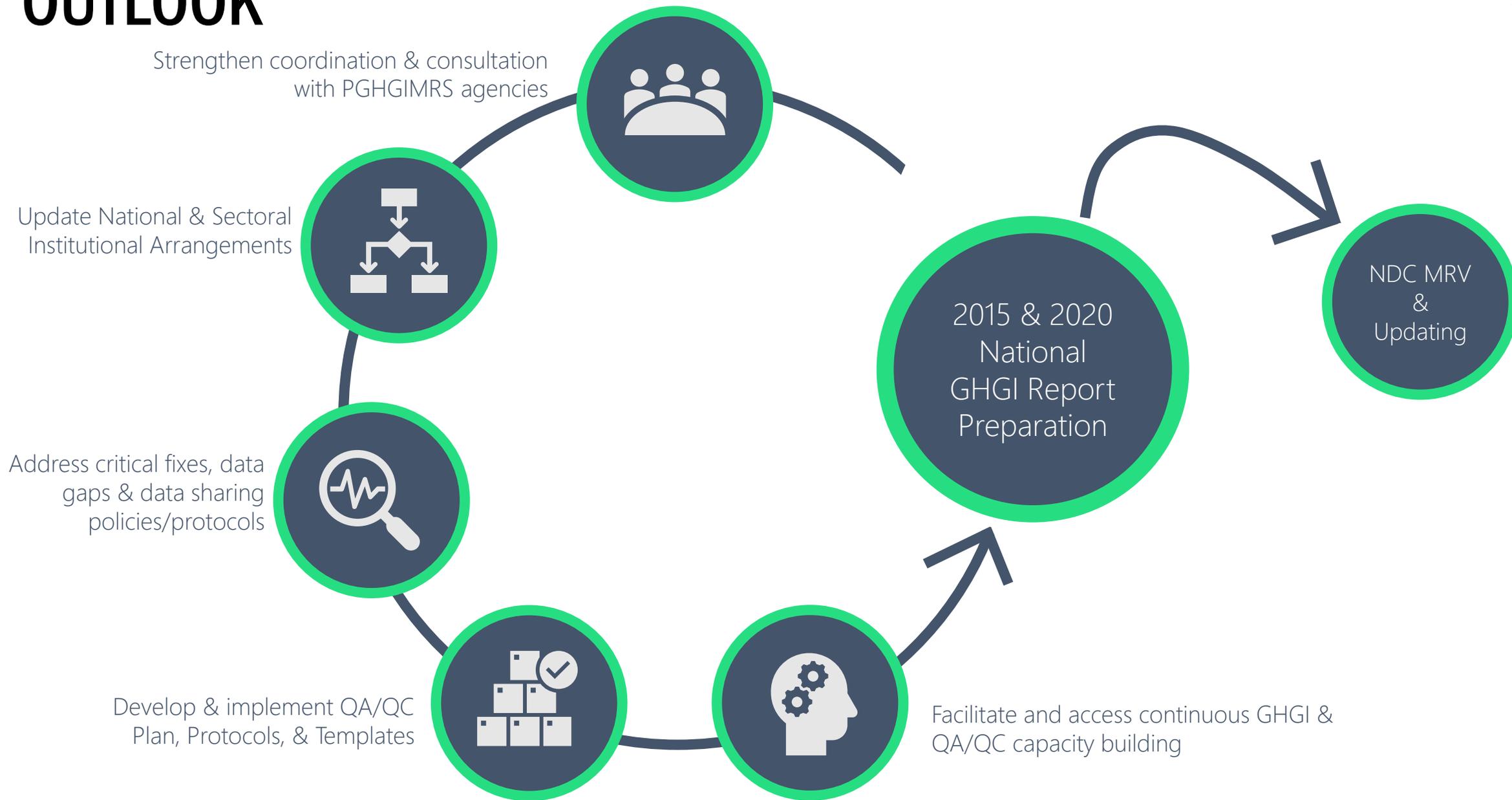
# Transparency System for Climate Action and Support



## NATIONAL INTEGRATED CLIMATE CHANGE DATABASE AND INFORMATION EXCHANGE SYSTEM (NICCDIES)



# OUTLOOK





**Thank you &  
Stay safe!**

**Implementation Oversight Division  
Climate Change Commission  
Republic of the Philippines  
Email: [iod@climate.gov.ph](mailto:iod@climate.gov.ph)  
NICCDIES: [www.niccdies.climate.gov.ph](http://www.niccdies.climate.gov.ph)  
Website: [www.climate.gov.ph](http://www.climate.gov.ph)**



**#1.5°C** TO SURVIVE  
TO THRIVE