WGIA 22

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Contents

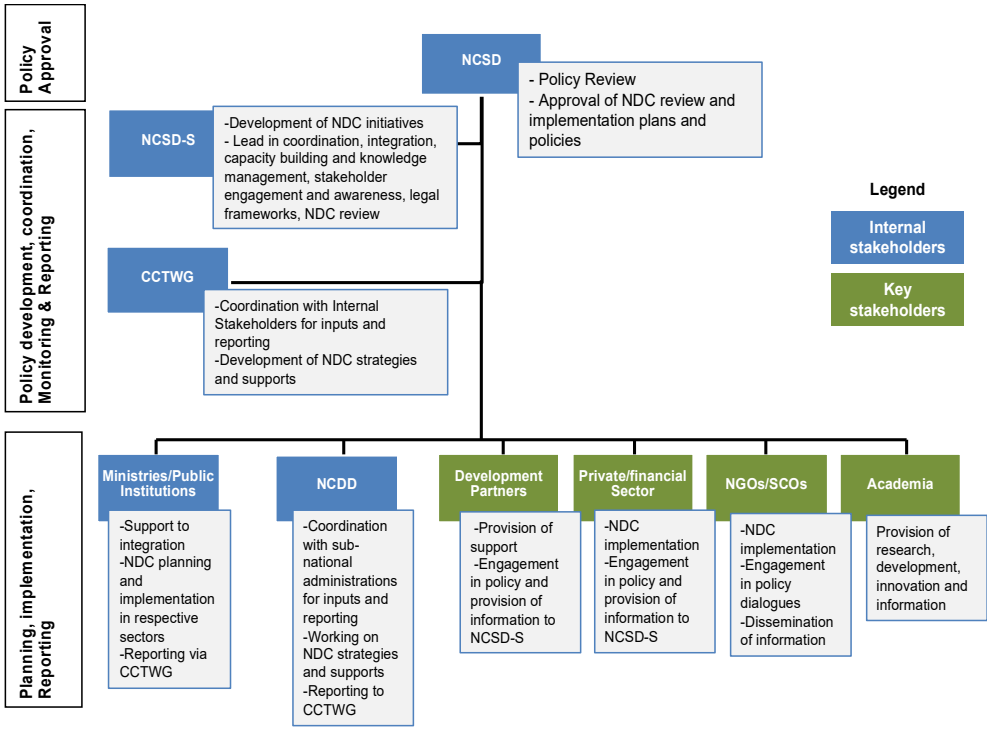
- BTR1 and way forward to BTR2/NC4 and BTR3
- CCCSP
- LTS4CN
- Methane Reduction Roadmap
- NDC 3.0

CAMBODIA's Initial Biennial Transparency Report (BTR1)

Submission of the BTR1

- Cambodia has officially submitted the BTR1 on 31 December 2024.
- https://unfccc.int/first-biennial-transparency-reports

Institutional Arrangement



IA for National GHG Inventory

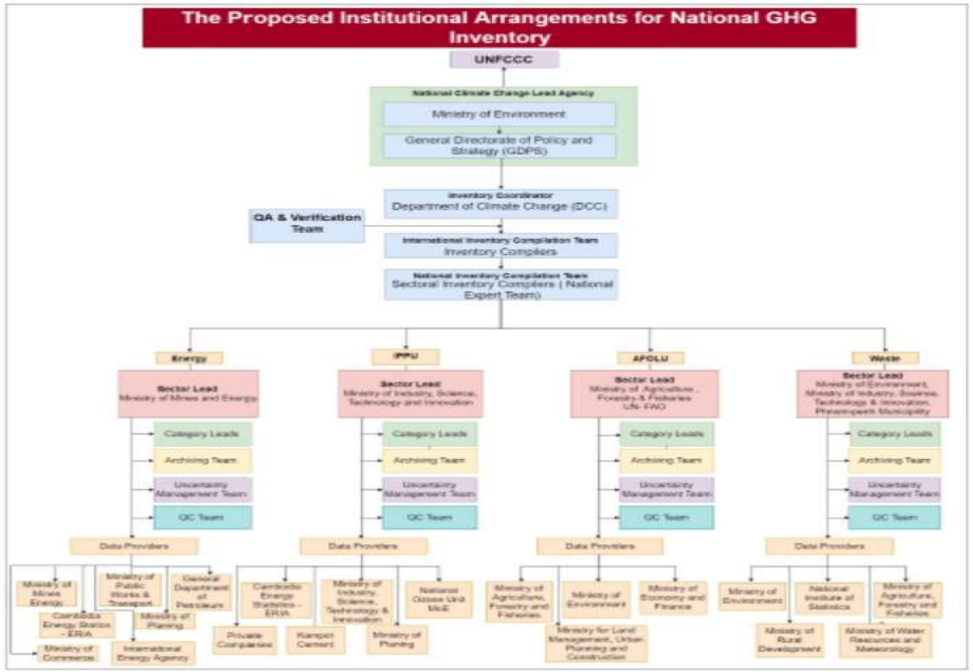


Figure I. 1: Systematic Institutional Arrangement

Process of the development of the BTR1

- For the National GHG Inventory, we have discussed internally to select the based year and the current year (2016-2022);
- Identified the implementation and achievement of the NDCs to generate the concrete results due to the BTR1 is not the same to previous national communication and BUR, so we need to consult closely with;
- The BTR1, Cambodia presents Greenhouse Gas (GHG) inventories includes emissions for the years 2016 to 2022 of the gases carbon dioxide (CO2), methane (CH4), nitrous oxide (N2O), and hydrofluorocarbons (HFCs) from the sectors, namely, Energy, Industrial Processes and Product Use (IPPU), Agriculture, Forestry and Other Land Use (AFOLU) and Waste.
- The 2006 IPCC Guidelines provide a structured approach for developing national GHG emissions inventories, outlining a series of steps known as the inventory development cycle.

Chapter 1: National GHG Inventory

- Cambodia presents Greenhouse Gas (GHG) inventories includes emissions for the years 2016 to 2022 of the gases carbon dioxide (CO2), methane (CH4), nitrous oxide (N2O), and hydrofluorocarbons (HFCs) from the sectors, namely, Energy, Industrial Processes and Product Use (IPPU), Agriculture, Forestry and Other Land Use (AFOLU) and Waste.
- The 2006 IPCC Guidelines provide a structured approach for developing national GHG emissions inventories, outlining a series of steps known as the inventory development cycle.

Table 1: The GHG emission estimated for the year 2016 to year 2022

Inventory year	Total sectoral GHG emissions ($GgCO_2e$)						
	Energy	IPPU	Waste	Agriculture	FOLU	Total (With FOLU)	Total (Without FOLU)
2016	9,073	1,858	1,859	36,644	27,518	76,952	49,434
2017	10,492	2,019	1,985	37,018	27,518	79,031	51,513
2018	11,338	2,179	2,133	38,141	27,518	81,309	53,790
2019	14,131	2,343	2,320	37,770	NE	56,564	56,564
2020	14,470	4,187	2,523	38,291	NE	59,471	59,471
2021	13,943	4,665	2,677	40,748	NE	62,033	62,033
2022	14,875	4,210	2,797	41,446	NE	63,328	63,328

Table I. 2: Summary of key categories identified - Trend assessment (with FOLU)

IPCC Category	IPCC Category	Greenhouse Gas	Trend Assessment (Txt)	Contribution to Trend	Cumulative Total of Column G
3.B.6	Other Land	CO2	0.98	53%	**53%**
3.C.7	Rice cultivation	CH4	0.47	26%	**79%**
3.B.1	Forest land	CO2	0.13	7%	**86%**
1.A.3	Transport liquid fuels	CO2	0.11	6%	**92%**
1.A.4	Other Sectors liquid fuels	CO2	0.05	3%	**94%**
3.A.1	Enteric Fermentation	CH4	0.03	2%	**96%**
4.A	Solid Waste Disposal	CH4	0.03	1%	**97%**
3.A.2	Manure Management	CH4	0.02	1%	**98%**
1.A.4	Other Sectors biomass solid	CO2	0.01	0%	**99%**
3.A.2	Manure Management	N2O	0.01	0%	**99%**
3.C.3	Urea application	CO2	0.00	0%	**99%**
1.A.1	Energy Industries liquid fuels	CO2	0.00	0%	**100%**
4.D	Wastewater Treatment and Discharge	N2O	0.00	0%	**100%**
1.A.2	Manufacturing Industries and Construction biomass solid	CO2	0.00	0%	**100%**
1.A.3	Transport liquid fuels	N2O	0.00	0%	**100%**

Chapter 2: Track progress made in implementing and achieving NDCs under Article 4 of the PA

Overall 2023 Results

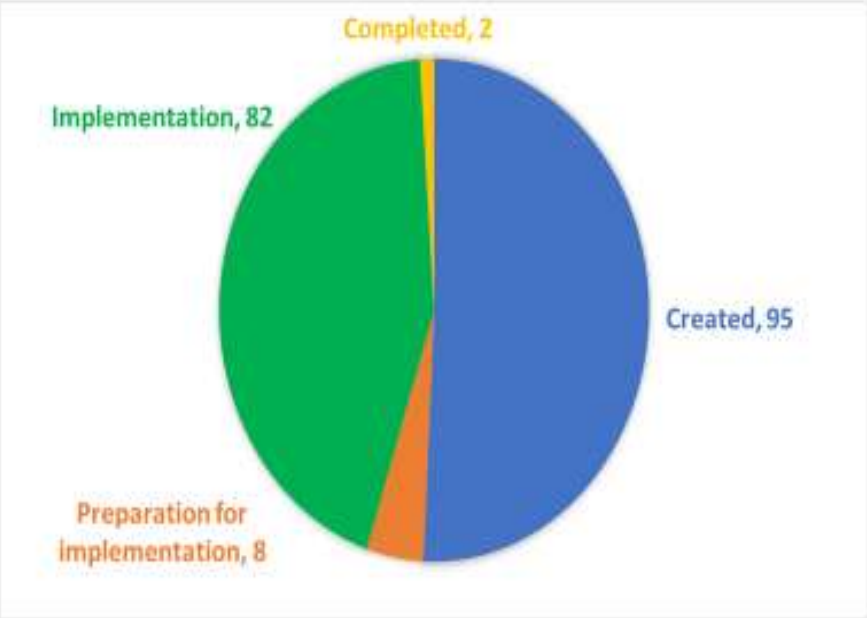
- 16 ministries submitted their progress updates.
  Sectoral indicators on infrastructure, energy, transportation, knowledge sharing, and education, and the institutional readiness have also been updated
- GHG emission reduction estimated and reported as actions' progress: 1.1 Mt CO2-e
- Among 187 actions, 2 have been completed and 82 are on the implementation phase

  Among the actions under implementation:
  - 86% stated the technology is available in the country
  - 74% reported gender-related progress
  - 60% engaged youth
  - 62% engaged private sector

- A total funding of 255.1 million USD was allocated for NDC actions in 2023.

Chapter 2: Track progress made in implementing and achieving NDCs under Article 4 of the PA

2023 progress – NDC Actions



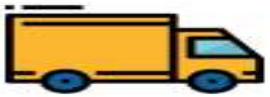
Status	Mitigation actions	Adaptation actions	Enabling actions
Created	62	22	11
Preparation for implementation	5	2	1
Implementation	30	35	17
Completed	0	1	1

CCCSP 2024-2033

- CCCSP is a national framework designed to address climate change challenges and promote sustainable development in the country.
- It consists of 3 strategic areas, mitigation, adaptation and governance, and 19 strategic outcomes.

Strategic Objective	Promoting GHG Mitigation	2. Strengthening Capacity for Adaptation	3. Promoting Governance and Digital Transformation
Strategic outcomes	1.1 Increase contribution of Renewable Energy (RE) in national energy mix and utilization in key economic sectors (transport, agriculture, tourism, manufacturing etc) whilst reducing dependency fossil fuel	2.1 Strengthen resilience measures across all economic sectors and essential social services (utility, sanitation, healthcare, nutrition, education, social and child protection, tourism, sustainable food system and critical infrastructure such as WASH, energy, roads, etc), with particular focus on the needs of children and most vulnerable communities.	3.1 Enhance climate finance mechanisms
	1.2 Increase Energy Efficiency (EE) and Renewable Energy (RE) in installations, buildings, housing and transportation (public transportation, electric vehicles)	2.2 Strengthen disaster risk reduction, preparedness and recovery across communities (coastal communities, Tonle Sap and Mekong River riparian communities)	3.2 Increase accessibility and targeted information education, communication and training on climate change
	1.3 Strengthen implementation of CE and pollution prevention in key economic sectors (tourism, agriculture, construction, manufacturing, transport, etc)	2.3 Strengthen ecosystem conservation and sustainable natural resources management (including Mekong River, Tonle Sap Lake, forest, biodiversity, urban ecosystem and mainstreaming nature-based solutions and adaptation)	3.3 Strengthen current and future workforce towards low-carbon and resilient transition
	1.4 Strengthen sustainable and resilient water resources and supply, solid waste and wastewater management system and infrastructure (targeting zero waste, phasing out single use plastics (SUP), increase SUP alternatives, waste to energy (WTE), garment sector waste, groundwater and surface water resources, etc)	2.4 Strengthen resilience of vulnerable groups (such as children and local communities) and mainstream GEDSI in climate actions and resilience	3.4 Strengthen multi-stakeholder engagement and involvement in strategy implementation
	1.5 Increase urban green space and urban greening promoting utilisation of nature-based solutions	2.5 Strengthen sustainability and resilience measures (including climate smart technologies, regenerative agriculture, etc) in the agriculture and food value chain for a sustainable food system	3.5 Strengthen access to technical assistance for multi-stakeholder capacity building
		2.6 Strengthen infrastructure and building resilience and	3.6 Address data and information gaps for effective monitoring and evaluation
			3.7 Strengthen regional and international cooperation and partnerships (including ASEAN, Mekong River Commission (MRC), Mekong

LTS4CN

 **Agriculture**	• Less methane-intensive rice cultivars • Direct seeding practices • Alternate wetting and drying practices • Promotion of organic fertilizer and deep fertilizer technology • Feed additives for cattle • Improved fodder management • Introduction of composting technology
 **Forestry and other land uses**	• Reducing the deforestation rate by 50 percent in 2030 • Stopping deforestation by 2045 • Afforestation, improved forest management and forest restoration • Agroforestry and commercial tree plantation • Full implementation of the REDD+ Investment Plan by 2050
 **Energy**	• No new coal generation capacity beyond already committed projects • Use of natural gas as a dispatchable transition fuel • Investments in liquified natural gas (LNG) import, storage and infrastructure • Increase in solar, hydro, biomass and other renewables to 35 percent of the generation mix by 2050, of which 12 percent is from solar • Investments in grid modernization, flexibility and storage Energy efficiency measures in buildings and industry • Fuel switching to electricity for cooking • Substitution of coal in the industrial and power sector
 **Transportation**	• More use of public transportation – 30 percent modal share in urban areas by 2050 • Moderate penetration of electric vehicles – 70 percent for motorcycles and 40 percent for cars and urban buses by 2050 • Increased fuel efficiency for internal combustion engine vehicles • Rail for freight and passengers • CNG penetration of 80 percent for interregional buses and 80 percent for trucks until 2050
 **Industrial processes and product use**	• Clinker substitution in cement production • Carbon capture and storage for cement kilns • Use of recycled aggregate concrete • Increasing use of refrigerants with low global warming potential • Regular inspection of refrigeration and air-conditioning equipment and recovery of spent refrigerants
 **Waste**	• Reducing open burning by expanding waste collection coverage to 85 percent in 2050 • Implementing a reduce, reuse, and recycle strategy • Landfill gas management • Organic composting • Anaerobic digestion and wastewater treatment

Methane Reduction Roadmap for Cambodia

- Methane Reduction Roadmap was officially signed by H.E. Minister of Environment on 5 May 2025;
- Cambodia as a nation highly vulnerable to the impacts of climate change, recognizes the critical urgency of ambitious and collective climate action.
- We are proud to be among the very first members of the Group of Least Developed Countries to submit the Development of National Methane Emissions Reduction Roadmap for Cambodia.
- This National Methane Emissions Reduction Roadmap is live document to and will be improved document in several important ways in accordance with the Decision 18/CMA.1, paragraphs 4: “Also decides that the least developed country Parties and small island developing States may submit the information referred to in Article 13, paragraphs 7, 8, 9 and 10, of the Paris Agreement on Climate Change at their discretion”.
- This roadmap will enable us to continuously refine our climate policies, alignment with the updated Nationally Determined Contributions (NDCs). It also establishes a robust baseline for the preparation of NDC 3.0 and supports the achievement of Cambodia’s climate change targets under the Sustainable Development Goals (SDGs).

Brief Information of the drafted Methane Reduction Roadmap

- The General Directorate of Policy and Strategy of the Ministry of Environment in collaboration with Institute of Global Environment Strategy (IGES)/Climate and Clean Air Coalition (CCAC) to develop the National Methane Reduction Roadmap.
    - Mitigating Methane Emissions from the Energy Sector in Cambodia;
    - Mitigating Methane Emissions from the Agriculture Sector in Cambodia;
    - Mitigating Methane Emissions from the Waste Sector in Cambodia
    - Implementing pathways - Cross-Cutting Actions to Reduce Methane Emissions in Cambodia

Mitigating Methane Emissions from the Energy Sector in Cambodia

	2030	2050
Methane emission reduction targets from energy sector	5%	6%

(a) Switch Charcoal to Renewable Energy

(b) Application of Electrical Equipment Labelling

(c) Building Codes and Enforcement Certificates for New Buildings

(d) Off-Grid Connected Street Lighting in Rural Areas

(e) Promote Electric Vehicles (EVs)

(f) Switch Coal to Renewable Energy

(g) Enhance Maintenance and Inspection of Vehicles

(h) Public Transportation Improvements

(I) Waste-to-Energy Projects

Mitigating Methane Emissions from the Agriculture Sector in Cambodia

	2030	2050
Methane emission reduction targets from agriculture sector	20%	50%

(a) Direct Seeding Practices

(b) Alternative Wetting and Drying (AWD) Practices

(c) Feed Additives to Cattle (3-NOP)

(d) Improving Feed Quality and Fodder Management

(e) Organic Composting

(f) Deep Fertilizer Technology

(g) Biogas Production from Manure

(h) Improved Manure Management

(i) Agroforestry Practices

(j) Rice Straw Management

Mitigating Methane Emissions from the Waste Sector in Cambodia

	2030	2050
Methane emission reduction targets from waste sector	50%	90%

(a) Stop Open Dumping and Open Burning

(b) Landfill Gas Capture

(c) Reduce Waste Generation (3R)

(d) Organic Composting

(e) Anaerobic Digestion (AD) Treatment

(f) Better Management of Industrial Wastewater (such as Food & Beverage)

(g) Better Management of Household Wastewater/Sludge

(h) Waste-to-Energy (WTE) Projects

(i) Extended Producer Responsibility (EPR)

(j) Community-Based Waste Management Programs

Implementing Pathways – Cross-Cutting Actions to reduce Methane Emissions in Cambodia

To effectively implement the identified measures to reduce methane emissions across various sectors in Cambodia, several cross-cutting actions are essential. These actions ensure the sustainability and efficiency of mitigation efforts and foster an integrated approach to environmental management.

(a) Data Management and Accuracy

(b) Awareness Raising

(c) Partnership Building and Coordination

(d) Technology Identification and Application

(e) Resource Mobilization

(f) Gender Considerations

NDC 3.0

- Cambodia's Third Nationally Determined Contribution (Cambodia's NDC 3.0) reaffirms the country's strong commitment to the Paris Agreement under the United Nations Framework Convention on Climate Change (UNFCCC).
- Despite contributing less than 1% to global greenhouse gas (GHG) emissions, Cambodia has demonstrated leadership in climate governance to submit the Intended NDC in 2015, the Updated NDC in 2020, the Long-Term Strategy for Carbon Neutrality (LTS4CN) in 2021 and its first Biennial Transparency Report (BTR1) in 2024.
- Cambodia's NDC 3.0 aligns with key national frameworks, including the Pentagonal Strategy – Phase I, the Circular Strategy on Environment Sector 2023-2028 and the Cambodia Climate Change Strategic Plan 2024–2033 (CCCSP 2024–2033), guiding the integration of climate action into national development priorities.
- As stated in the NDC 3.0, we have 49 mitigation measures; 75 adaptation measures; 39 enabling measures
- This updated NDC reflects a significant increase in ambition compared to NDC 2.0. On mitigation, Cambodia has raised its GHG emissions reduction target from 41.7% in Updated NDC (compared to 2030 BAU scenario) to 61% (compared to 2035 BAU scenario) under the conditional scenario in NDC 3.0.
- This enhanced target is supported by a broader sectoral approach, covering energy, transport, industry, agriculture, forestry, and waste.

Thanks