



18th Workshop on Greenhouse Gas Inventories in Asia (WGIA18)

Cambodia's first Biennial Update Report (fBUR)

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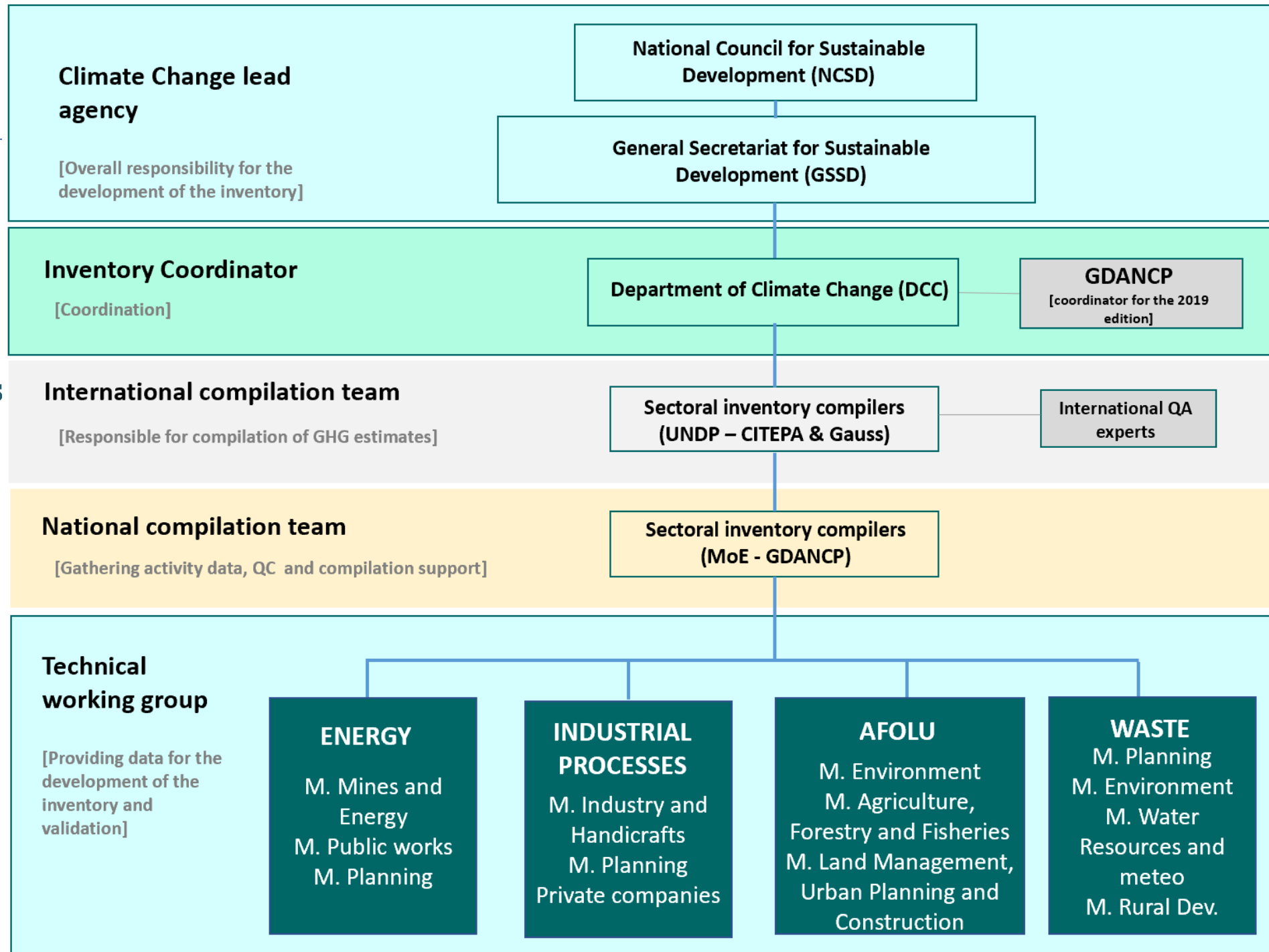


I. Introduction

- ❑ The Kingdom of Cambodia as a Non-Annex I Party ratified the United Nations Framework Convention on Climate Change (UNFCCC) in 1995 and acceded to the Kyoto Protocol in 2002. The Initial National Communication (INC) was officially submitted in 2002 and the Second One was submitted in 2016.



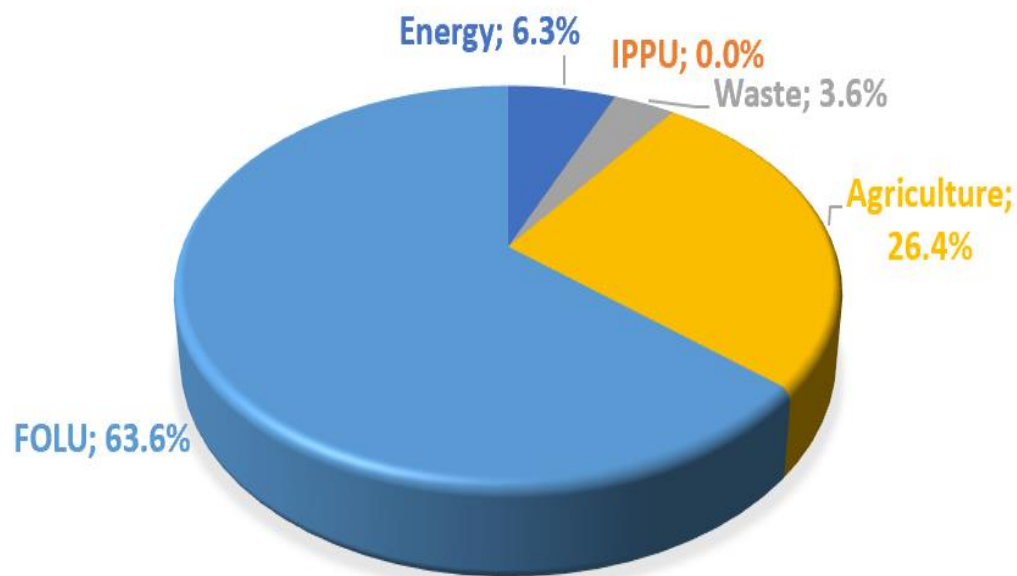
Institutional arrangements for the GHG inventory compilation



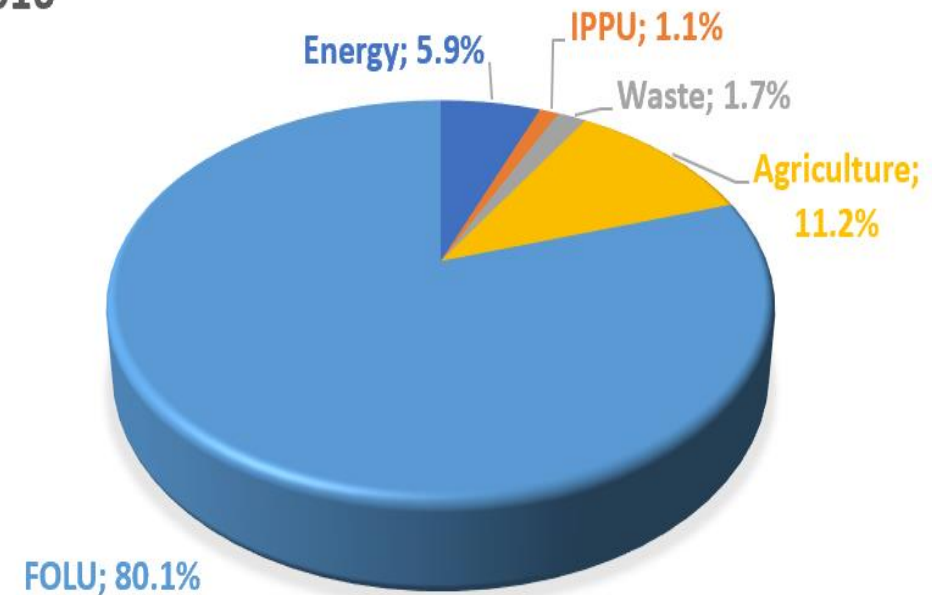
II. National Greenhouse Gas Inventory

- GHG emissions estimated for the total inventory including Forestry and Other Land Use (FOLU) are 163 592 Gg.CO2-eq for year 2016, which is 285% higher than the 1994 emissions. Deforestation is the main driver for this increase, reflected in the FOLU sector emissions. Excluding FOLU sector emissions, 2016 GHG emissions are 32 871 Gg. CO2-eq, which represents a 111% increase from 1994 emissions.

1994



2016



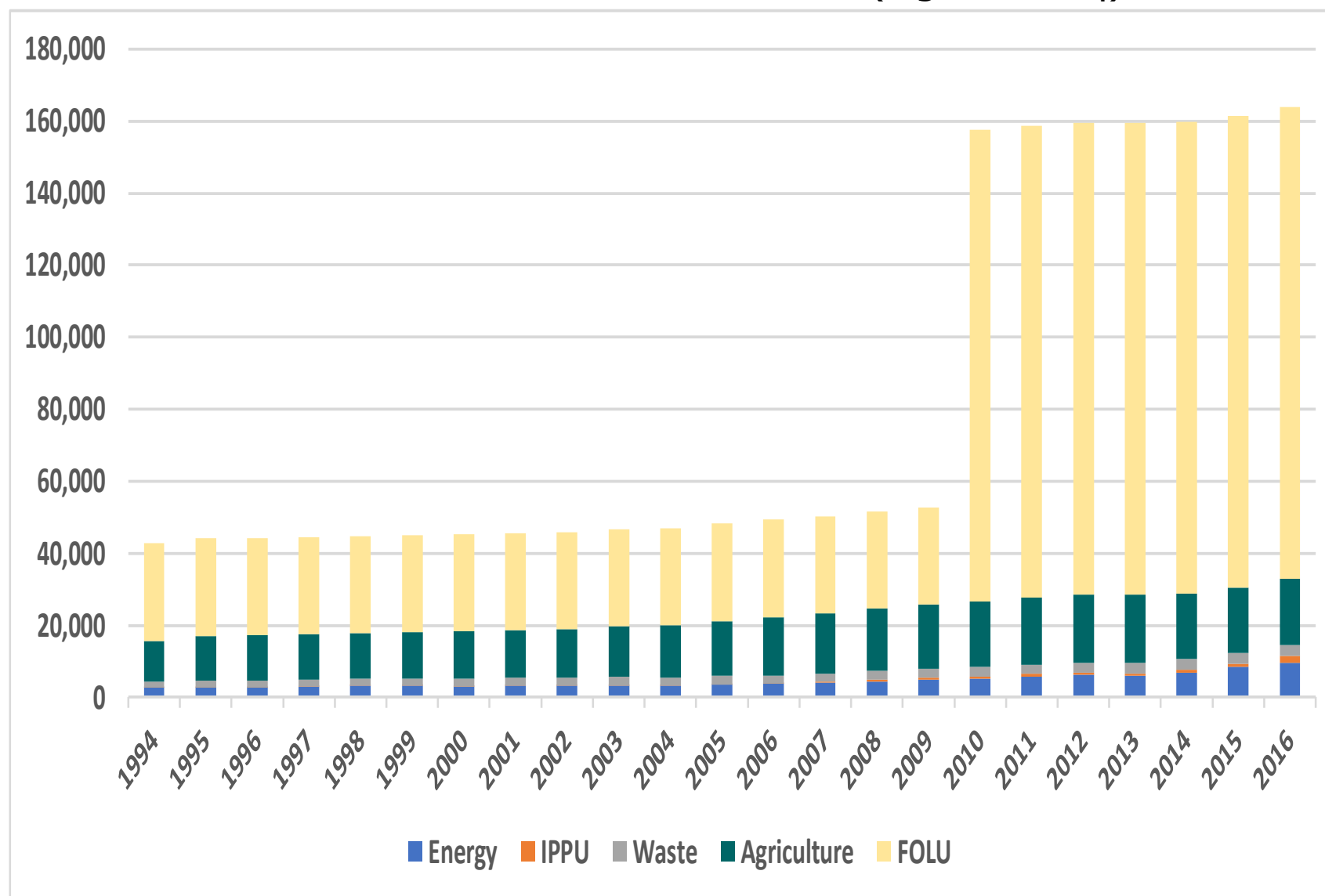
Distribution of GHG emissions by sector 1994/2016 (as of % of CO2-eq)



II. National Greenhouse Gas Inventory (Con't)

The main contributor to national GHG emissions during the entire period is the **Forest and Other Land Use (FOLU)** sector driven by the change in carbon stocks, primarily due to deforestation. The sharp increase in the emissions of the AFOLU from year 2010 is due to the major deforestation experienced during these years (the economic land concessions had increased significantly from 2009). Land use monitoring is based on three different maps related to 1994, 2009, and 2016 which gives two periods of land use changes. This loss of forest cover leads to high emissions.

GHG emissions from 1994-2016 (Gg. CO₂-eq)



II. National Greenhouse Gas Inventory (Con't)

- **Agriculture** represents the second largest emitter sector in the country. Cambodia's economy is heavily influenced by the contribution of agriculture to total GDP, which is also reflected in emission patterns. The main driver for the increase in GHG emissions is the development of rice cultivations, whose activity level and emissions increased by a rate of ~2.5 in the period 1994-2016.
- In the time span covered by the inventory, Cambodian GDP experienced significant expansion, along with its population. This is reflected in the increasing trend of emissions of the third and fourth largest emitter sectors in the country, the **Energy and Waste sectors**, respectively. Energy demand has experienced a significant increase, the transport sector is expanding, while the population migrates to cities; all these factors lead to increasing fuel consumption and higher GHG emissions in the energy sector. The increased population and changes in waste management and sanitation are the main drivers for waste sector emissions.
- Finally, the small size of the carbon intensive-industrial sector in the country makes the **IPPU** the fifth contributor to national total GHG emissions. Nevertheless, the IPPU sector emissions experienced a growing expansion in the last period of the series, due to the rising contribution of cement production and consumption of fluorinated gases.



III. Mitigation actions and their effects

- Cambodia's Nationally Determined Contribution (NDC) was submitted to the UNFCCC in 2015, outlining the actions planned to reduce greenhouse gas emissions (a maximum of 27% of GHG emissions by 2030 compared to the Business as Usual).

Cambodia Nationally Determined Contribution	Mitigation	Target	Unconditional	Reduce GHG emissions by 27% from BAU levels in 2030 in energy, manufacturing, and transportation sectors.
			Conditional	Additional LULUCF contribution of 4.7 tCO _{2e} /ha/year (equivalent to 10.6 MtCO _{2e} of additional sequestration compared to BAU). <i>Note: The conditional contribution from LULUCF was calculated using data from the 2000 GHG inventory, which has been updated with new GHG estimates found in Cambodia's FRL submission to the UNFCCC in 2017 and the 2019 GHG inventory covering the time series 2000-2016 for the FBUR and the TNC.</i>
	Basis of Target	Analytical Basis	Mitigation potential evaluated based on sectoral reductions and "previous needs analyses, experience from successful projects, pilot projects, feasibility studies, literature reviews, and expert opinion".	
			BAU projections developed using the LEAP model for energy sector and COMAP for LULUCF sector.	
		Existing Policies	Cambodia Climate Change Strategic Plan 2014-2023	
			Green Growth Policy and Roadmap	
			National Forest Programme (2010-2029)	
		Mitigation actions	16% reduction in energy emissions (1.8 MtCO _{2e}). National grid connected to renewables energy generation. Promoting energy efficiency by end users.	
			7% reduction in manufacturing emissions (0.727 MtCO _{2e}). Includes renewable energy and energy efficiency for factories and brick kilns.	
			1% reduction from other sources (0.155 MtCO _{2e}). Includes energy efficient buildings, cook stoves, and biodigesters.	
Increase forest cover to 60% of total land through the implementation of the National Forest Programme (2010-2029) and the Forest Law Enforcement, Governance and Trade programme.				
3% reduction in transportation emissions (0.39 MtCO _{2e}). Promoting mass public transport and improving motor vehicle inspections.				



III. Mitigation actions and their effects (Con't)

Sector	Priority actions	% reduction in 2030 compared to BAU
Energy Industries	Grid connected renewable energy generation (solar energy, hydropower, biomass and biogas) and connecting decentralised renewable generation to the grid.	16%
	Off-grid electricity such as solar home systems, hydro (pico, mini and micro).	
	Promoting energy efficiency by end users.	
Manufacturing Industries	Promoting use of renewable energy and adopting energy efficiency for garment factory, rice mills, and brick kilns.	7%
Transport	Promoting mass public transport.	3%
	Improving operation and maintenance of vehicles through motor vehicle inspection and eco-driving, and the increased use of hybrid cars, electric vehicles and bicycles.	
Others	Promoting energy efficiency for buildings and more efficient cook stoves.	1%
	Reducing emissions from waste through use of biodigesters and water filters.	
	Use of renewable energy for irrigation and solar lamps.	
Total Savings		27%
<p>In accordance with the National Forest Programme (2010-2029), Cambodia is striving to increase and maintain the forest cover at 60% of the total land area, from an estimate of 57% in 2010. This will be achieved in particular through:</p> <p>Reclassification of forest areas to avoid deforestation:</p> <ul style="list-style-type: none"> - 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. <p>Implementation of the FLEGT¹⁹ programme in Cambodia</p> <p>The objective is to improve forest governance and promote international trade in verified legal timber.</p>		<p>4.7 tCO₂eq/ha/year for up to 5 million hectares. In absence of any actions the net sequestration from the LULUCF is expected to reduce to sequestration of 7,897 Gg.CO₂-eq in 2030 compared to projected sequestration of 18,492 Gg.CO₂-eq in 2010.</p>

Mitigation potential by sector of the NDC



IV. Support, gaps, and Needs

1. Support received

- Cambodia has received support from different sources for climate change related activities, including the preparation of the INC, the SNC, and the BUR, the NAPA, the CCCSP (2014-2023), Sectoral Climate Change Action Plans (CCAP) or the INDC. Many human resources development programmes and institutional capacity arrangement and enhancements have been awarded.
- The main international donors for climate change activities in 2017 are ADB (35%), China (29%), Japan (7%), IFAD (4%), USA (4%), Republic of Korea (4%), and EU (3%), while other donors are below 2%.
- International support received in 2017 represents 86% for adaptation and cross-cutting activities and 14% for mitigation.



IV. Support, gaps, and Needs (Con't)

2. Constraints and gaps

- **Gaps on capacity building:**
- **Financial gaps:**
- **Gaps on technology transfer:**
- **Gaps for continuous development of the GHG Inventory:**
 - Limited activity data and national emission factors;
 - The scope of the data and its categorization is not aligned with IPCC methodologies, particularly for the AFOLU sector;
 - The absence of an inventory system in place to develop the compilation of the inventory;
 - Limited financial support for regular inventory preparation; and Limited national experts on GHG emission inventories and IPCC Guidelines and good practices.

• Gaps on Mitigation:



IV. Support, gaps, and Needs

3. Financial, technology, and capacity building needs

- **Financial needs:** The government should increase its effort to raise government revenues or mobilize additional support from international communities to ensure stable GDP growth of 7% through 2050 to achieve development targets: achieve high-middle income country status by 2030 and high income country status by 2050.
- **Technology needs:** Besides the Technology Action Plan (TAP) of 2013, the country has not developed national policies or strategies to meet technology needs addressing climate change. The country needs to promote and mobilize resources to implement the proposed seven project ideas raised in the TAP.
- **Capacity needs:** Cambodia still seeks additional technical and human resources support to increase and enhance its 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, GHG inventory and mitigation, REDD+, etc.



Thank You

<http://ncsd.moe.gov.kh/>
Department of Climate Change
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