The Meeting of the Climate Change Technical Working Group with the Development Partners "Validation of Nationally Determined Contribution (NDC) Update"

Cambodia's Nationally Determined Contribution (NDC) Update

28th September 2020

The Department of Climate Change

National Council for Sustainable Development
General Secretariat
Department of Climate Change

Ministry of Environment

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Agenda

Time	Subject	Facilitator/ Speaker
08:30 - 09:00	Registration	Admin
09:00 - 09:05	National anthem	All
09:05 - 09:10	Welcome remarks	H.E. Tin Ponlok, Secretary of State, the MoE and CCCA Program Director
9:10- 9:15	Group photo	All
9:15 - 9:30	Coffee break	All
09:30 - 09:50	NDC Update: overview of NDC document	Dr. Hak Mao, Director, DCC
09:50 - 10:20	Intervention from the development partners involved in the NDC update process	UNDP; World Bank; UNICEF; UN Women; FAO; WHO; Embassy of the UK, GGGI, NDC Partnership
10:20- 11:20	Instruction for Group discussion	Ms. Niina Kylliainen, Climate Change Policy Specialist, CCCA/UNDP
	Mitigation	Facilitator: Mr. Leang Sophal, Chief of Office, GHG Inventory and Mitigation, DCC
	Adaptation	Facilitator: Dr. Heng Chanthoeun, Deputy Director, DCC
	Enhanced transparency framework, cross-cutting issues and sustainable development:	Facilitator: Ms. Niina Kylliainen, Climate Change Policy Specialist, CCCA/UNDP
11:20 - 11:50	Group discussion wrap up	Group Facilitators
11:50 - 12:00	Closing and next steps	H.E. Chea Chanthou
12:00	Lunch	All

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NDC Update: Overview

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NDC update: first NDC/updated NDC

- 13 adaptation measures listed in the first NDC of Cambodia, while 78 actions listed in the updated NDC, focused on: agriculture, buildings, disaster risk management, energy, environment, human health, industry, infrastructure, land use planning, tourism and water.
- The updated NDC includes GHG reduction targets for the waste and agriculture sectors that were not included in the first NDC.
- The updated NDC has 22 mitigation actions, representing: energy, waste, transport, forestry, agriculture and industry sectors.
- **The proposed 2030 target without the FOLU sector is expected to reduce emissions by 37%, which is a 39% increase in ambition over the first NDC commitment.**
- For FOLU, there are some alternative scenarios, and a final decision will be made by government during/after this workshop.

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NDC Update: Structure of Report (1)

1. Introduction	2. Mitigation contribution	3. Adaptation contribution	4. Governance and implementation processes
• Overview • National circumstances • Outline of the document	• BAU emission scenarios • Mitigation targets • Mitigation measures	• Cambodia's vulnerability to climate change • Impacts and priorities for adaptation and resilience • Prioritised adaptation actions • Cross-cutting areas	• The NDC update process • NDC implementation roadmap • Overarching policy structures • Stakeholder roles and responsibilities

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NDC Update: Structure of Report (2)

5. Means of implementation	6. Transparency	7. Sustainable development	Appendices
• Finance • Barriers and capacity needs • Technology needs	• Overview • MRV for NDC tracking • Information to facilitate clarity, transparency, and understanding • Fairness and ambition	• Mitigation actions, • SD benefits (finance and mitigation)	• Detailed mitigation measures • Detailed adaptation actions • Bibliography

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NDC update: mitigation

BAU emissions

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Overall GHG emissions in BAU scenario (Including FOLU)

For BAU scenarios, each sector had one BAU scenario except FOLU, which had three BAU scenarios.

BAU Scenarios	Based on	Assumption
BAU Scenario 1	**FOLU BAU Scenario 1**	✓ Assumption 1: The deforestation was considered mainly due to agriculture. The annual crop cultivation is the main cause for the deforestation according to latest BUR and NC reports . ✓ Assumption 2: The afforestation/ reforestation has taken place mainly on degraded lands. (BUR, 2020)
BAU Scenario 2	**FOLU BAU Scenario 2**	✓ Assumption 1: Former forest lands (deforesting lands) have been converted to perennial/ tree crop. This assumption was made based on “Action & Investment Plan for the implementation of the National REDD+ Strategy of Cambodia” ✓ Assumption 2: The afforestation / reforestation has taken place mainly on degraded lands. (BUR, 2020)
BAU Scenario 3	**FOLU BAU Scenario 3**	✓ The BAU Scenario 3 was developed based on the REDD+ BAU scenario which was developed by the REDD+ Technical Secretariat in Cambodia

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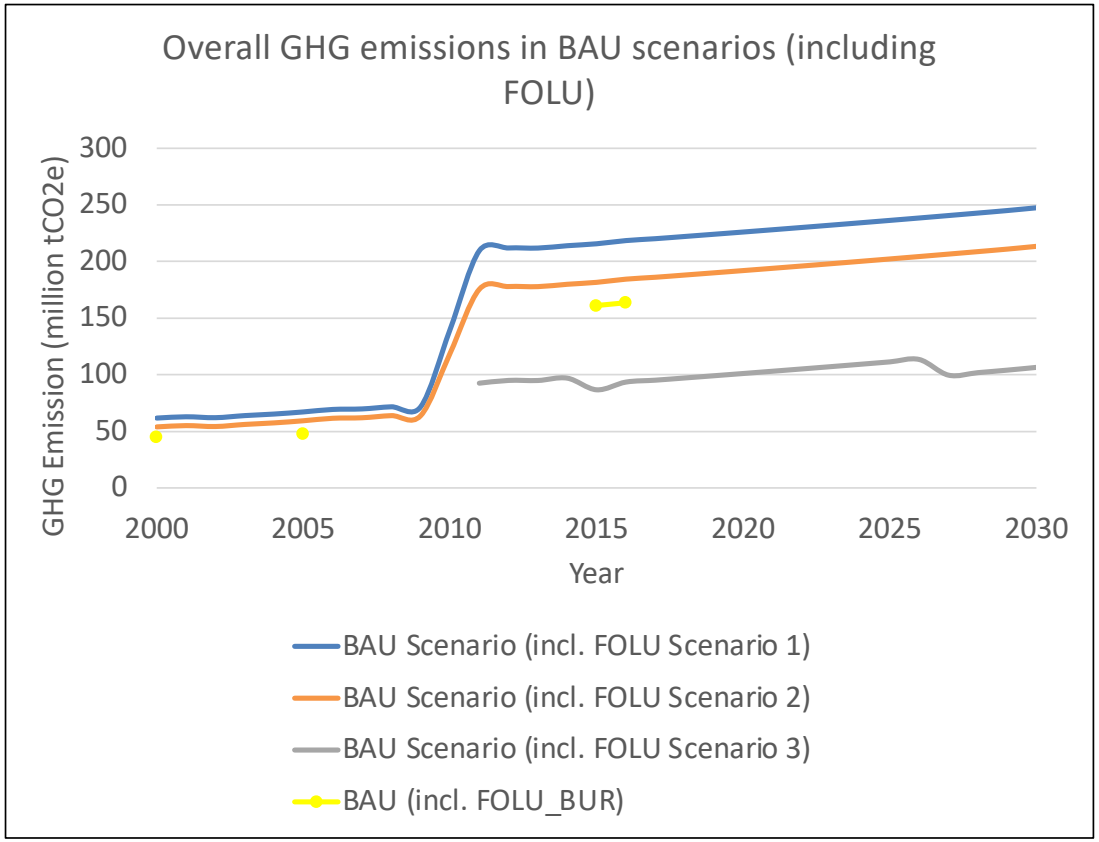
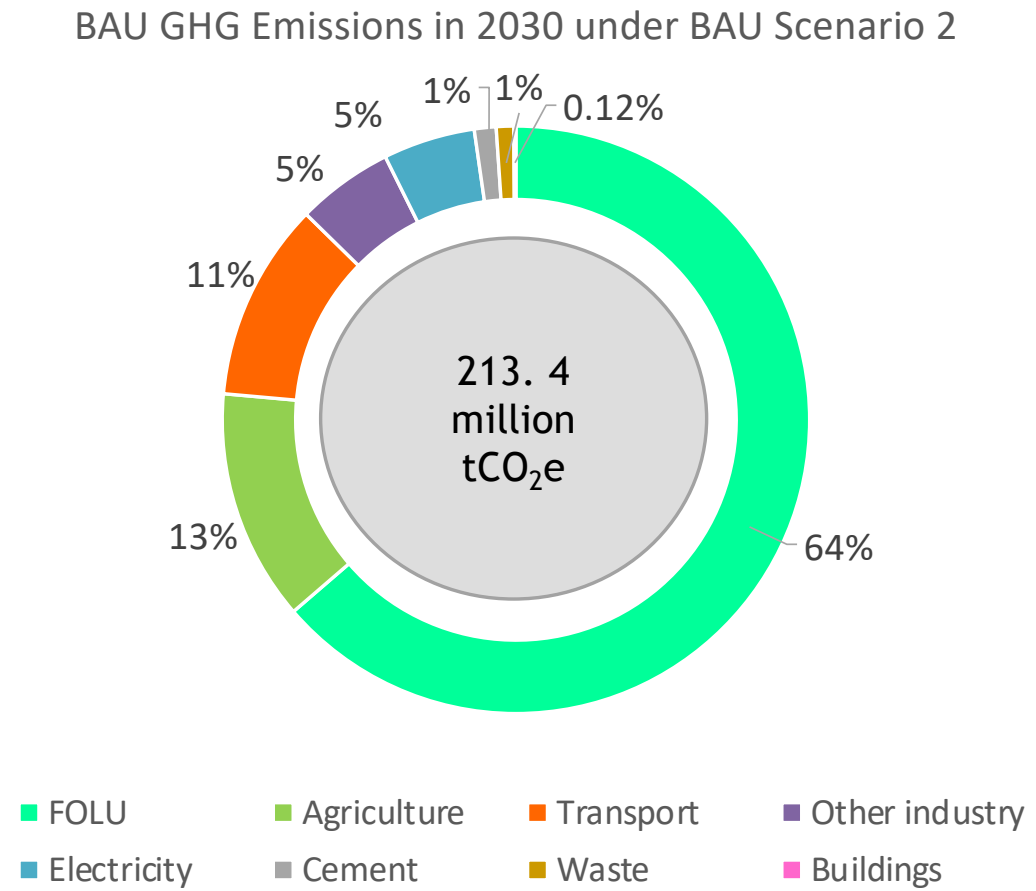
Overall GHG emissions in BAU scenario (Including FOLU)



	BAU S1	BAU S2	BAU S3	BUR
year	Emissions (million tCO_2e)	Emissions (million tCO_2e)	Emissions (million tCO_2e)	Emissions (million tCO_2e)
2000	61.7	53.9		45
2005	67.1	59.3		48
2010	139.7	118.8		
2015	215.7	181.6	86.7	161.1
2016	218.5	184.4	93.5	163.6
2020	226.1	192	101.1	
2030	247.5	213.4	106.5	

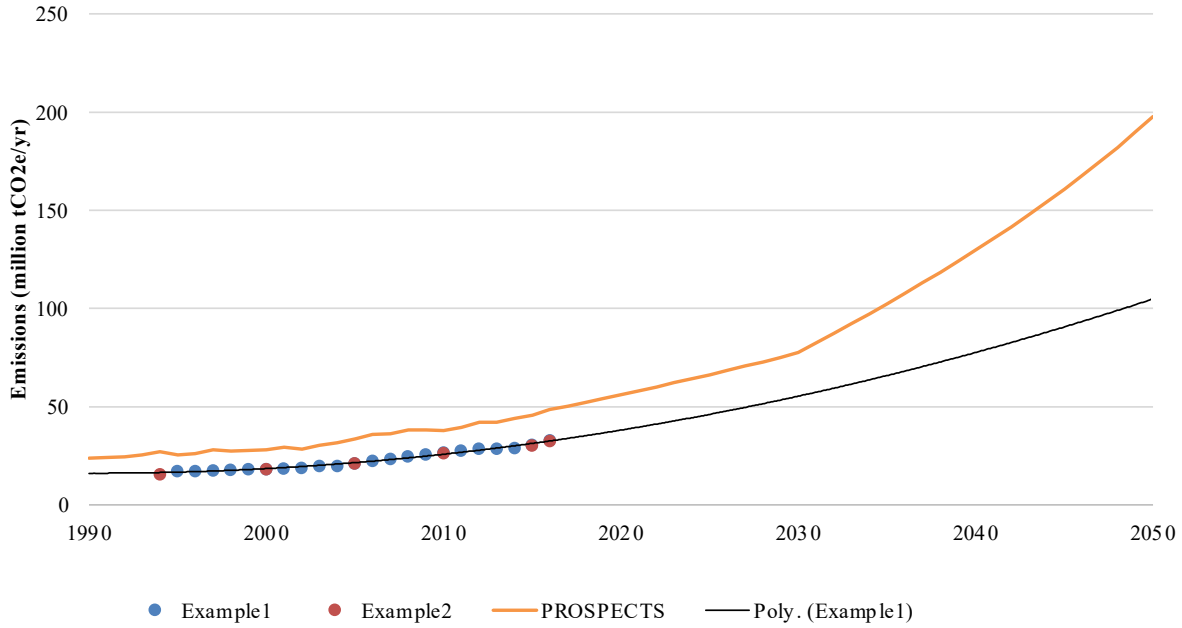
Most appropriate, as it was in-line with the emission values reported in the latest BUR report

Sources of BAU GHG Emissions - 2030



Sector	Share(%) - 2030
FOLU	64
Agriculture	13
Transport	11
Other industry	5
Electricity	5
Cement	1
Waste	1
Buildings	0.12

Overall GHG emissions in BAU scenario (Excluding FOLU)



year	Emissions(MtCO2e)
2000	28.11
2005	33.54
2010	37.91
2015	45.68
2016	48.50
2020	56.07
2030	77.48

Example 1 – National GHG Inventory
Example 2 - BUR

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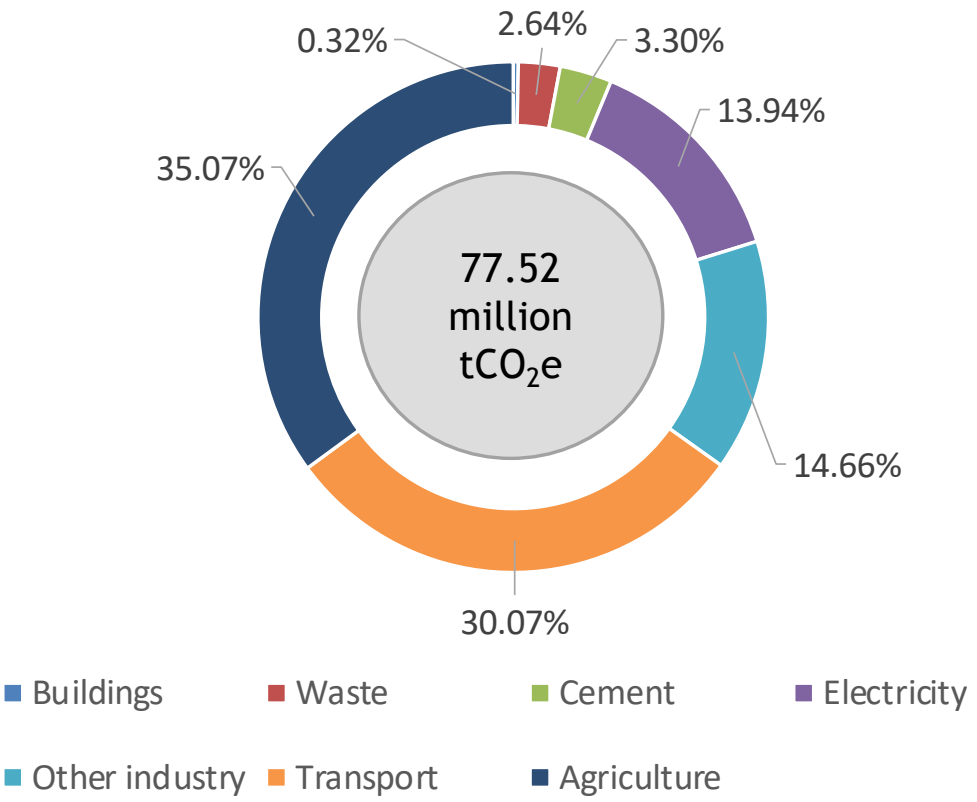
Sources of BAU GHG Emissions(Excluding FOLU) - 2030



Sector	Share(%) - 2030
Agriculture	35.07
Transport	30.07
Other industry	14.66
Electricity	13.94
Cement	3.30
Waste	2.64
Buildings	0.32

NDC update: mitigation

Draft NDC Scenario

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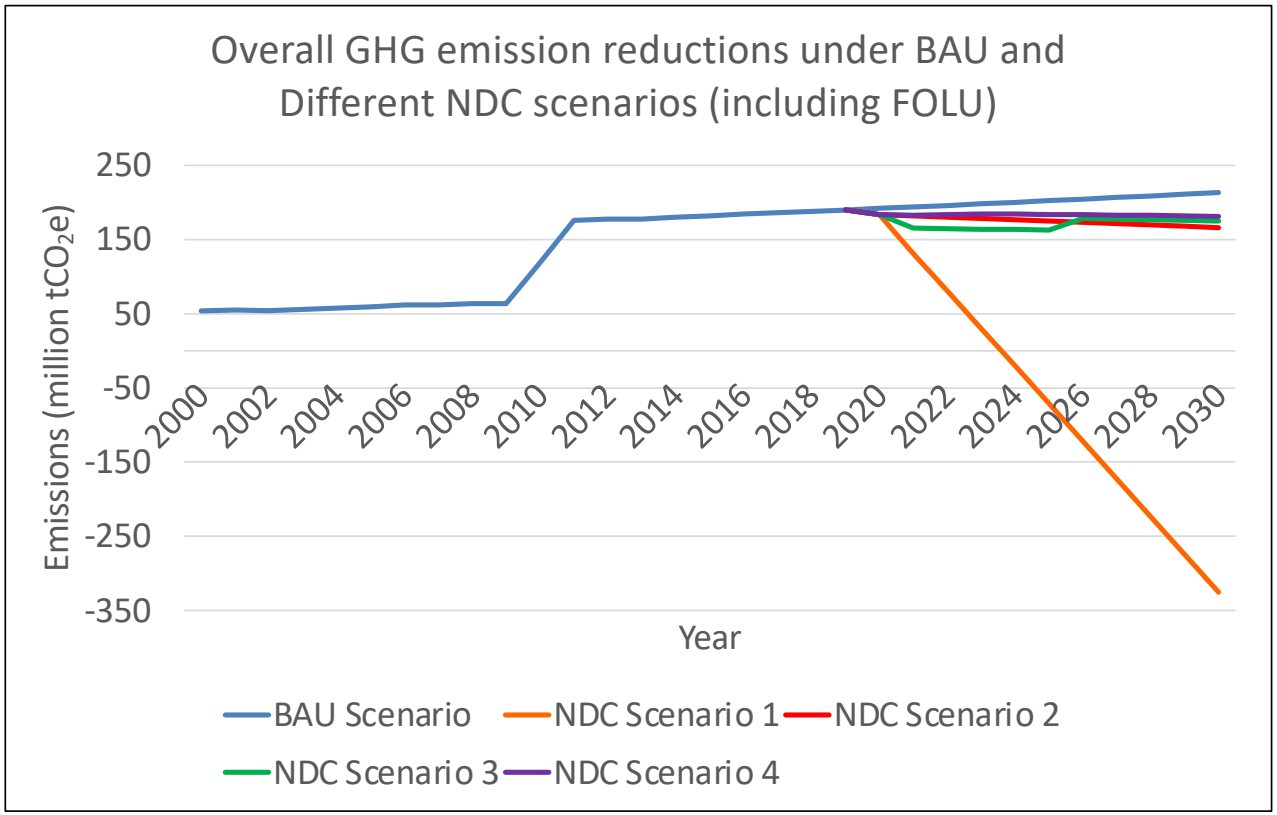
Overall GHG emissions in NDC scenario (Including FOLU mitigation projects)



I. FOLU NDC Scenario 1 - 60% forest cover target by 2030 – (MAFF)

II. FOLU NDC Scenario 2 - Rectangular Strategy IV (REDD+) – (21.54 million tCO2e/y (MoE))

III. FOLU NDC Scenario 3 - 0.05% Annual reduction of forest loss – REDD+ programme/UNDP, and

IV. FOLU NDC Scenario 4 - INDC emission reduction – INDC 2015 (4.7 tCO2e/ha/year))

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Results

Scenario	Emission reduction (million tCO2e/year)	Target
NDC Scenario 1	539	252.4 %
NDC Scenario 2	47	22.2 %
NDC Scenario 3	38	18%
NDC Scenario 4	32	15.1 %

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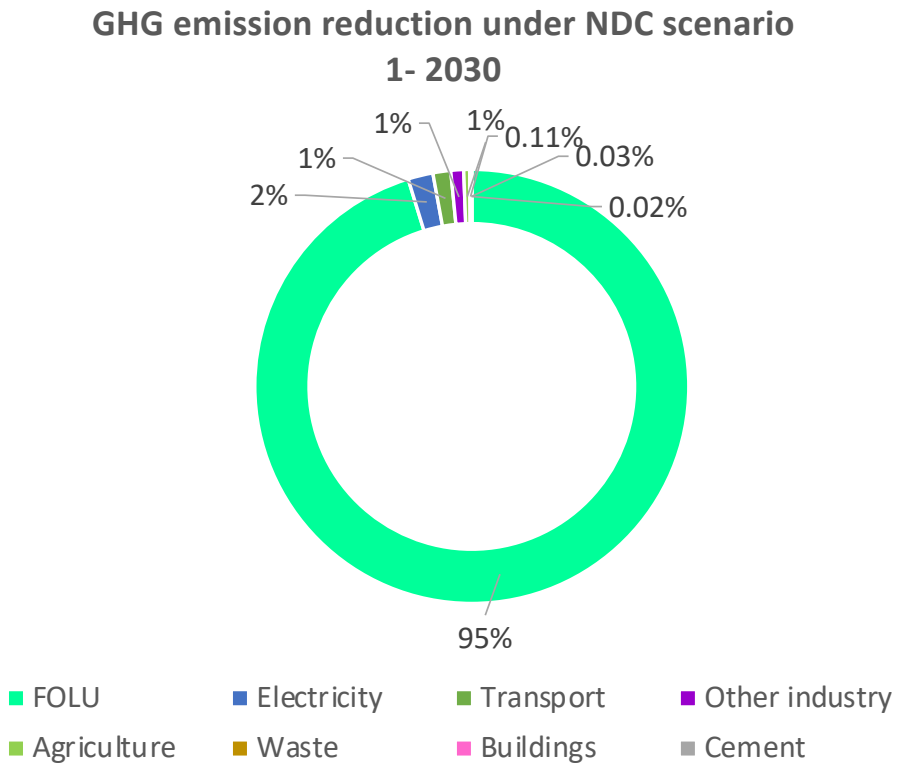
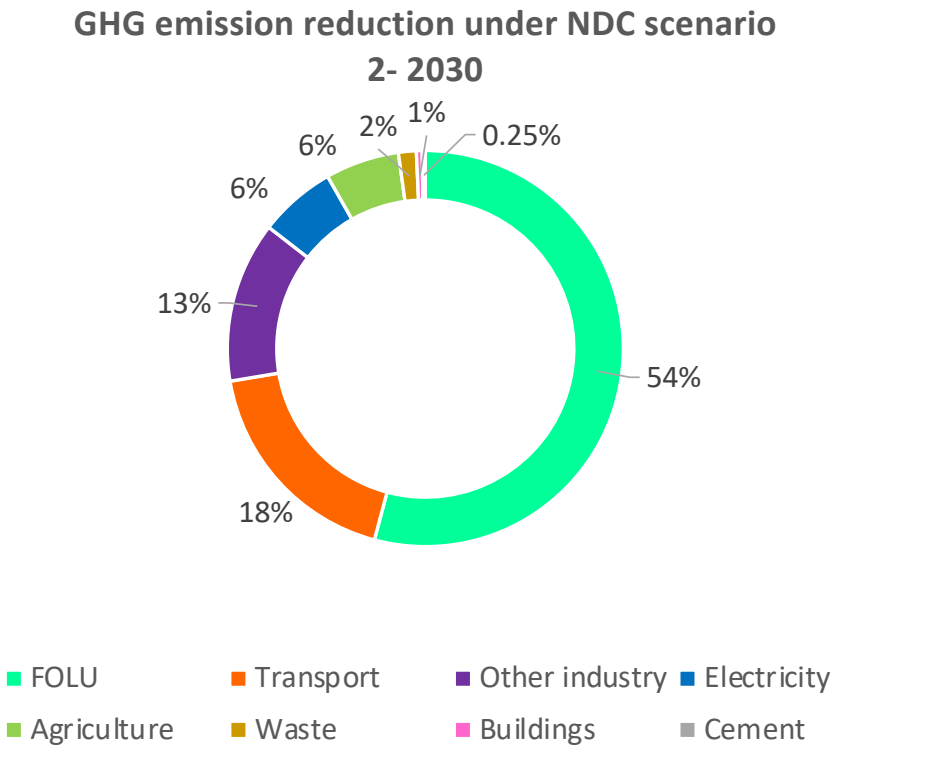
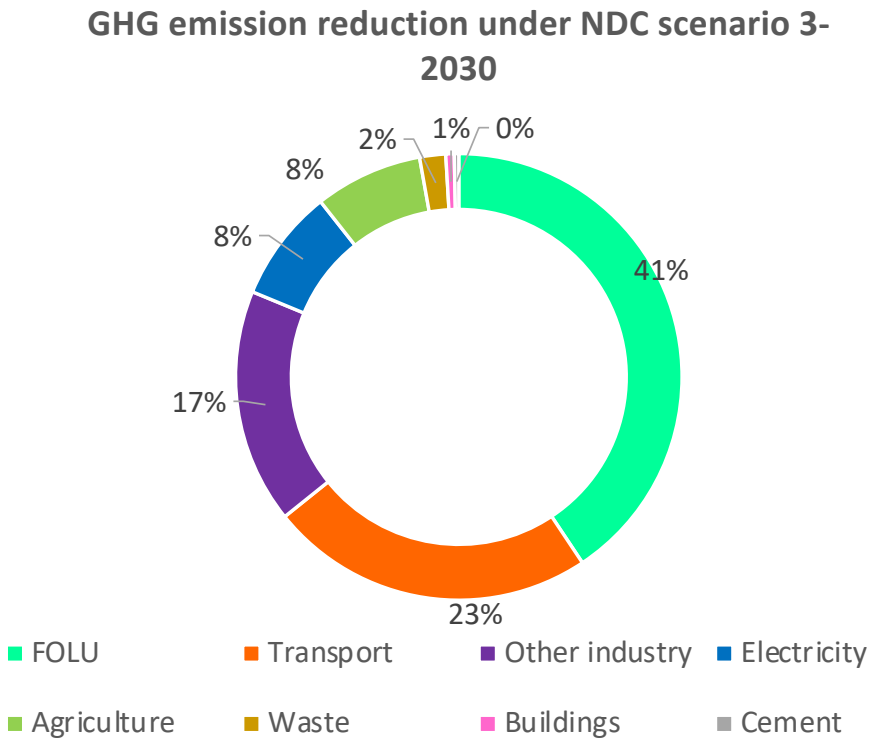
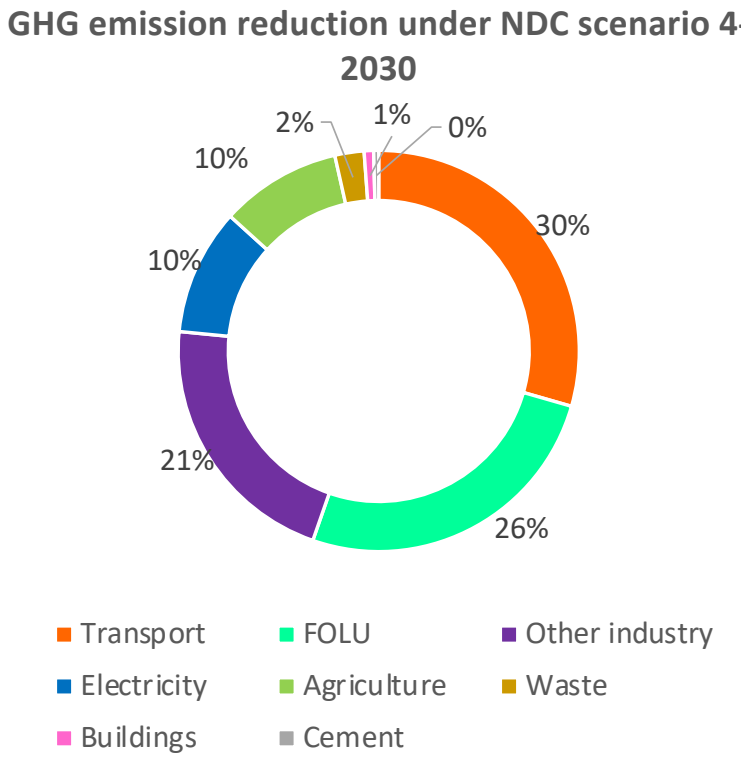
GHG emission reduction sources under different NDC scenario



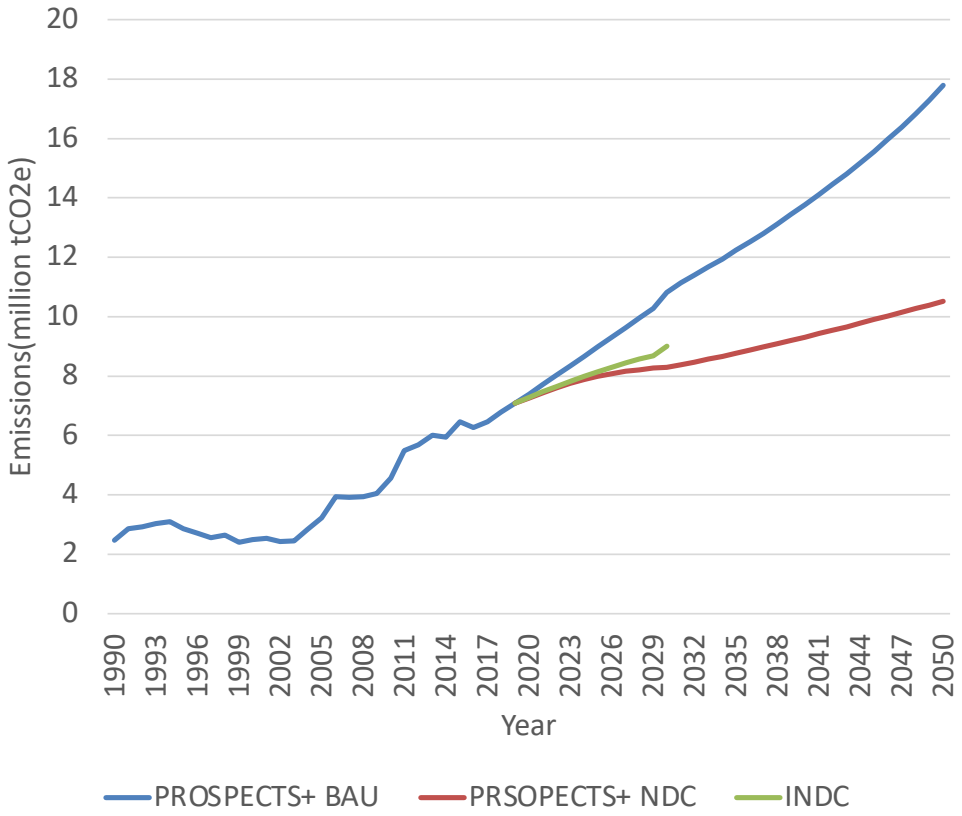


GHG emission reduction sources under different NDC scenario





Electricity sector GHG emissions in NDC scenario



year	2030
BAU – Emissions(million tCO2e)	10.81
NDC scenario - Emissions(million tCO2e)	8.30
Emissions reduction(million tCO2e)	2.50
Target	23.17%

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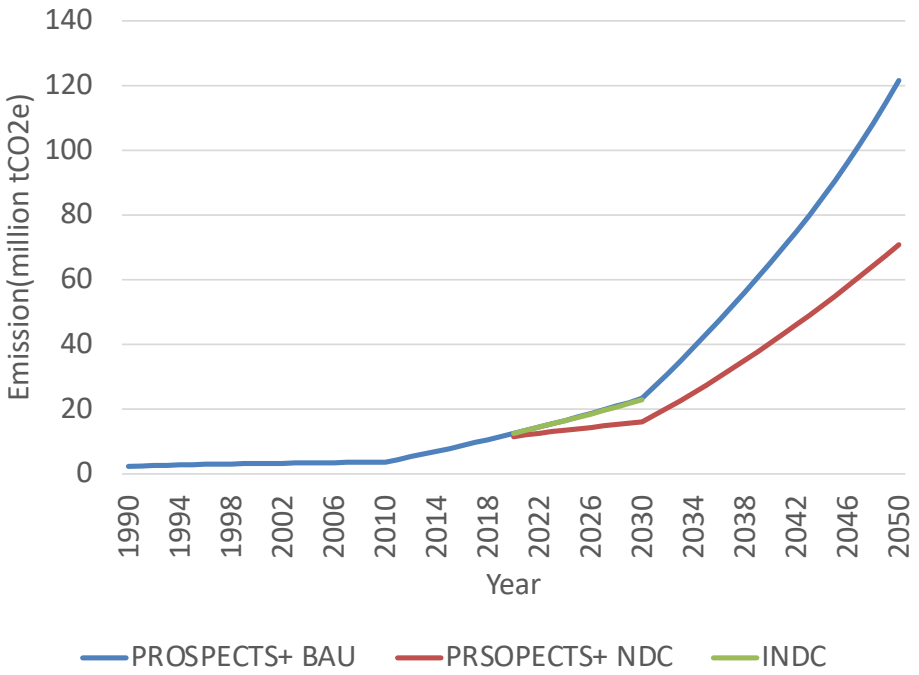
Mitigation actions - Power Generation

No	Proposed ministry	Mitigation action
1	MAFF	Bio-digesters construction (85% reduction compared to 2000)(Small size (2-3-4m^3); Medium size(6-8-10m^3), Large size(>10m^3)
2	MME	Incorporate Renewable Energy Resources (Solar, Wind, Hydro, biomass) into Energy Mix

Transport sector GHG emissions in NDC scenario



year	2030
BAU – Emissions(million tCO2e)	23.3
NDC scenario - Emissions(million tCO2e)	16.1
Emissions reduction(million tCO2e)	7.25
Target	31.1%

Mitigation actions - Transport Sector

No	Proposed ministry	Mitigation action
1	MPWT	Enhance maintenance and inspection of vehicle (Piloting maintenance and emission inspections of vehicles)
2	MPWT	Promote integrated public transport systems in main cities

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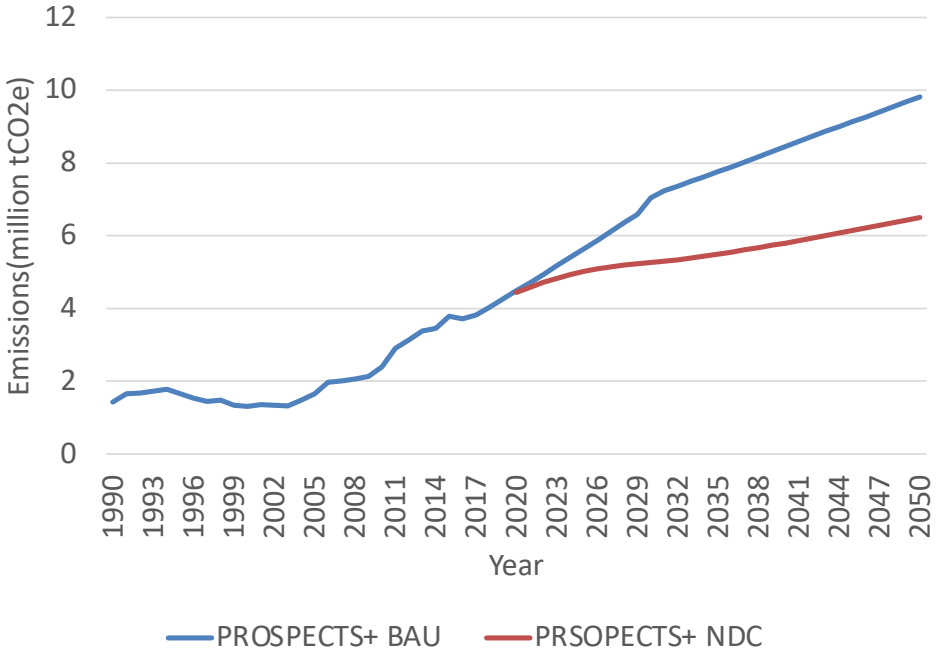
Building sector GHG emissions in NDC scenario



year	2030
BAU – Emissions(million tCO2e)	7.04
NDC scenario - Emissions(million tCO2e)	5.26
Emissions reduction(million tCO2e)	1.78
Target	25.22%

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Mitigation actions - Building sector

No	Proposed ministry	Mitigation action
1	MLMUPC	Urban Planning Tools for Climate Change Mitigation and the urban planning solution in three sub city
2	MME	Application of of electrical equipment's labelling & MEPS (Lighting, Cooling & Equipment's)
3	MME	Improvement of process performance of EE by establishment of energy management in buildings/industries
4	MME	Public awareness campaigns, DTEBP-EE info centers
5	MME	Building codes and enforcement/certification for new buildings and those undergoing major renovation
6	MME	Introduction of efficient electrical motors and transformer
7	MME	Improve sustainability of charcoal production through enforcement of regulations
8	NCDD	Reducing GHG emission though off grid street lightening of rural municipality
9	MAFF	Bio-digesters construction (85% reduction compared to 2000)(Small size (2-3-4m3); Medium size(6-8-10m3), Large size(>10m3)
10	MISTI	Cooling of Public Sector Buildings

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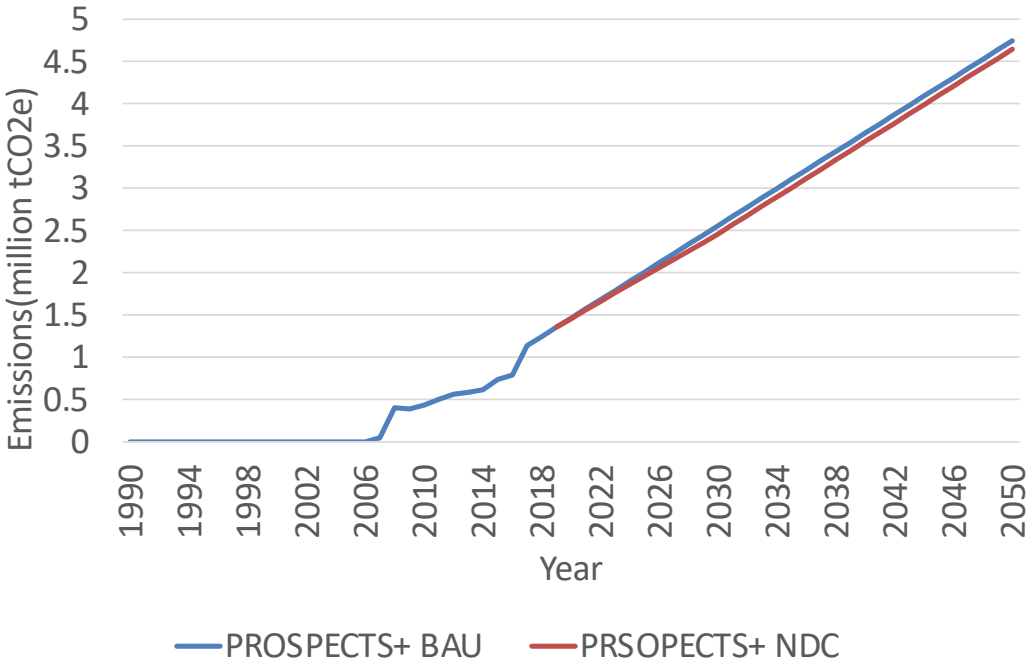
Cement industry GHG emissions in NDC scenario



year	2030
BAU – Emissions(million tCO2e)	2.56
NDC scenario - Emissions(million tCO2e)	2.46
Emissions reduction(million tCO2e)	0.1
Target	4%

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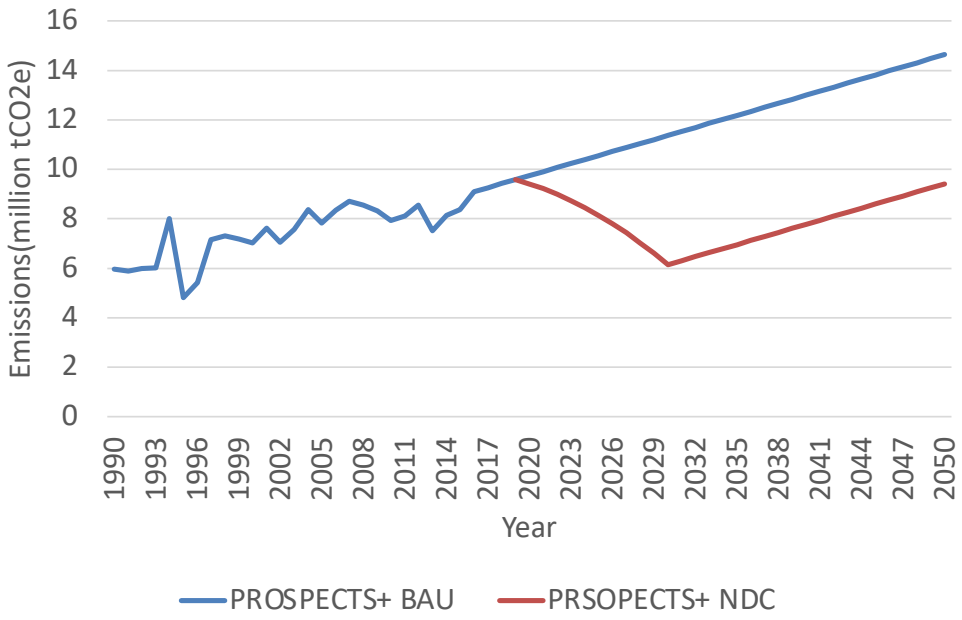
Mitigation actions - Cement Industry

No	Proposed ministry	Mitigation action
1	MoE	Production of Refuse-Derived Fuel (RDF) from either a) fresh MSW or b) old MSW mined from the Dangkor landfill and sell to Cement industry

Other industry GHG emissions in NDC scenario



year	2030
BAU – Emissions(million tCO2e)	11.36
NDC scenario - Emissions(million tCO2e)	6.14
Emissions reduction(million tCO2e)	5.22
Target	46%

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Mitigation actions - Other Industry

No	Proposed ministry	Mitigation action
1	MME	Improvement of process performance of EE by establishment of energy management in buildings/industries
2	MME	Introduction of efficient electrical motors and transformer
3	MISTI	Promote sustainable energy practices in manufacturing

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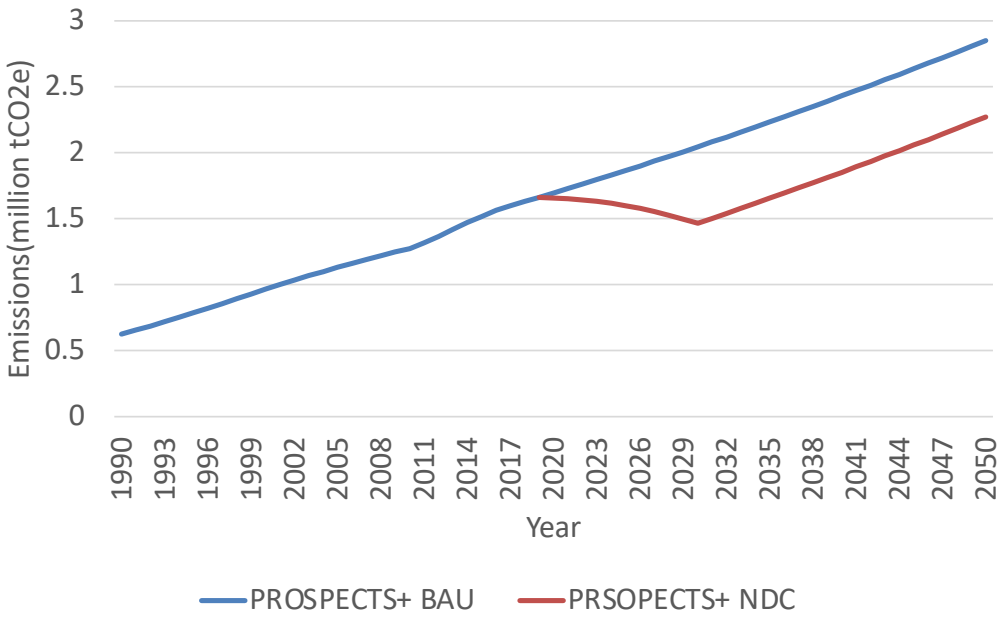
Waste sector GHG emissions in NDC scenario



year	2030
BAU – Emissions(million tCO2e)	2.05
NDC scenario - Emissions(million tCO2e)	1.47
Emissions reduction(million tCO2e)	0.58
Target	28.3%

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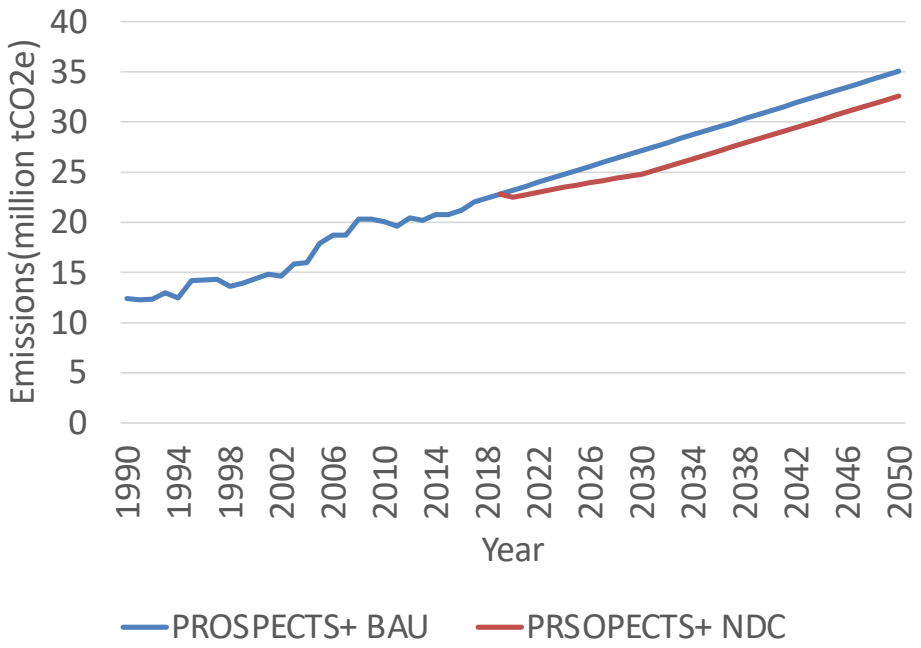
Mitigation actions - Waste sector

No	Proposed ministry	Mitigation action
1	MoE	New sanitary landfills with LFG extraction and LFG extraction at the Dangkor Landfill
2	MoE	Production of Refuse-Derived Fuel (RDF) from either a) fresh MSW or b) old MSW mined from the Dangkor landfill.
3	MoE	Sub-Decree on Solid Waste Management (SSWM)
4	MAFF	Bio-digesters construction (85% reduction compared to 2000)(Small size (2-3-4m3); Medium size(6-8-10m3), Large size(>10m3)
5	MISTI	Centralized recycling facility for industrial waste from the garment sector

Agriculture sector GHG emissions in NDC scenario



year	2030
BAU – Emissions(million tCO2e)	27.15
NDC scenario - Emissions(million tCO2e)	24.79
Emissions reduction(million tCO2e)	2.36
Target	8.7%

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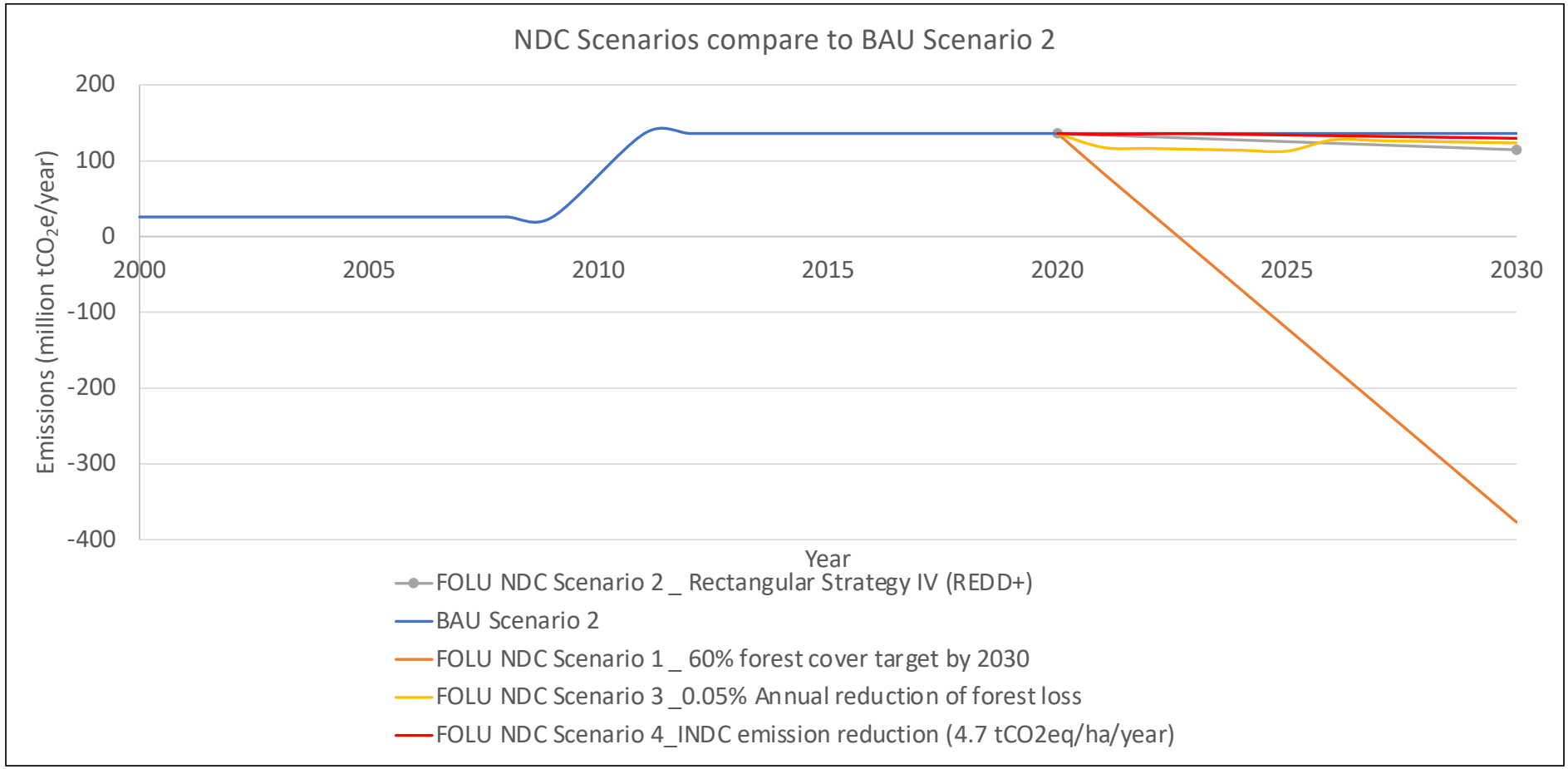
Mitigation actions - Agriculture sector

No	Proposed ministry	Mitigation action
1	MoE	New sanitary landfills with LFG extraction and LFG extraction at the Dangkor Landfill – Compost Production
2	MoE	Composting of biodegradable organic fraction of MSW supplemented with separation of organic waste (at source)

FOLU sector GHG emissions in NDC scenario



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FOLU sector GHG emissions in NDC scenario

Based on	Assumption
FOLU BAU Scenario 2	✓ Former forest lands (deforesting lands) have been converted to perennial/ tree crop. This assumption was made based on "Action & Investment Plan for the implementation of the National REDD+ Strategy of Cambodia" ✓ The afforestation / reforestation has taken place mainly on degraded lands. (BUR, 2020)
FOLU NDC Scenario 1_60% forest cover target by 2030:	✓ This scenario was developed based on the national target. ✓ Target: Increase forest cover to 60% of national land area by 2030 ✓ Period: 2020 to 2030
FOLU NDC Scenario 2_ Rectangular Strategy IV (REDD+) :	✓ This scenario was developed based on the per year emission reduction value (21.54 $MtCO_2e$) given by MoE for the "REDD+ _ Key Indicator of Rectangular Strategy Phase -4" mitigation action. ✓ Period: 2020 to 2030
FOLU NDC Scenario 3_ 0.05% Annual reduction of forest loss:	✓ The NDC scenario 3 was developed based on the REDD+ NDC scenario which was developed by the REDD+ team in Cambodia. ✓ Assumption: Annual reduction of forest loss = 0.05% ✓ Period: 2020 to 2030
FOLU NDC Scenario 4_ INDC emission reduction (4.7 tCO2e/ha/year)	✓ The NDC scenario 4 was developed based on the existing forest target reported in the INDC. ✓ Target: Estimated emission reductions is 4.7 tCO2e/ha/year ✓ Assumption: 4.7 tCO2e/ha/year emission reduction for each newly accumulated forest hectare in a year. ✓ Period: 2020 to 2030

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Mitigation actions - FOLU sector

No	Proposed ministry	Mitigation Scenarios	BAU - Emissions(million tCO2e) in 2030	NDC scenario - Emissions(million tCO2e) in 2030	Emissions reduction(million tCO2e)	Target (%)
1	**MAFF**	**FOLU NDC Scenario 1: 60% forest cover target by 2030**	136	-377	513	377.3
2	**MoE**	**FOLU NDC Scenario 2: Rectangular Strategy IV (REDD+)**	136	114	22	15.9
3	**UNDP/REDD+**	**FOLU NDC Scenario 3: 0.05% Annual reduction of forest loss**	136	123	12	9.2
4	**INDC**	**FOLU NDC Scenario 4: INDC emission reduction (4.7 tCO2eq/ha/year)**	136	130	6	4.7

NDC update: adaptation (vulnerability)

- Cambodia is one of the most **vulnerable** countries to the impacts of climate change
- The **Global Climate Risk Index** (1999–2018) placed Cambodia in the 12th place among the most vulnerable countries in the world.
- Cambodia has begun work to develop her **National Adaptation Plan (NAP)**
- Rising temperatures lead to increased **frequency** and **intensity** of extreme weather events in a fragile socio-economic context
- **Vulnerability assessment** (2019): 17.5% of Cambodia's communes were 'highly' vulnerable (i.e. 288 communes); 27.28% (449 communes) 'quite' vulnerable to multiple climate change hazards**.**
- Climate change reduces average **GDP growth** to 6.6% and absolute GDP by 0.4% in 2020, 2.5% in 2030, and 9.8% in 2050.

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NDC update: adaptation (impacts and priorities)

- Cambodia's **vulnerability** is characterised by frequent flooding and irregular rainfall, agrarian based economy, limited human and financial resources, insufficient physical infrastructure, and limited access to technologies.
- For the development of the Second National Communication (SNC), climate change impacts and vulnerability were assessed for four sectors: **agriculture** (including water resources and focusing on rice production), **forestry**, **coastal zone,** and **human health** – as the country's most vulnerable sectors.
- Cambodia's adaptation contribution follows the planning and implementation cycle of the **NAP process**, and integrates elements that are specific to the NDC

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NDC update: adaptation (prioritised actions)

Sectoral

- Agriculture – including agribusiness, animal health and production, agriculture / energy and agriculture / gender (18 actions)
- Buildings (2 actions)
- Disaster Risk Management (DRM) (4 actions)
- Energy (2 actions)
- Environment – covering forestry (1 action)
- Human health (5 actions)
- Industry (1 action)
- Infrastructure (4 actions)
- Land use planning (8 actions)
- Tourism (3 actions)
- Water – including water for agriculture and infrastructure (6 actions)

Facilitation

- Awareness (1 action)
- Capacity (2 actions)
- Education (4 actions)
- Finance (1 action)
- Gender – including capacity, coordination, M&E, and planning (5 actions)
- Information (3 actions)
- Partnerships (1 action)
- Planning (7 actions)

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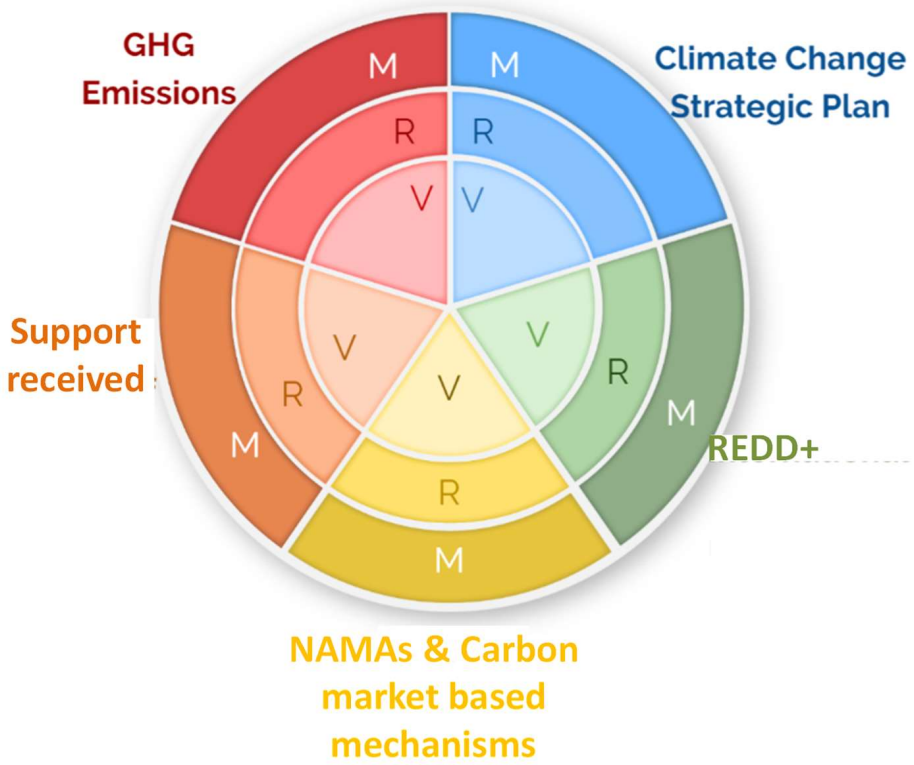
NDC update: enhanced transparency framework and online portal (MRV systems)



- (MRV) systems focuses on integration into the existing climate change monitoring and evaluation (M&E) framework structure of the CCCSP
- Cambodia has in place MRV for:
  - GHG emissions
  - CCCSP which includes adaptation and mitigation
  - REDD+
  - Project level MRVs for two planned NAMAs, 12 CDMs, 6 JCMs and 6 VERs
  - Support received

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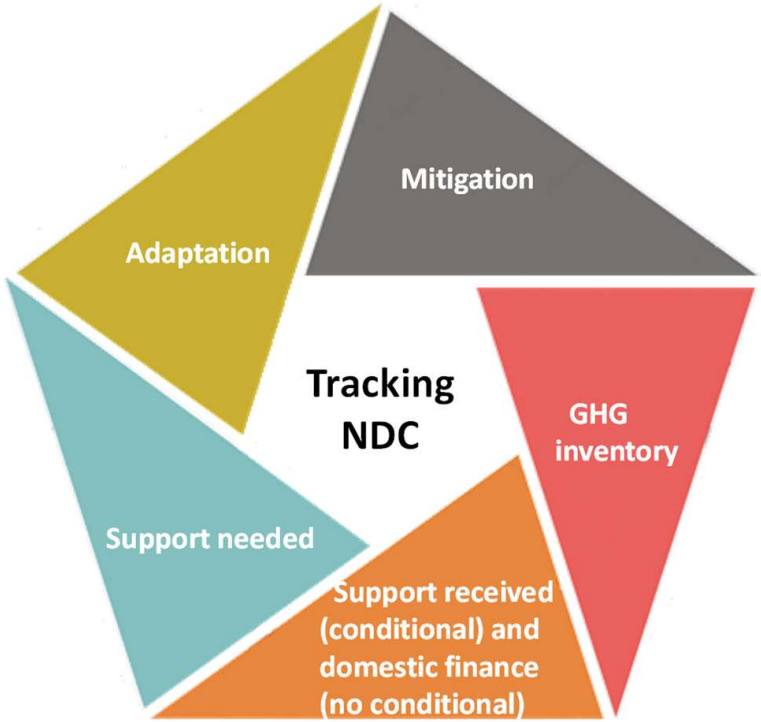
NDC update: enhanced transparency framework and online portal (MRV for NDC tracking)



- NDC tracking may comprise mitigation, adaptation, GHG inventory, support received, and support needed
- It will include baseline, targets, and indicators from ministerial submissions
- The NDC tracking online system will be developed and the tool will be made accessible through the webpage.

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NDC update: cross-cutting issues

- In the initial NDC, some areas of climate change policy and implementation were not deeply analysed
- Most Ministries included the implications of each action across these areas
  - **Gender**: targets from 15% to 70%
  - **Youth Engagement**: role of the MoEYS, other ministries indicated role
  - **Private sector involvement**: Most actions will be effective only through the engagement of the sector-appropriate private sector players

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NDC update: sustainable development

- Climate change mitigation and adaptation will be crucial not only to achieve the SDG 13 (Climate Action), but other SDGs linked to:
  - poverty reduction
  - food security
  - gender equality
  - water and sanitation
  - energy access
  - reduced inequalities
  - sustainable cities
  - sustainable land use and ecosystems
- An analysis on how the NDCs can impact the achievement of the Sustainable Development Goals (SDGs) is being carried out, based on ministerial submissions.

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Outcomes of the SD assessment : Mitigation

- Methodology : UNDP SCAN tool
- Specification:
- Mitigation actions with “clearly defined ”sectors were considered in the assessment.
- Thereby 40 mitigations actions out of the mitigation actions sent by the line ministries were considered in the assessment.
- In general most of the mitigation actions contribute in achieving SDG 8,SDG9, SDG11 and SDG 12
- Cumulatively ,mitigation actions help in achieving SDG 13

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Line Ministry	Sectors	SDGs Covered	
Ministry of Industry, Science, Technology and Innovation (MISTI)	Waste	SDG 8, 11, 12	
	Energy	SDG 8,9, 11,12	
Ministry of Land Management, Urban Planning and Construction (MLMUPC)	Industry	SDG 8,9, 11,12	
Ministry of Mines and Energy (MME)	Industry	SDG 8,9,11,12	
	Energy	SGD 8,9,11,12	
Ministry of Agriculture ,Forestry and Fisheries (MAFF)	Industry	SDG 8, 9, 11, 12	
	Forestry	SDG 2 , SDG15	
	Agriculture	SDG 2,SDG 6,SDG 15	

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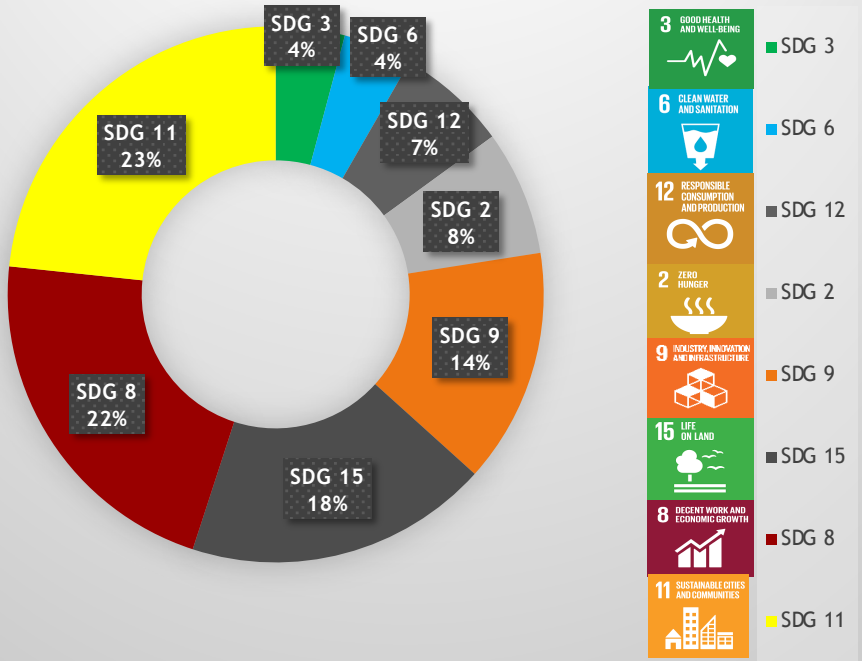
Line Ministry	Sectors	SDGs Covered	
Ministry of Environment (MOE)	Forestry	SDG 8,11,12	
	Waste	SDG 2 ,SDG15	
National Committee for Sub-National Democratic Development	Energy	SDG 8,9,11,12	
Ministry of Public Works and Transport (MPWT)	Transport	SDG 3,8,11	

Percentage contribution from mitigation actions in achieving SDGs



All these contributions ultimately lead to achieve

13 CLIMATE ACTION

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Group discussion

Mitigation: Facilitator: Mr. Leang Sophal, Chief of Office, GHG Inventory and Mitigation, DCC

Adaptation: Facilitator: Dr. Heng Chanthoeun, Deputy Director, DCC

Enhanced transparency framework, cross-cutting issues and sustainable development: Facilitator: Ms. Niina Kylliainen, Climate Change Policy Specialist, CCCA/UNDP

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NDC update: mitigation (Q&A and discussion)

- Any comments on the approach and content of the mitigation section?
- Are the mitigation actions correct or would you like to modify any?
- Could you fill in any remaining gaps?

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NDC update: adaptation (Q&A and discussion)

- Any comments on the approach and content of the adaptation section?
- Are the adaptation actions correct or would you like to modify any?
- Could you fill in any remaining gaps?

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NDC update: Transparency, cross-cutting issues, sustainable development (Q&A and discussion)

- Are the MRV requirements sensible?
- Do you have any recommendations or best practices for the system improvement?
- Would you like to revise/add detail to the cross-cutting issues and SDG linkages?
- Any specific recommendations for the online portal?

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