Japan: Side Event at the COP19 "Guidebook on NAMA-based experiences in Asia and the World

Lessons Learned from Country-based practical experience on NAMAs in Cambodia

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Background Information(1)

- Cambodia ratified the UNFCCC in 1996 and acceded the Kyoto Protocol in 2002.
- Ministry of Environment is NAMA Focal Point for Cambodia.
- Electricity production from fossil fuel is 95.2% of total installed capacity while hydropower represents only 3.3 % and other renewable sources 1.5%.
- Over 80% of the population still depends on fuel wood and charcoal for household energy supply.
- Cambodia's GHG emission was estimated at 47,709.06 Gg CO2 eq while removal was 48,383.43 Gg CO2 eq in 2000.

Background Information(2)

- As a least developed country Party to the UNFCCC, Cambodia fully supports the global efforts to reduce GHG emissions based on the UNFCCC principles.
- Cambodia has been active in implementing GHG mitigation projects under various schemes such as the CDM and voluntary market.
- Cambodia is part of the initiative of the Ministry of the Environment of Japan (MOEJ) entitled ‘a capacity-building cooperation project for development of NAMAs in a MRV manner between Cambodia.

Key strategies toward GHG mitigation (1)

- Cambodian Climate Change Strategic Plan has been approved on31 Oct 2013.
  - **Strategic Objective 1:** (a) Facilitate business and industrial response to carbon market opportunities for trade and green investment, (b) Promote renewable energy and energy efficiency to reduce GHG emissions.

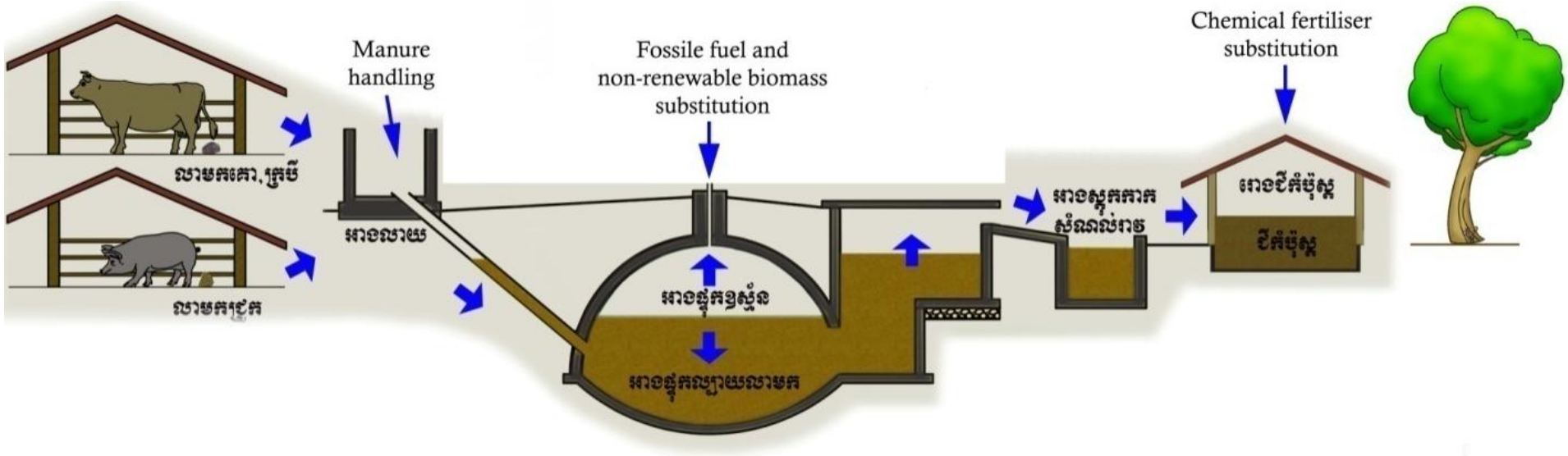
Key strategies toward GHG mitigation (2)

- Strategic Objective 4: "Promote low carbon planning and technologies to support sustainable development of the country"
  - Develop low carbon development policies, strategies and action plans.
  - Promote appropriate technological measures for promoting low carbon development through: (1) Development of guidelines, technical assistance and establishment of partnerships, (2) Financial and fiscal incentives, (3) Market mechanisms, (4) Mobilizing public-private partnerships.

NAMA Process in Cambodia: A case study of National Biodigester Program (1)

Selected Sector: Agricultural Sector

Mitigation Actions: National Biodigester Programme (NBP)



The selected mitigation action was to promote introduction of biodigesters, which are relatively cheap and environmentally friendly technology.

Source: NBP. 2011. National Biodigester Programme Cambodia. http://www.nbp.org.kh/page.php?fid=1

NAMA Process in Cambodia: A case study of National Biodigester Program (2)

Emission sources in the biogas sub-sector, categories and baseline emissions

Emission sources in biogas sub-sector		Categories in GHG Inventories	BAU emissions
1.	CH_4 emission from animal manure	Agriculture	CH_4 emission from animal manure [BAU emission in the agriculture sector]
2.	CO_2, CH_4 and N_2O emission from combustion of fossil fuel	Energy	CO_2, CH_4 and N_2O emission from combustion of fossil fuel and biomass [BAU emission in the energy sector]
3.	CH_4 and N_2O emission from combustion of biomass	Energy	
4.	CO_2 emission from combustion of non-renewable biomass	LULUCF	

NAMA Process in Cambodia: A case study of National Biodigester Program (3)

BAU & Emissions Reduction by Biodigesters (1)

BAU: CH4 from animal manure management systems

Emissions Reduction: CH4 recovery

Source: NBP. 2011. National Biodigester Programme Cambodia. http://www.nbp.org.kh/page.php?fid=1

NAMA Process in Cambodia: A case study of National Biodigester Program (4)

BAU &Emissions Reduction by Biodigesters (2)

BAU: CO2, CH4, N2O from Non-renewable biomass (NRB) and fossil fuel combustion

Emissions Reduction: Switch from NRB and fossil fuel to biogas

Source: NBP. 2011. National Biodigester Programme Cambodia. http://www.nbp.org.kh/page.php?fid=1

NAMA Process in Cambodia: A case study for National Biodigester Program (5)

NAMA target values in 3 scenarios

Target Number of installed biodigesters	2013	2014	2015	2016	2017	2018	2019	2020
Scenario 1 (Units)	24,000	30,000	36,000	42,000	48,000	54,000	60,000	66,000
Scenario 2 (Units)	21,000	24,000	27,000	30,000	33,000	36,000	39,000	42,000
Scenario 3 (Units)	88,000	158,000	228,000	298,000	368,000	438,000	508,000	578,500
Operating ratio (%)	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96

Scenario 1: with ODA (6,000 units per year)

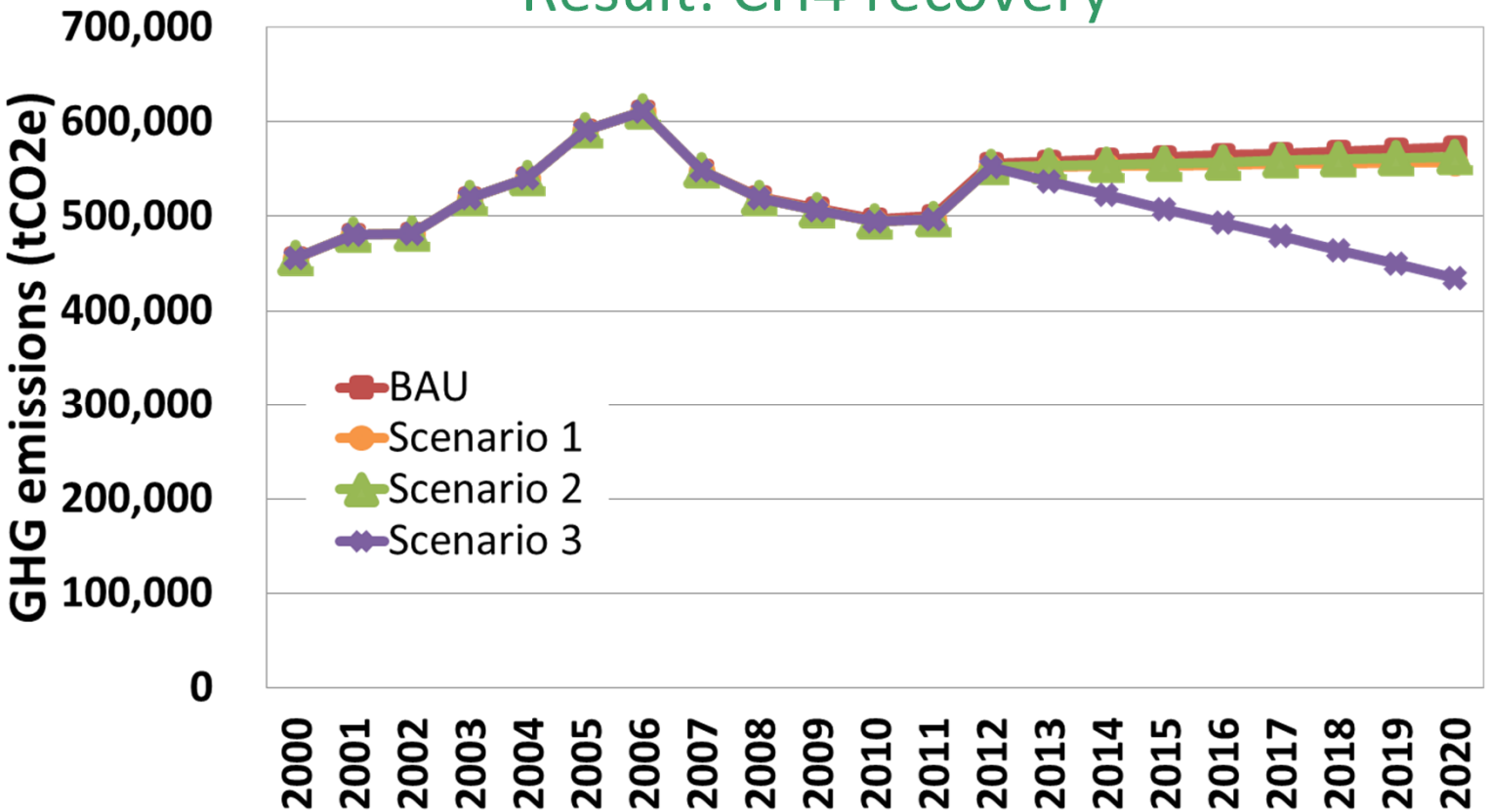
Scenario 2: without ODA (3,000 units per year)

Scenario 3: technical potential (70,000 units per year)

*25% of rural households

NAMA Process in Cambodia: A case study of National Biodigester Program (6)

Result: CH4 recovery

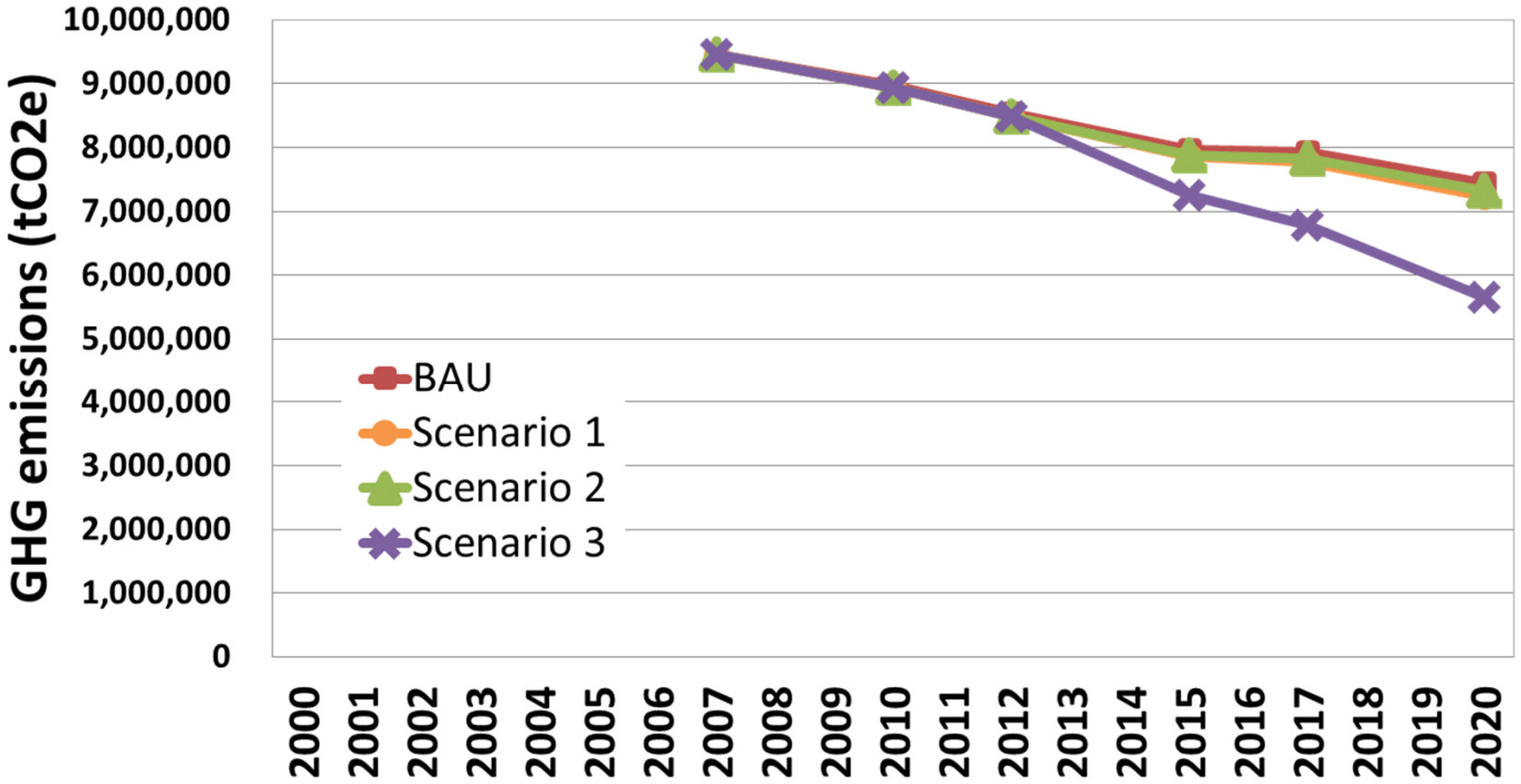


Emissions Reduction In 2020

Scenario 1:	15,757 tCO2e
Scenario 2:	10,027 tCO2e
Scenario 3:	138,114 tCO2e

NAMA Process in Cambodia: A case study of National Biodigester Program (7)

Result: Switch from NRB and fossil fuel



Emissions Reduction In 2020

Scenario 1:	204,395 tCO2e
Scenario 2:	130,070 tCO2e
Scenario 3:	1,791,557 tCO2e

Next step

- Expending scope of activities to other sectors
  *such as Transport and Energy
- Establishing an official National NAMA Working Group Developing guidelines for MRV of NAMAs
  *this task should focus on reviewing the current role of existing committees and working groups
- Seeking for possible submission of the National Biodigester Programme as the NAMA to the UNFCCC
- Sharinging information with other countries in the region on the NAMA development.
- BUR is under discussion under the third National Communication.

Thank you very much