

BTR Fact Sheet

Cambodia

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Chapter 1. National Context and Governance

1.1 Country Overview and Key Characteristics

1.1.1 Population Overview

In 2020, the nation's population was 16.3 million, with forecasts indicating a growth to 17.3 million by 2024, 17.6 million by 2025, nearly 18.7 million by 2030, and 21 million by 2050 (NIS, 2021). Phnom Penh, the capital and largest city of Cambodia, with a population of approximately 2.4 million in 2020. Forecasts suggest it will attain approximately 2.5 million by 2024 and 2.7 million by 2030. The exponential annual growth rate in 2020 was roughly 1.6%, projected to decline to 1.4% by 2024 and 1.2% by 2030. In 2008, the population density was 75 individuals per square kilometer, increasing to 82 individuals per square kilometer in 2013, and reaching 87 individuals per square kilometer according to the GPCC 2019 statistics.

In 2019, population density across regions within the country exhibited significant variation. The Central Plain region recorded a relatively high population density of 305 persons per square kilometer, followed by the Tonle Sap region with 72 persons per square kilometer. The coastal and sea regions came next with 62 persons per square kilometer, whereas the plateau and mountains region had the lowest density at only 29 persons per square kilometer (NIS, 2021).

1.1.2 Economic Structure

In the ten years preceding the COVID-19 pandemic, Cambodia achieved an average annual growth rate of seven percent. The annual GDP demonstrated significant growth, averaging over 8% per year from 2000 to 2010 and approximately 7% since 2011. Following the onset of the COVID-19 pandemic, Cambodia's economy experienced a deceleration. The average annual growth rate decreased to 4.4% from 2017 to 2022. The World Bank projects a growth rate of 5.4% for this year, exceeding the growth recorded in the preceding three years. This indicates a possible recovery in economic activity relative to the decline observed in the immediate post pandemic period (HAYATI, 2023). The International Monetary Fund (IMF) projects a 6.1% change in Real GDP growth for 2024. The COVID-19 pandemic severely affected Cambodia's economy, mainly due to the collapse of tourism and a decline in demand for manufactured goods. In 2021, the economy faced setbacks due to community spread of the virus and subsequent lockdown measures. Consequently, Cambodia experienced a recession in 2020 and

sluggish growth in 2021.

Significant changes were observed in sectoral contributions to GDP. The contribution of the agriculture sector to Cambodia's GDP decreased from 24.7% in 2016 to 22.7% in 2020, and further to 22.2% in 2022. The industry sector rose from 29.5% in 2016 to 34.6% in 2020, reaching 37.9% in 2022. The observed changes indicate a shift in Cambodia's economic structure, characterized by a reduced dependence on agriculture and an increasing focus on industrial activities.

1.1.3 Natural Environment and Resources

According to the Cambodia forest cover assessment 2018, the results show that forest land covers an area of 8,510,807 ha, equivalent to 46.86 % of the country's total land area (the results from the assessment included rubber plantation, palm oil plantation, and other perennial crops) as provided in the chart below. Since 1965, Cambodia has conducted eight assessments of its national forest cover. These assessments were conducted intermittently over 27 years, from 1965 to 1992/93, due to civil conflict that lasted nearly three decades, placing significant pressure on forest resources. Regular assessments resumed in 1993 and continued until 2014, with assessments conducted at an average interval of four years. With Cambodia's participation in the international community's REDD+ program, the importance of accurate forest cover data has increased significantly for natural resource management planning and supporting the monitoring and evaluation process for REDD+ implementation. Forest cover is now assessed every two years. According to Figure 2 below, the forest cover has declined by 26.18% from 1965 to 2018 compared to the overall country area. Several factors have contributed to this decline, including civil war, population growth, the expansion of agricultural land, and other significant drivers (MoE, 2023)

Figure 1. National land use cover of Cambodia 2018

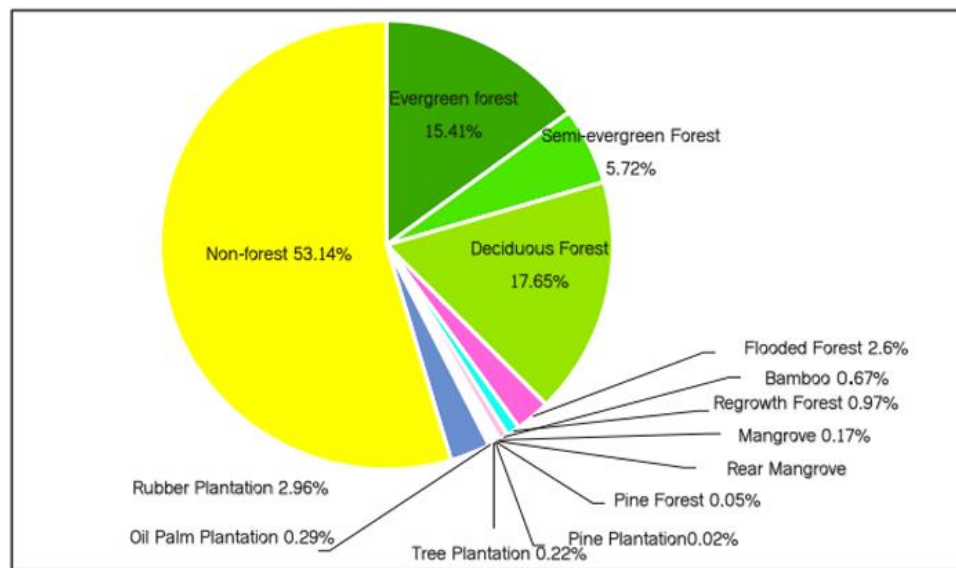
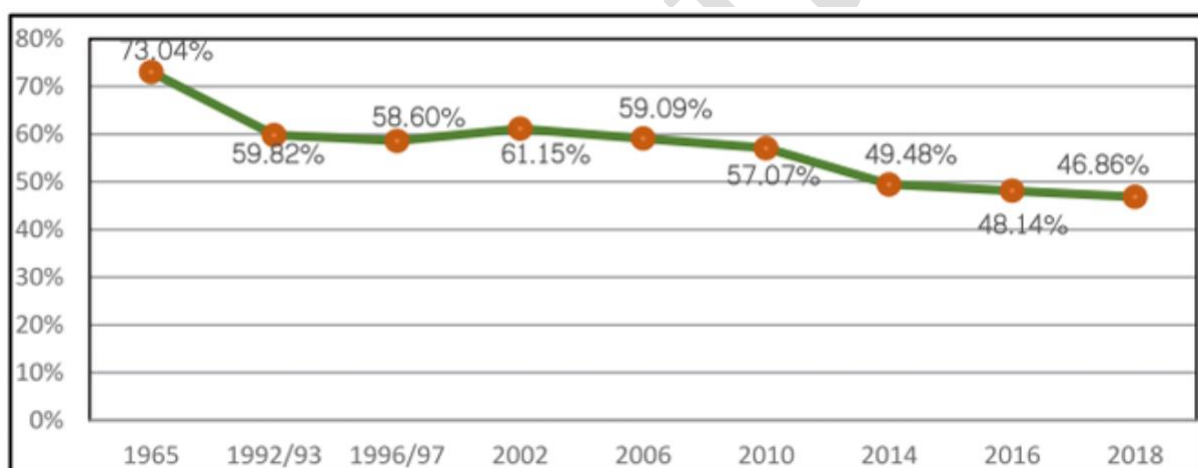


Figure 2. The rate of variation in forest cover resources 1965-2018



1.2 National Governance for Climate Change

1.2.1 National Lead Institutions, 1.2.2 Governance Structure

Figure 3. Institutional arrangement for NDC tracking in Cambodia

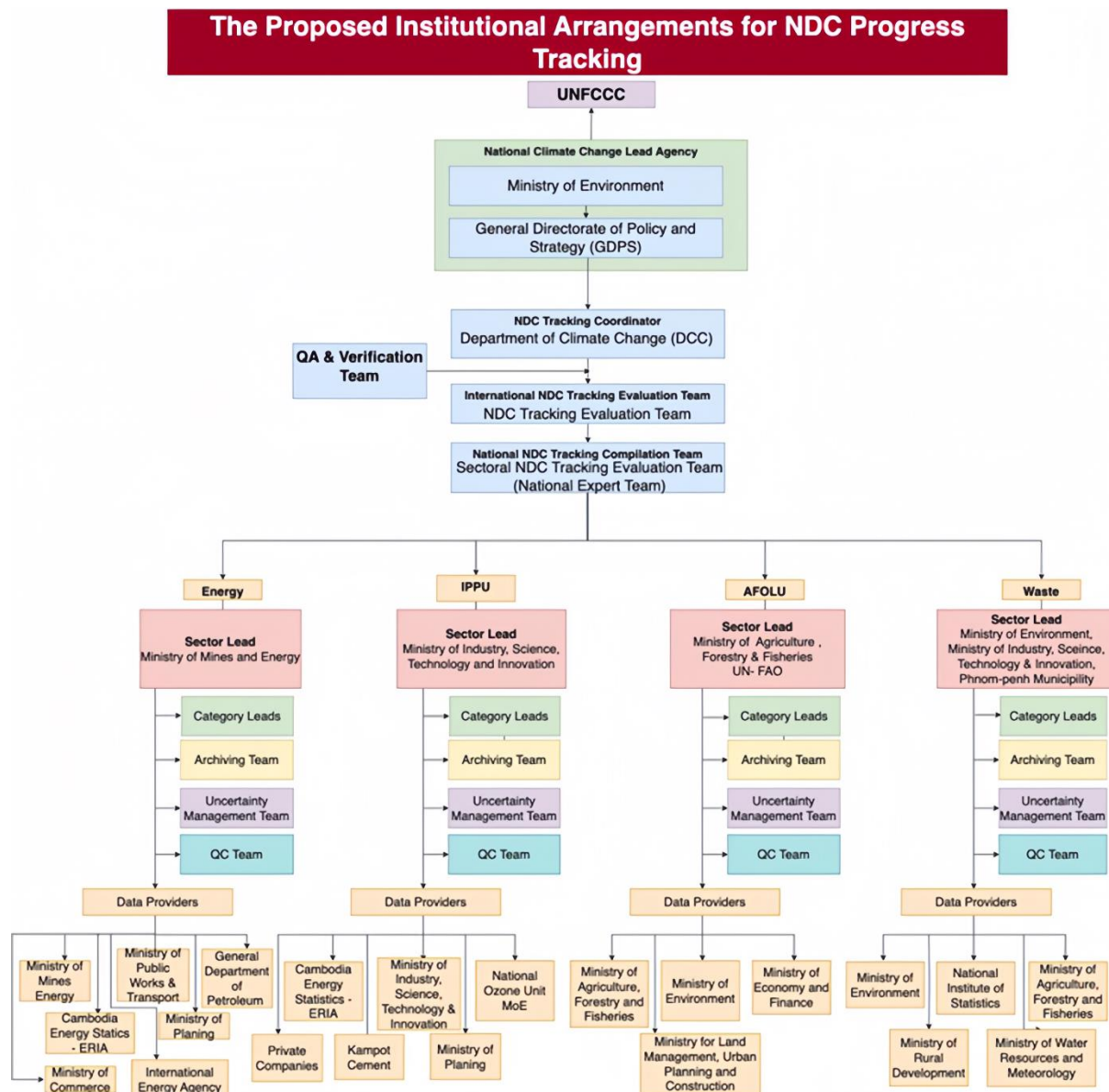


Figure 4. Sub-institutional arrangements for the AFOLU sector

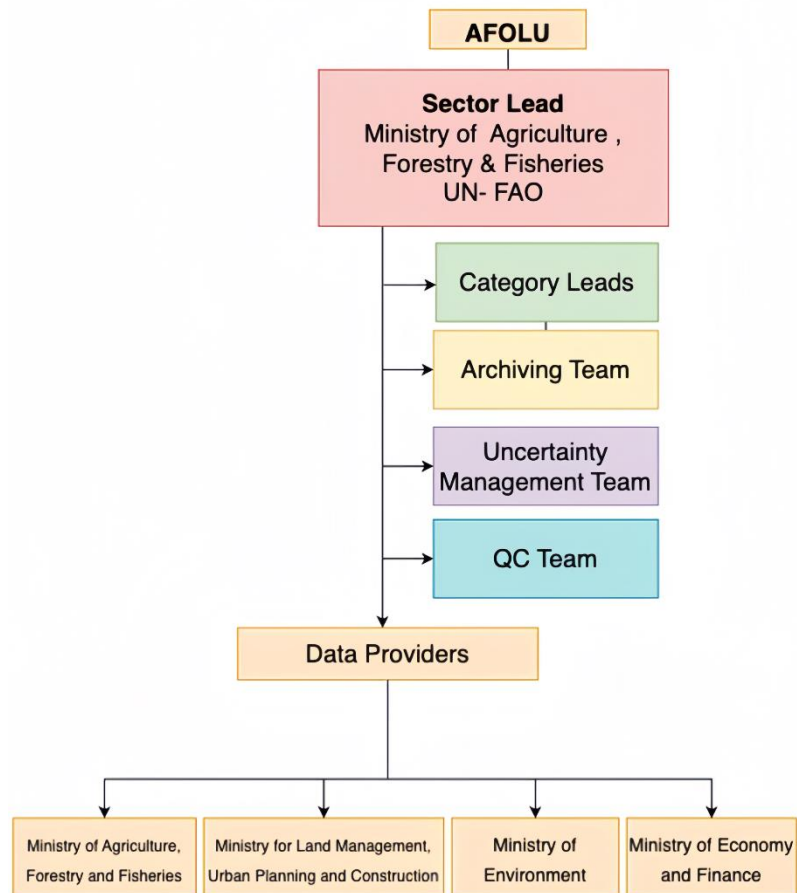
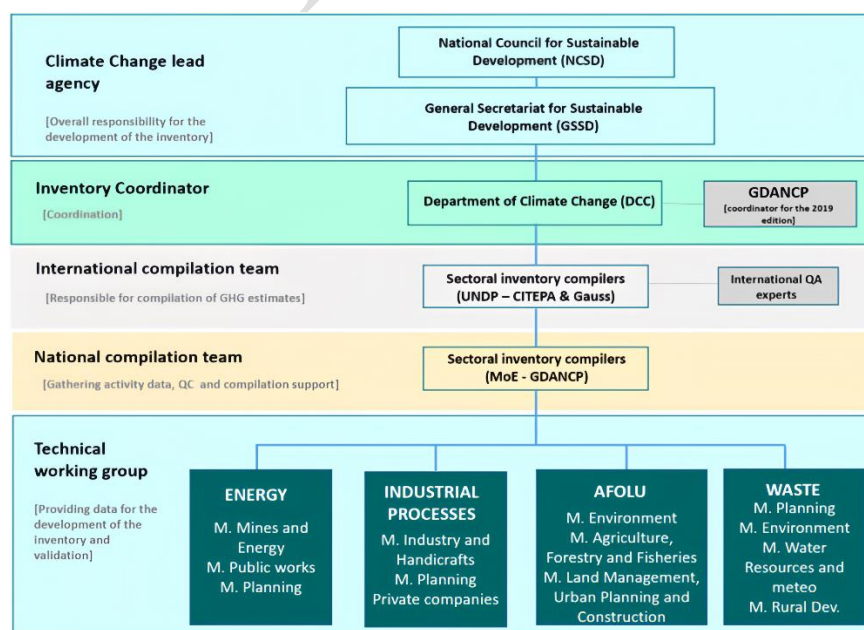


Figure 5. Institutional arrangements for the GHG inventory



Chapter 2. National GHG Inventory and Emissions Trends

2.1 Overview of the National GHG Inventory

This section analyzes the trends in aggregate greenhouse gas emissions and removals in Cambodia from 1994 to 2022. The analysis includes total GHG emissions and removals across all sectors, with a focus on carbon dioxide (CO₂), methane (CH₄), nitrous oxide (N₂O), and Hydrofluorocarbons (HFCs) as well as net emissions, which represent the balance between total emissions and total removals. All GHG inventories from 1994 to 2022 have been developed in accordance with IPCC guidelines and UNFCCC methodologies to establish GHGI.

2.1.1 National GHG Reporting Methodology

The 2006 IPCC Guidelines provide a structured approach for developing national GHG emission inventories, outlining a series of steps known as the inventory development cycle.

Following best practices, this cycle encompasses all the necessary tasks to create a national GHG emission inventory. Key steps in the inventory preparation process include data collection, data verification, quality assurance, and consistency check to ensure the integrity and reliability of the inventory. Additionally, sector-specific analyses were conducted to identify emission trends, hotspots, and potential mitigation opportunities. A diagram representing the inventory development cycle specific to Cambodia has been derived from the steps recommended by the 2006 IPCC Guideline.

Key category analysis is the IPCC's method for deciding which emissions or removals categories to prioritize in GHG inventory estimation. Key category analysis prioritizes emissions or removal categories for inventory estimation. These categories should use progressively higher-tier methods to enhance accuracy and reduce uncertainty. A category is considered key if it contributes to 95% of total national emissions or removals or 95% of the trend in national emissions or removals when ordered by magnitude. Key category analysis may require iterative approaches. Initially, Tier 1 methods are employed if it is uncertain which categories are key. National Communications, which include emissions data for specific inventory years, are analyzed to identify preliminary key categories. Total national GHG emissions and sectoral emissions breakdowns were examined. In the case of Cambodia, the dominant sectors contributing to GHG emissions were identified. Key categories are

determined based on their contribution to emissions levels and trends. For instance, in Cambodia, Forest land, Rice cultivation, and Transport liquid fuels were identified as key categories based on their emissions levels. Additionally, categories like Forest land, Transport liquid fuels, and Rice cultivation were identified based on their potential contributions to emission trends. The inventory preparation process begins with collecting data from various sources, including government ministries, research institutions, local authorities, and relevant stakeholders.

Government ministries which designated as data providers should be well informed (official instruction/decision) about their roles and responsibilities in collecting and gathering GHG inventory related data. National statistical offices provide vital data on energy consumption, industrial activities, agricultural practices, and land use changes. Additionally, sector-specific surveys and studies conducted by research institutions contributed valuable information to the inventory dataset. Upon collection, the data undergoes compilation and analysis using methodologies tailored to Cambodia's context. Recognizing the country's unique socio-economic and environmental characteristics, such as reliance on agriculture and vulnerability to climate change, specialized models and tools are applied to estimate GHG emissions and removals accurately. The analysis carefully accounts for factors such as deforestation, land degradation, and changes in agricultural practices. A robust QA/QC plan will be implemented to ensure the reliability and accuracy of the inventory data. This includes data validation, verification, and consistency checks to identify and rectify any errors or discrepancies. QA/QC procedures help maintain data integrity and enhance the credibility of the inventory.

An uncertainty assessment specific to Cambodia's inventory was conducted to evaluate the reliability of emission estimates. Factors contributing to uncertainty, such as data gaps, measurement errors, and variability in emission factors, are carefully analyzed. This assessment provides insights into the confidence levels associated with reported emissions and helps identify areas for improvement in data collection and analysis.

Special attention is paid to ensuring the completeness of Cambodia's GHG inventory, considering the diversity of emissions sources and sinks in the country. Efforts are made to include all relevant sectors, including energy, forestry, agriculture, transportation, and waste management. Any gaps or inconsistencies in data coverage are identified and addressed to

enhance the comprehensiveness of the inventory.

Once data compilation, analysis, and quality assurance processes are completed, the inventory report will be submitted to the UNFCCC. The report was included detailed information on GHG emissions and removals, methodologies, data sources, uncertainty assessment results, and relevant contextual information. Reporting guidelines outlined by the UNFCCC were followed to ensure consistency and comparability with other countries' inventories.

The inventory report undergoes a review process to validate its accuracy and completeness. This may involve an internal review by national experts and an external review by international peers or review teams. Feedback received during the review process is considered and incorporated into the inventory as appropriate to improve its quality and reliability. The inventory preparation process is iterative, with ongoing efforts to improve data quality, enhance methodologies, and strengthen institutional capacity. Lessons learned from previous inventory cycles are used to inform future inventory preparations, ensuring continuous improvement in reporting accuracy and transparency.

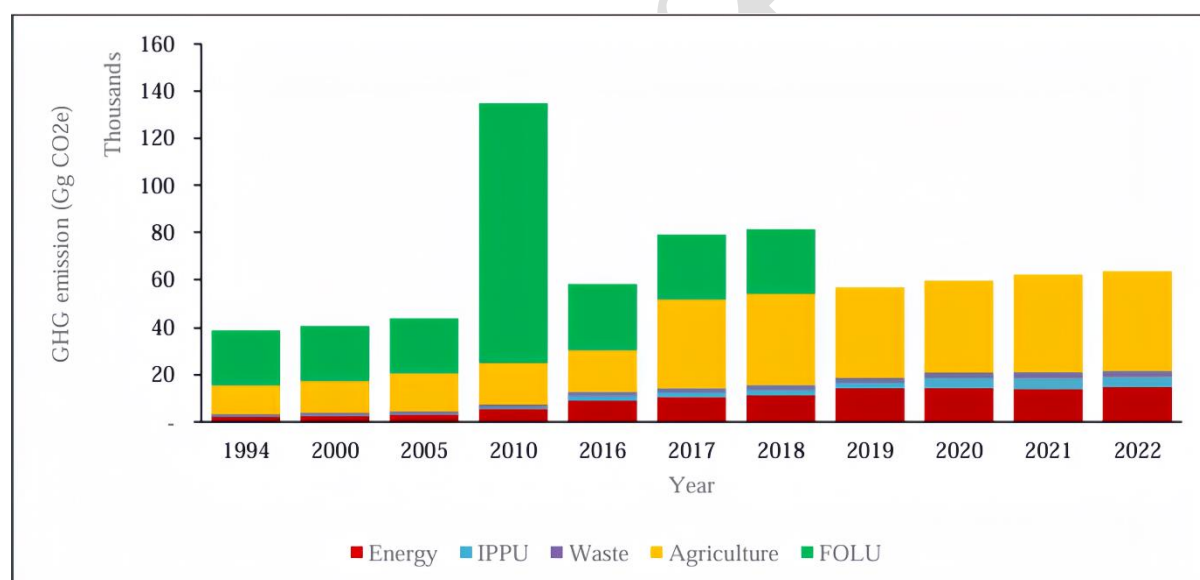
2.1.2 Sectoral Emissions and Removals Trends

The Figure 6 presents sectoral greenhouse gas emissions data from 1994 to 2022, broken down into five sectors: Energy, Industrial Processes and Product Use (IPPU), Waste, Agriculture, and FOLU (Forest and Other Land Use). Between 1994 and 2022, GHG emissions have shown notable increases across all sectors except for FOLU, which has seen a sharp decline in its sequestration capacity. The energy sector shows a steady increase in emissions, from 2,172 GgCO₂e in 1994 to 14,875 GgCO₂e in 2022. This represents an increase of 585 % over the 28-year period. The period between 2010 and 2022 marks the steepest rise in emissions. This signals a heavy reliance on fossil fuels. The IPPU sector experienced an extraordinary 110,489 % rise, driven by significant industrial growth. The waste sector increased by 158%, and agriculture by 239 %, indicating growing emissions due to population growth and agricultural expansion. The FOLU sector, on the other hand, has reduced its carbon sequestration by 18%, showing a decrease in forest cover and land-use changes over the years. The Figure 7 provides a visual summary of Cambodia's sectoral greenhouse gas (GHG) emissions trends from 1994 to 2022.

Figure 6. Total sectoral GHG emissions (GgCO₂e)

Inventory year	Total sectoral GHG emissions (GgCO ₂ e)				
	Energy	IPPU	Waste	Agriculture	FOLU
1994	2,172	4	1,083	12,237	23,321
2000	2,526	6	1,285	13,560	23,321
2005	3,059	12	1,427	16,081	23,321
2010	5,405	515	1,484	17,729	109,638
2016	9,073	1,858	1,859	17,621	27,518
2017	10,492	2,019	1,985	37,018	27,518
2018	11,338	2,179	2,133	38,141	27,518
2019	14,131	2,343	2,320	37,770	NA
2020	14,470	4,187	2,523	38,291	NA
2021	13,943	4,665	2,677	40,748	NA
2022	14,875	4,210	2,797	41,446	NA

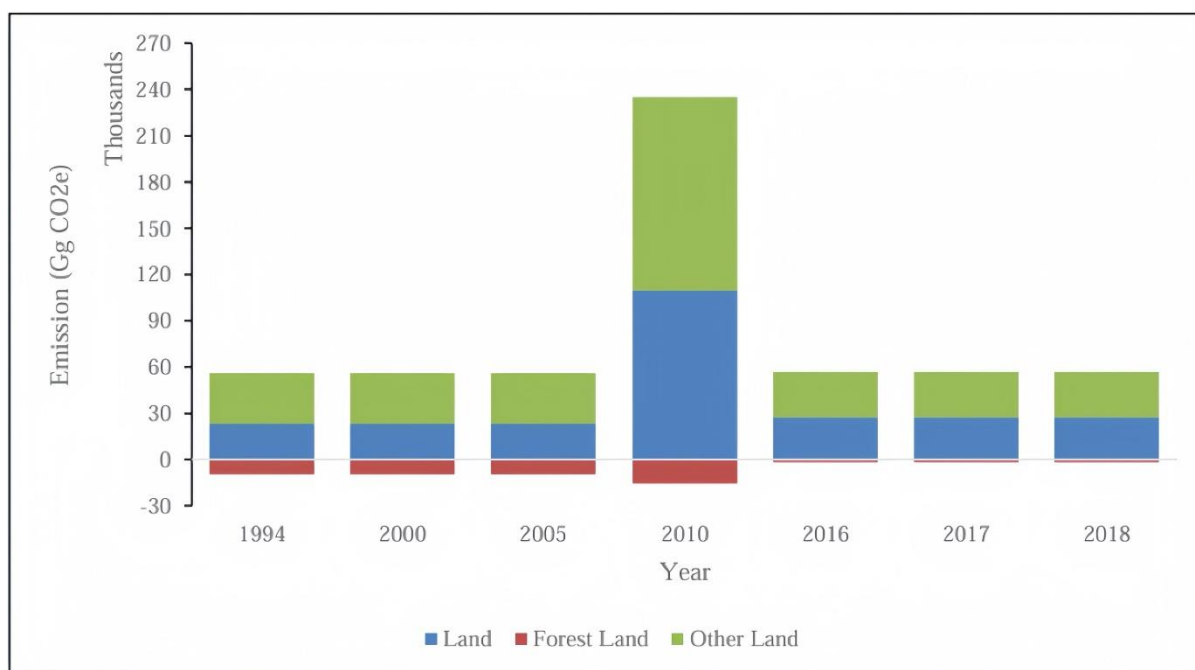
Figure 7. Trend in total emissions by sector from 1994 to 2022



2.2 LULUCF Emissions and Removals

Figure 8. Total annual GHG emissions in the FOLU sector of Cambodia

GHG Source category	GHG Emissions (Gg CO ₂ e)						
	1994	2000	2005	2010	2016	2017	2018
Land	23,321	23,321	23,321	109,638	27,518	27,518	27,518
Forest Land	-9,343	-9,343	-9,343	-15,597	-1,777	-1,777	-1,777
Other Land	32,664	32,664	32,664	125,235	29,295	29,295	29,295



Besides depicting trends by subsector, an analysis of emissions by gas type can also be conducted. Figure 9 delineates the gas-specific emissions for the AFOLU industry in Cambodia for the years 1994, 2000, 2005, 2010, 2016, 2017, 2018, 2019, 2020, 2021, and 2022 respectively.

Figure 9. Gas-wise emissions for the AFOLU sector in Cambodia

Year	GHG Emissions (Gg)						
	Emissions (Gg) CO ₂	Emissions (Gg) CH ₄	Emission (Gg) N ₂ O	NO _x	CO	NMVOC	SO _x
1994	23,322	398	4	NO	NO	NO	NO
2000	23,322	445	4	NO	NO	NO	NO
2005	23,322	531	5	NO	NO	NO	NO
2010	109,668	586	5	NO	NO	NO	NO
2016	27,535	590	4	NO	NO	NO	NO
2017	27,611	1,186	14	NO	NO	NO	NO
2018	27,638	1,216	15	NO	NO	NO	NO
2019	126	1,206	15	NO	NO	NO	NO
2020	120	1,226	15	NO	NO	NO	NO
2021	152	1,294	16	NO	NO	NO	NO
2022	202	1,287	20	NO	NO	NO	NO

According to the above table, it can be identified that, AFOLU sector of Cambodia contributes largely for CO₂, CH₄ and N₂O emissions. According to the above graph, it further illustrates that, among all the gas types, CO₂ can be considered as the most contributed gas type under the AFOLU sector followed by CH₄ and N₂O. Figure I-19-21 indicate the emissions

of CO₂, CH₄ and N₂O for each year separately.

Chapter 3. NDC Implementation Status and Tracking Information

3.1 NDC Overview and Mitigation Targets

3.1.1 National GHG Mitigation Target

The revised NDC for Cambodia demonstrates significant enhancements across various aspects. Firstly, it broadens its scope to encompass climate change mitigation objectives in agriculture and waste sectors, accompanied by detailed initiatives such as energy efficiency improvements. Additionally, it strongly emphasises adaptation, notably aiming to halve deforestation rates by 2030 in the Forestry and Land Use sector. Furthermore, Cambodia has heightened its targets for reducing GHG emissions across multiple sectors compared to its initial NDC in 2015. Lastly, there's a deliberate focus on gender equality and vulnerable groups to ensure their inclusion in adaptation and mitigation endeavours, alongside efforts to strengthen measurement, reporting, and verification (MRV) frameworks. Furthermore, Cambodia has heightened its targets for reducing GHG emissions across multiple sectors compared to its initial NDC in 2015.

Figure 10. Summary of Cambodia's updated NDCs description

Description of Cambodia's Updated NDC	
Target(s), including a description and the target type(s)	By 2030, a reduction in emissions of 41.7% is anticipated compared to the Business-As-Usual (BAU) scenario.
Target year(s) or period(s), and whether they are single-year or multi-year target(s)	2030
Reference point(s), level(s), baseline(s), base year(s) or starting point(s), and their respective value(s)	2016 BAU scenario: 213 million tCO ₂ e/year for the year 2030
Time frame(s) and/or periods for implementation	2020 - 2030
Scope and coverage, including, as relevant, sectors, categories, activities, sources and sinks, pools and gases	Geographies covered by the contribution: All national territories Scope of gases included in the contribution: Carbon Dioxide (CO ₂), Methane (CH ₄), Nitrous Oxide (N ₂ O) Sectors covered in the contribution: Energy sector, IPPU sector, Waste sector, AFOLU sector
Intention to use cooperative approaches that involve the use of internationally transferred mitigation outcomes under Article 6 towards NDCs	Not Available
Any updates or clarifications of previously reported information (e.g. recalculation of previously reported inventory data or greater	Not Available

detail on methodologies or use of cooperative approaches).

3.1.2 AFOLU Targets

Figure 11. Mitigation target under Cambodia's updated NDC (a) GHG emission reduction under NDC scenario (b) GHG emission reduction under NDC scenario (including FOLU)

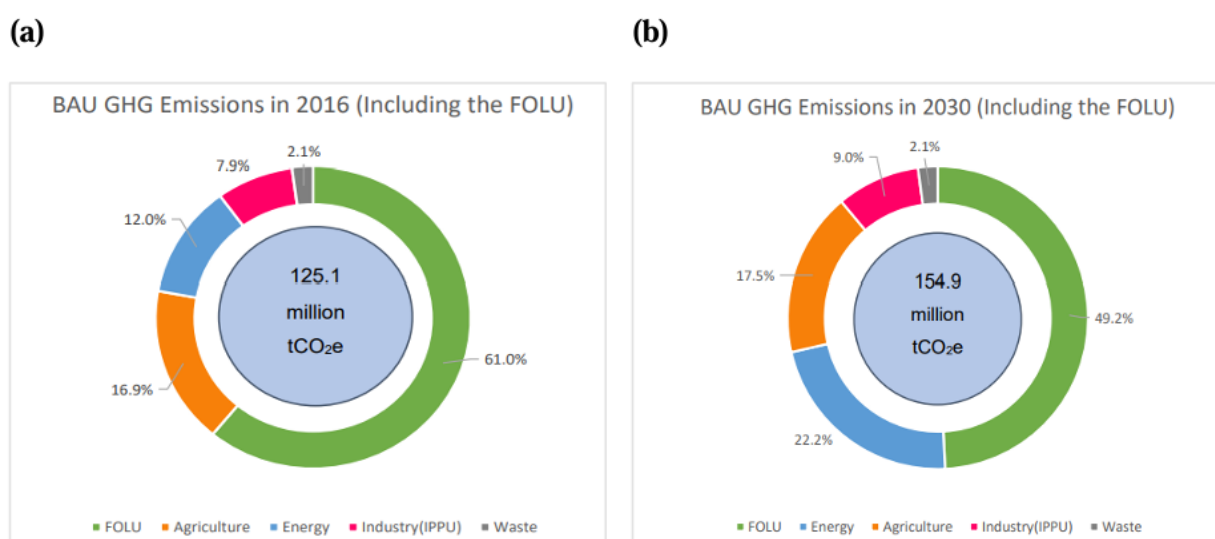
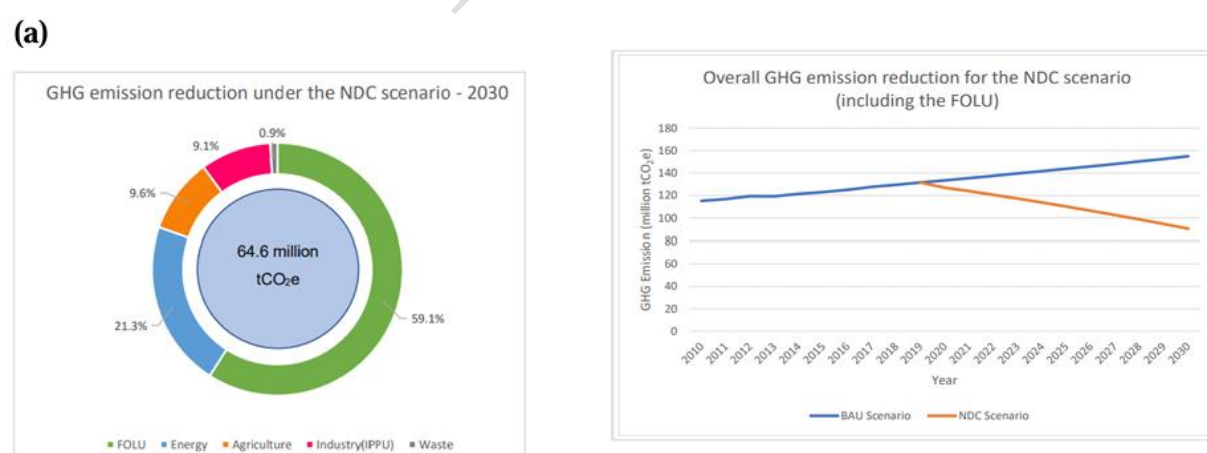


Figure 12. Mitigation target under Cambodia's updated NDC (a) GHG emission reduction under NDC scenario (b) GHG emission reduction under NDC scenario (including FOLU)



Cambodia have set goals to reduce GHG emissions by 42% by 2030 (NDC, 2020). The majority of these emission reductions are foreseen to be achieved through the FOLU sector.

The government plans to achieve carbon neutrality by 2031 for the FOLU sector and it is expected that this sector acts as a carbon sink to mitigate emissions from other sectors by 2050. To track the progress towards these goals an accurate and transparent approach to emission estimations from the FOLU sector is needed. To achieve this, the Government is aiming on reducing deforestation to 50% of historical baseline by 2030 as one of its main mitigation strategies, therefore accurate estimation of deforested areas is of utmost importance. The calculations for the lands are based on a comprehensive monitoring of the land use and a country specific estimate for each type of land.

- Reduce 50% of historical emissions by 2030
- Improve management and monitoring of forest resources and forest land use
Strengthen implementation of sustainable forest management
- Approaches to reduce deforestation, build capacity, and engage stakeholders

3.2 Summary of NDC Progress and Achievement

3.2.1 AFOLU Unconditional Target

Not specified.

3.2.2 AFOLU Conditional Target

Cambodia submitted its NDC to the UNFCCC, outlining its intended measures to mitigate greenhouse gas emissions, adapt to climate change, secure funding, and ensure reporting and assessment. Under the Land Use and Forestry sectors, Cambodia made a conditional commitment to increasing forest cover to 60% of the national land area by 2030, corresponding to the removal of 4.7tCO₂eq./ha/year.

3.3 AFOLU Mitigation Policies, Measures, and Plans

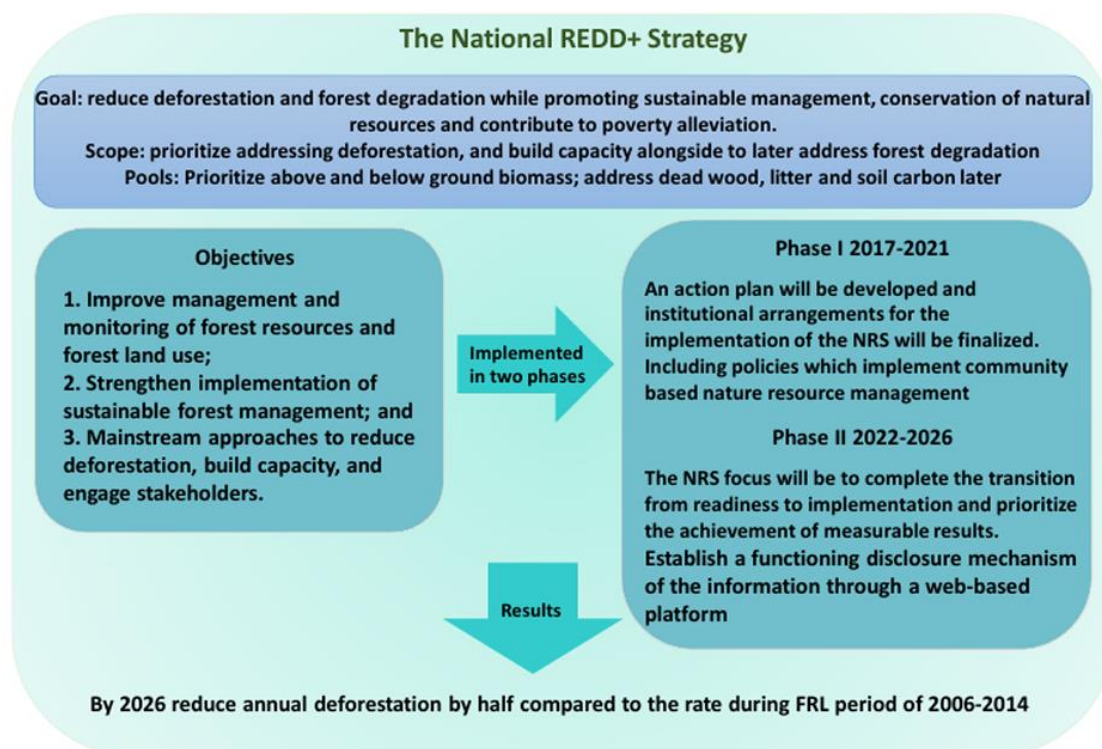
Key policies, strategic plan and frameworks on adaptation and mitigation

REDD+ National Strategy	The mission of the REDD+ Strategy is to strengthen the capacity of national and sub national institutions for effective implementation of policies, laws and regulations that will contribute to improved management of natural resources, forest lands, and biodiversity conservation. The goal of the strategy is to reduce deforestation and forest degradation, promote sustainable management and conservation, and contribute to poverty alleviation of local communities.
National Forest Programme	The overall National Forest Program Objective is "The forest resources provide optimum contribution to equitable macroeconomic growth and poverty alleviation particularly in rural areas through conservation and sustainable forest management, with active participation of all stakeholders." Specifically, the Objective 2: Adapt to climate change and mitigate its effects on forest-based livelihood and the Objective 3: Macro land use planning that allows for holistic planning across sectors, jurisdictions and local government borders. The Objective 7: Ensure environmental protection and conservation of forest resources.
National Protected Area Strategic Management Plan (NPASMP) 2017-2031	The NPASMP is developed to guide the future planning and management of individual protected areas. Its mission is to achieve the most effective, efficient and equitable management of the national protected area system in the Royal Kingdom of Cambodia. One of the five goals is to strengthen protected area management effectiveness and working partnerships with government agencies, local authorities, conservation NGOs, and development partners.
Agricultural Strategic Development Plan (ASDP) 2019-2023	The ASDP has been established to reduce poverty, assure food security and safety through Cambodian agricultural modernization at faster speeds and with new scope approaches, to promote the development of agriculture and exportation of agricultural products, along with natural resource conservation in a sustainable manner. The vision for agriculture development is climate resilience. Cambodian agriculture must deal with natural disasters possible, with two main measures, 1) adaptation or resilience to climate change focusing on the production of seeds and crops which are adapted to the drought and flood, 2) mitigation of climate change

	impacts by enhancing activities related to the establishment of the planting system; climate tolerant livestock (modern farm system, water saving, heat and rain management). Cambodian agriculture will need to be developed in accordance with the principle of "green development", reducing environmental and socio-economic impacts, and maintaining a balance between "conservation" and "development".
National Environment Strategy and Action Plan 2016-2023 (NESAP)	The NESAP is a roadmap for sustainable development in the Kingdom of Cambodia. It identifies priority policy tools and financing options for sustainable natural resource management and environmental protection. At the same time, the government has taken necessary measures to address and prevent natural resources degradation and ecological balance, which could affect the national ability to achieve sustainable development and the people's livelihoods, especially vulnerable groups such as women, children, elderly, indigenous minorities and disable people.
The National REDD+ Strategy 2017 – 2026	The National REDD+ Strategy 2017-2026 was also developed with a vision to contribute to national and global climate change mitigation through improving resources and forest land management and sustainable biodiversity conservation. The main mitigation instrument was developed. It provides a roadmap for the implementation of policies and measures addressing drivers of deforestation and forest degradation. It is an expression of the country's continued commitment to sustainable forest resource management in an era of climate change.
The Agriculture Development Policy (ADP) 2022-2030	The ADP's ambition is 'to modernize the agriculture sector so it can become competitive, inclusive and resilient to climate change in a context of environmental sustainability', with the overall development goal being 'to increase agricultural growth with high competitiveness and inclusivity by providing high quality products which result in food safety and nutrition, while taking into account sustainable management of land, water, forestry and fishery resources.'
Climate Change Priority Action Plan 2030 (CCPAP-2030) for Agriculture (draft)	The plan is considered a pathway to climate resilience in agriculture toward 2030. It aims to address key challenges and promote sustainable practices in agriculture to mitigate the impacts of climate change. The plan supports i) farmers in adopting sustainable techniques, such as agroforestry and precision agriculture, to mitigate the effects of climate change on crop yields and livestock production and ii) seeks to facilitate collaboration between farmers, researchers,

	development partners, private sectors and policymakers to ensure effective implementation and monitoring of climate interventions in the agricultural sector.
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Figure 13. The Cambodian REDD+ Strategy; Source: (MoE, 2022a)



3.4 Sectoral Summary of NDC Implementation (Emissions/Removals)

Cambodia has established a comprehensive framework to address climate change and promote sustainable development through various policy structures and strategic plans. The country's Nationally Determined Contribution (NDC) emphasizes the Cambodia Climate Change Strategic Plan (CCCSP) 2014-2023 and its related Sectoral Action Plans. Key policies supporting these efforts include the Cambodia Sustainable Development Goals (SDGs) 2016-2030, which adapt global SDGs to Cambodia's context by adding 'Goal 18 of Demining'. Governance systems are set to evolve with milestones for 2020, 2025, and 2030, enhancing mitigation, adaptation, finance, and transparency mechanisms. The National Strategic Plan on Green Growth (NSPGG) 2013-2030 aims to transition Cambodia towards a green economy, while the Rectangular Strategy IV and the National Strategic Development Plan (NSDP) 2019-2023 focus on fostering socioeconomic development with integrated climate change indicators.

The Circular Economy Strategy and Action Plan also outlines a roadmap for sustainable economic practices.

Other sectoral strategies, such as the National Protected Area Strategic Management Plan 2017-2031, the National REDD+ Strategy, and the National Environmental Strategy and Action Plan 2016-2023, further demonstrate Cambodia's commitment to environmental sustainability and climate resilience. Collectively, these initiatives reflect an overarching approach to mainstream climate action across all levels of governance and sectors of the economy (Cambodia, Cambodia's Updated Nationally Determined Contribution, 2020). The implemented actions were collected from the NDC Explorer -2022 report developed by National Council for Sustainable Development, General Secretarial, Department of Climate Change and Ministry of Environment.

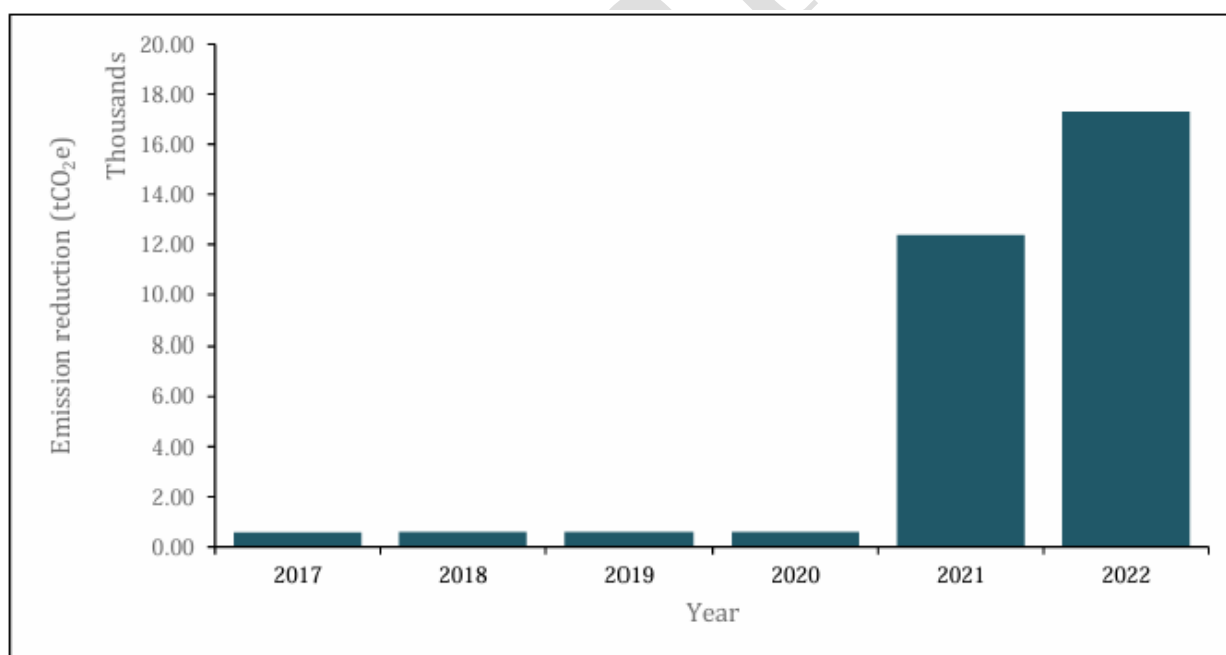
A list of implemented actions and their emission reduction from 2017 to 2023 are listed in Figure 14.

Figure 14. Implemented and their emission reductions - 2017-2023

Implemented climate actions	Emission Reduction tCO ₂ e						
	2017	2018	2019	2020	2021	2022	2023
With measures							
[1].Energy-efficient practices	1,196	1,289	1,381	1,490	1,582	1,681	1,785
[2].Promote integrated public transport systems in main cities	185	189	192	195	198	199	204
[3].Establishment of a Cropping System for Growing Mung bean on Rainfed Lowland Paddy Fields after Wet Season	577	584	590	597	604	611	618
[4].Enhancing Soil, Water, and Nutrient Management for Sustainable Rice Production and Optimized Yield	NA	NA	NA	NA	11,773	16,674	14,224
[5].Organic-based farming for rice crops in Battambang of Preah Vihear province	NA	NA	NA	1	1	1	1
[6].10% COMPED in Battambang province is working on organic waste to make compost by 2030	151	232	304	390	489	600	721
[7].New sanitary landfills with LFG extraction and LFG extraction at the Dangkor Landfill	NA	NA	NA	4,962	8,490	10,758	15,042

[8]. Building codes and enforcement/certification for new buildings and those undergoing major renovation	26,475	65,043	115,190	161,743	211,849	265,794	323,563
[9]. Roadmap study on Integration of renewable energy resources (solar, wind, hydro, biomass) into energy mix	384,435	747,315	1,087,736	1,440,479	1,798,909	2,132,449	2,501,541
[10]. Implementation of National 3R strategy	NA	NA	NA	NA	NA	9,527	13,421
[11]. Emission management from factories	NA	NA	29,455	30,348	31,241	32,133	32,669
Total "With Measures" (tCO ₂ e)	413,019	814,651	1,234,849	1,640,204	2,065,135	2,470,426	2,903,788
With Additional measures							
[1]. Increase energy access to rural area	3,422	3,765	4,141	4,555	5,010	5,512	6,063
[2]. Improvement of process performance of EE by the establishment of energy management in buildings/industries	3,786	4,163	4,580	5,037	5,539	6,093	6,702
[3]. E-mobility	NA	NA	NA	13	196	2,101	2,381
Total "with Additional measures" (tCO ₂ e)	7,208	7,928	8,720	9,605	10,745	13,707	15,145

Figure 15. Greenhouse Gas Emission Reduction of AFOLU Sector from 2017-2023



3.5 Paris Agreement Article 6 and Use of ITMOs

3.5.1 Background and Developments

Each Party that participates in cooperative approaches that involve the use of ITMOs towards an NDC under Article 4, or authorizes the use of mitigation outcomes for international mitigation purposes other than achievement of its NDC	
Provide information on any methodologies associated with any cooperative approaches that involve the use of ITMOs towards an NDC under Article 4 (para. 75(f) of the MPGs)	Not Available.
Provide information on how each cooperative approach promotes sustainable development, consistent with decisions adopted by the CMA on Article 6 (para. 77(d)(iv) of the MPGs)	These approaches prioritize activities that contribute to sustainable development goals, such as enhancing energy efficiency, promoting renewable energy sources, and fostering resilient agricultural practices.
Provide information on how each cooperative approach ensures environmental integrity consistent with decisions adopted by the CMA on Article 6 (para. 77(d)(iv) of the MPGs)	These include rigorous methodologies for quantifying emissions reductions or removals exchanged through Internationally Transferred Mitigation Outcomes (ITMOs), ensuring that these outcomes represent real, measurable, additional, and permanent climate benefits. Cambodia implements transparent and accountable verification procedures to verify the authenticity and credibility of ITMO transactions, following established guidelines and standards. This approach safeguards against double counting and ensures that ITMOs contribute effectively to global climate mitigation efforts without compromising environmental integrity. By upholding these principles, Cambodia contributes to building trust and confidence in international cooperative mechanisms under Article 6 while supporting sustainable development objectives.
Provide information on how each cooperative approach ensures transparency, including in governance, consistent with decisions adopted by the CMA on Article 6 (para. 77(d)(iv) of the MPGs)	Each cooperative approach involving Cambodia ensures transparency, including in governance, by establishing clear rules and procedures for ITMO transactions, publicly disclosing relevant information, and engaging stakeholders in decision-making processes. This transparency enhances accountability and facilitates trust among participants, aligning with decisions adopted by the Conference of the Parties serving as the meeting of the Parties to the Paris Agreement (CMA) on Article 6.
Provide information on how each cooperative approach applies robust accounting to ensure, inter alia, the avoidance of double counting, consistent with decisions adopted by the CMA on Article 6 (para. 77(d)(iv) of the MPGs)	This includes verifying the authenticity of ITMOs through rigorous verification procedures and ensuring that each unit represents unique and additional climate benefits, in accordance with decisions adopted by the Conference of the Parties serving as the meeting of the Parties to the Paris Agreement (CMA) on Article 6.
Any other information consistent with decisions adopted by the CMA on reporting under Article 6 (para. 77(d)(iii) of the MPGs)	Not Available.

3.5.2 Illustrative Cases

Not specified.

Draft

Chapter 4. Means of Implementation: Finance, Technology, Capacity

4.1 Needs for Implementation

4.1.1 Financial Support Needs

Despite ongoing efforts, financial needs remain high, and most actions require financial support. Future resource mobilisation will look towards a reasonable mix of national and international funds, in addition to market mechanisms, where appropriate, and in line with progress on Article 6 of the Paris Agreement. The NDC Roadmap indicated that Cambodia will also require the development of a climate investment plan to aggregate finance needs, gaps, sources, options, and the creation of a project pipeline.

<Mitigation>

The finance needs per sector as submitted by each ministry in their mitigation shows that the total funding required for mitigation actions is over US \$5.8 billion. The FOLU, waste, and energy sector mitigation actions require the most funds. These are mostly conditional upon international support.

Figure 17. Summary of mitigation finance need (Mitigation)

Sector	Estimated finance necessary (million US \$)
Agriculture	49.4
Energy	672.1
Forestry	3,466.4
Industry	78.7
Waste	1490.3
Transport	10.6
General⁹¹	3.1
TOTAL	5,770.6

<Adaptation>

Based on the finance needs per sector submitted by relevant line ministries in their adaptation, the total funding required for adaptation actions is just over US \$ 2 billion. Infrastructure, water, and agriculture require the highest funding, representing almost 85% of total adaption finance needed.

Figure 18. Summary of mitigation finance need (Adaptation)

Sector	Estimated finance need (US \$)
Agriculture	306,268,600
Coastal zones	72,000,000
Enabling actions	21,050,000
Energy	322,000
Human health	467,685
Industry	Not reported
Infrastructure	957,990,000
Livelihoods, poverty and biodiversity	211,125,000
Tourism	2,500,000 (as minimum)
Water resources	468,798,900
TOTAL	2,040,522,185

Most of the financing mechanism is conditional upon international support. In fact, almost half of the actions specifically included an indication of conditionality, whilst only five specified that implementation may be possible, at least partially, through existing budget allocations. In any case, more analysis will need to be carried out as part of the NDC tracking process to ensure transparency.

4.1.2 Technology Development and Transfer Received

<Mitigation>

The findings from national GHG inventories under the national communications to the UNFCCC indicate that the energy sector; the agriculture sector; and the LULUCF are the main sources and sinks of GHG emissions. The RGC also recognized these sectors as priority development sectors in the national development plans and policies.

Between 1994 and 2000, removals from the LULUCF only increased by 7% (GSSD, 2015). The existing forest sinks cannot absorb the increasing emissions due to the pace of current and forecasted economic growth. To improve the mitigation responses in the LULUCF sector, the following needs shall be further addressed:

- Forest protection through REDD+

- The effectiveness of forest management and protection largely depends on addressing the drivers of deforestation; and
- High transaction costs.

- Sink enhancement and management: afforestation and reforestation

- Low development benefits; and
- Land use competition with other land uses.

- Agro-forestry

- Not well integrated in the Cambodia context; and
- Inadequate household capacity (time, money, and interest).

Cambodia's INDC estimated that the LULUCF sector expects to contribute to the emissions reductions of 4.7tCO₂eq./ha/year by increasing the forest cover to 60% of the total national land area by 2030 maintaining it after 2030 (GSSD, 2015). The country needs to mobilize resources and encourage the implementation of the following measures:

1) Reclassification of forest areas to avoid deforestation with below details:

- Protected areas: 2.8 million hectares.
 - Protected forest: 3 million hectares.
 - Community forest: 2 million hectares.
 - Forest concessions reclassified to protected and production forest: 0.3 million hectares;
- and;
- Production forest: 2.5 million hectares.

2) Implementation of the Forest Law Enforcement, Governance and Trade (FLEGT) programme aims to improve forest governance and promote international trade in verified legal timber

<Adaptation>

Technologies in use in the land use planning sector include land survey high technology, aerial photography for mapping, soil tests for spatial planning, downscaled climate projections and network-level vulnerability assessments.

4.1.3 Capacity-building Needs

The NDC review identified the need for capacity building for the NDC implementation,

especially for the NCSD/DCC, CCTWG, sectoral and sub-national TWGs. In addition, each ministry submitted its own capacity building requirements. The table below summarises the barriers and capacity need for the NDC implementation as submitted by each ministry and identified in the NDC review, the tackling of which will require strong international support.

Figure 19. Barriers and capacity needs

Ministry	Barriers	Capacity needs
MISTI	• Technical capacity • Finance • Regulatory framework • Inter-ministerial cooperation • Participation from private sector (factory owners and workers) • Labour skill • Data from factories • Equipment	• Financial support • Human resource training • Support from top management
MLMUPC	• Finance (budget for activity implementation) • Climate change information toolkit and capacity • Data systems to monitor and evaluate the impacts of climate change interventions	• Capacity on climate change (otherwise MLMUPC has full technical capacity) • Support to strengthen the CCTWG of MLMUPC Capacity support for technical staff of the four General Department within MLMUPC as well as horizontal (line agencies) and vertical actors (sub-national government) in carrying out the activities.
MME	• Lack of regulatory framework • Limited capacity for data collection and monitoring • Lack of data management system	• Human and institutional capacity building • Financial support • Capacity on mainstreaming climate change into energy infrastructure planning and development

	• Lack of integrated decision support system	• Integrated decision support system for integration of climate data (from various ministries) to support resilient energy infrastructure
MOE	• Climate model expertise • Concept note and proposal development • Data management and reporting	• As coordinator for the NDC implementation, the MOE would be expected to build its own capacity and the one of the line ministries in several areas, including: • Coordination and integration • Capacity building and knowledge management • Stakeholder engagement • Mitigation and adaptation including: • Environmental, social, economic impact assessment • ESS and gender implementation • Sectoral knowledge and best practices • GHG measurement and accounting • Vulnerability assessment • Policy development and appraisal • MRV/Transparency including: • GHG measurement and accounting • Negotiations skills • Public financial management • Database development
MOEYS	• Finance • Concept note development • Technical capacity	• Concept and case studies on climate change, DRR, climate emergency, response planning • Data collection and monitoring systems • Integration of climate change into school curriculum and teacher training curriculum, • M&E framework and systems for Education Management Information System (EMIS) and climate change.
MOH	• Finance for climate change infrastructure and innovation • Human resources	• Technical and financial support from external sources both for policy development, infrastructure and

	• Gender involvement • Technical support	behaviour change communication and awareness raising
MOINF	• Finance • Technical • Human resources on climate change and environment	• Cooperation from stakeholders and expert ministries is crucial
MOP	• Finance • Capacity • Technical Assistance	• MoP has the capacity to guide sectoral ministries to implement their activities • Capacity building is necessary for all staff (by sector) on climate change • MoP and NCSD need capacity to assist in mainstreaming climate change in development plan. • Being the key ministry to coordinate finance to the sectors, MoP might also require support in the following areas: • Financial and technology needs assessments • Financial modelling and cost benefit analysis • Business case and project concept note writing • Financial and investment terminology • Understanding of the constraints and requirements of investors • Accreditation and access to climate finance • Environmental, Social Safeguards (ESS) and gender
MOT	• Finance • Technical • Human resources on climate change and environment	• Cooperation from stakeholders and expert ministries is crucial
MOWRAM	• Finance • Capacity of staff	• Technical support and cooperation from the private sector are required

	- Needs assessment - particularly on technology - Data/information centres	
MPWT	- Finance - Human resource (capacity building) - Research and development	Capacity on climate change to be built for implementation and access to finance
MRD	- Finance - Human resources	- Outsourcing some services to firms on project design and quality assurance - For the implementation of the Government budget, MRD have enough capacity to deliver
NCDD	- Capacity of implementers and NCDD - Finance - Policy (at the national level)	- Existing capacity is not yet sufficient for implementation. Climate change is still new - Human Resources are dedicated mostly for decentralisation and de-concentration, as reflected in the upcoming NCDD Strategy for 2021-2030
NCDM	- Resource person - Finance from development partners (governmental budget is limited) - Policy/standards (for example private engagement in DRM)	NCDM would be able to deliver with technical and finance support
MOWA	- Capacity building to better understand the concept of gender and gender analysis, - M&E - Finance	- Resource person needs - Technical support - Gender safeguards mitigation measures implementation

	Coordination (institutional arrangements)	
MAFF	- Human resources - Finance - AFOLU GHG data - Technology	- Capacity building on Enhance Transparency Framework (ETF) and Management Information System(s) (MIS) - Technical support to establish and operate a tracking system for the NDC, CSDG and other relevant climate change strategies - Technical support for improving activity data and emission factor

Cambodia has been engaged with human resource development since 2000 through trainings, workshops, public awareness and other capacity building activities related to climate change (GSSD, 2015). Many officers have been assigned to participate in many climate change related short-term trainings both in the country and abroad. Long term scholarships for climate change related majors have also been awarded ranging from master's to Doctor of Philosophy. However, Cambodia remains limited experts and researchers in GHG inventory and mitigation, climate vulnerability assessment and adaptation measures, climate change and energy, climate agronomists, climate economists, etc. Furthermore, it has been observed that systematic coordination among related agencies remains limited to address climate change.

The government has gradually shifted from the support from international technical assistance to more nationally owned responsibilities. The officials from Cambodia have participated and dialogue at the international climate forums, discussion, and negotiations (e.g. Conference of the Parties). The ratification of the Paris Climate Agreement, Cambodia is expected to receive greater financial support, technology transfer, and capacity building to deal with climate change impacts and disasters. Although many capacity-building programmes are provided the country still seeks more technical and human resources support to increase and enhance her capacity to respond to climate change. The programmes should be extended to research institutes and academia on specific topics such as climate change impact assessments, economic impact of climate change, assessment of co-benefit of GHG mitigation, climate change public expenditure, GHG inventory and mitigation, and REDD+, etc.

4.2 Support Received

4.2.1 Financial Support Received

As pointed out in the earlier sections, Cambodia has received much support for the preparation of the INC, SNC, and TNC, the NAPA, the CCCSP (2014-2023), Sectoral Climate Change Action Plan (SCCAP), BUR, INDC, Updated NDC, and LTS4CN, etc. Many human resources development programmes and institutional capacity arrangement and enhancement have been awarded. Cambodia has upgraded from climate change project-based support to a permanent institution-- the Cambodia Climate Change Office (CCCCO) was created on 23rd June 2003 and the DCC in October 2009- a strong indication of the Government's commitment to strengthening climate change institutions.

The Government established the NCCC in 2006 to be responsible, inter alia, for (1) coordinating the implementation of climate change activities in Cambodia; (2) developing climate change policies, strategies, legal instruments, plans and programs; and (3) integrating climate change concerns into relevant policies, strategies and legal instruments. The NCCC was integrated into the NCSD in 2015 with a similar function, especially to coordinate the implementation of climate change activities. The CCTWG was created to support the NCSD. It acts as technical focal points in the respective government institutions to facilitate the review, formulation, and implementation of policies, strategies, action plans, and programmes to enhance climate change response.

Cambodia has also received some financial support to address climate change impacts, disaster risks, GHG mitigation, etc. The detailed information on financial aid is shown in Figure 20.

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Figure 20. List of Project and Financial Supports Received

No	Project Name	Financing (\$)	Donors	Project Period
1	Cambodia Climate Change Alliance Phase 1	10,848,784	UNDP, EU, Sida, Danida	2010-2014
2	Cambodia Climate Change Alliance Phase 2	12,397,600	UNDP, EU, Sida	2014-2019
3	Southeast Asia Knowledge Network of Climate Change Offices	100,000	UNEP	2013-2014
4	Vulnerability Assessment and Adaptation Program to Climate Change within the Coastal Zone of Cambodia Considering Ecosystem and Livelihood Improvement	1,635,000	UNEP/GEF	2011-2016
5	Strategic Program for Climate Resilience	86,000,000	Climate Investment Funds	2013-2019
6	Cambodia Climate Change Alliance Phase 2	12,397,600	UNDP, EU, Sida	2014-2019
7	Preparation of the Intended Nationally Determined Contribution (INDC) in 2015 under the UNFCCC	136,000	UNEP	2015-2017
8	Cambodia's Initial Biennial Update Report	352,000	UNEP	2015-2019
9	Reducing the Vulnerability of Cambodian Rural Livelihoods through Enhanced Sub-national Climate Change Planning and Execution of Priority Actions	4,567,500	UNDP/GEF	2016-2019
10	Enabling Activities for the Preparation of Third National Communications under the UNFCCC	480,000	UNEP	2016-2019
11	Enhancing Climate Resilience of Rural Communities Living in Protected Areas of Cambodia	4,900,000	Adaptation fund	2013-2018
12	Building Climate Resilience of Urban Systems through Eco-system Based Adaptation (EBA) in Asia-Pacific Region	1,000,000	UNEP/GEF	In pipeline
13	Readiness and Preparatory Support Proposal for Green Climate Fund	272,338	GCF	In pipeline
14	Strengthening Climate Information and Early Warning Systems in Cambodia to Support Climate Resilient Development and Adaptation to Climate Change	4,900,000	LDC-F	NA
	Strengthening the Adaptive Capacity and Resilience of Rural Communities Using			
15	Micro Watershed Approached to Climate Change and Variability to Attain Sustainable Food Security	5,200,000	LDC-F	NA
16	Building Adaptive Capacity through the Scaling up of Renewable Energy Technologies in Rural Cambodia	4,600,000	SCC-F	NA
Total		137,489,222		

Development partners remain the biggest source of funds for climate change responses (62%), and the reduction in external climate change financing is affecting Cambodia's capacity to adapt to and to mitigate climate change impacts. Cambodia's climate change financing framework was functioned since 2014, aiming to guide future financing for both adaptation and mitigation of climate change. It promotes a common approach to defining climate financing demand and assessing the level of resources available and the prospects for future

financing (GSSD, 2017).

The National Adaptation Plan (NAP) Financing Framework and Implementation Plan, an essential guiding tool for mobilizing resources, was also developed in 2017 to expedite the implementation of the NAP process. 15 sectoral climate change action plans were identified covering 171 actions, which requires a total budget of around USD865.5 million; only 7% out of the proposed budget was supported (GSSD, 2017).

4.2.2 Technology Development and Transfer Received, 4.2.3 Capacity-building Received

Not specified.

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