Transportation and LEDS Workshop 2013

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Japan's support for mitigation actions and Introduction of the Joint Crediting Mechanism (JCM)

JIRO OGAHARA

Senior Researcher

Overseas Environmental Cooperation Center, Japan (OECC)



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- 1. Capacity building activities for NAMA / MRV in the transport sector of Lao PDR.
- 3. The Joint Crediting Mechanism (JCM)
- 5. NAMA and MRV Guidebooks

Background of Joint Activities



In 2007, COP13 decided to start consideration on nationally appropriate mitigation actions (NAMAs) by developing countries in a measurable, reportable, and verifiable (MRV) manner, supported by technologies, financing, and capacity-building, backed by the Copenhagen Accord, the Cancun Agreement, and the Durban Platform.

The Japanese government supports developing countries in their efforts to mitigate the effects of climate change.

The Ministry of Environment and Natural Resources, Lao PDR (MONRE), and the Ministry of the Environment, Japan (MOEJ), decided to cooperate on capacity building and joint studies on NAMAs in a MRV manner in the transport sector of Lao PDR.

MONRE and OECC, acting as a joint Secretariat, signed an Agreement in September, 2012.

Proposed steps for NAMA development



(1) Collection of Info on relevant policies and strategies

Collect and analyze relevant policy documents of development, climate change and related sector (eg national power development plan)

(3) Quantification GHG emissions of BAU

Quantify GHG emissions based on (2) data, and a) Identify the calculation formulas

- b) Calculate respective emission in BAU
- c) Aggregate respective emissions

(5) Quantification GHG emission reduction by NAMAs

Quantify GHG emissions with

- (4)NAMAs assumptions
- a) Set the calculation formulas
- b) Calculation
- c) Aggregate potential with reduction by NAMAs

(2) Collection data for BAU in the sector

Collect data for calculating BAU emission with bottom-up approach (eg. List all power plants in operation and planned, based on national power development plan)

(4) Examination and selection of NAMAs options

Select possible NAMAs options and technologies based on (1) policies and mitigation strategies and additional consideration.

Low-carbon technology survey

Examination MRV methods

Capacity-buildings in Laos for NAMAs implication

Source: OECC 2012

Example of GHG Mitigation Options in Lao PDR

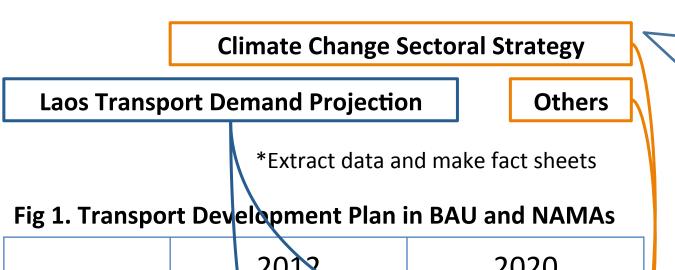


Sector	Mitigation option
Energy	Hydro
	 Energy Efficiency Measures
Industry	Efficient Production System
Transport	 Introduction of Electric Vehicles
	Promotion of Public transport Use
Waste	Composting Organic Waste
Agriculture	Reduce Methane Emission from Rice
	field/Cows
Forestry	Reforestation
	Reduce Slash-and-burn
	Reduce Wildfire

Source: National Strategy on Climate Change Laos, 2010

Further activity on quantifying GHG emissions reduction





	2012	2020
BAU	XXX MWh	X,XXX MWh
NAMAs	-	X,XXX MWh

Fig 2. GHG Emissions in BAU and NAMAs

	2012	2020
BAU	XXX t/CO2	X,XXX t/CO2
NAMAs	-	X,XXX t/CO2

Activity1:

Data and Info. collection (MONRE)

Activity2:

GHG Emissions
Calculation
(OECC)

Activity3:

Identify

Mitigation Action

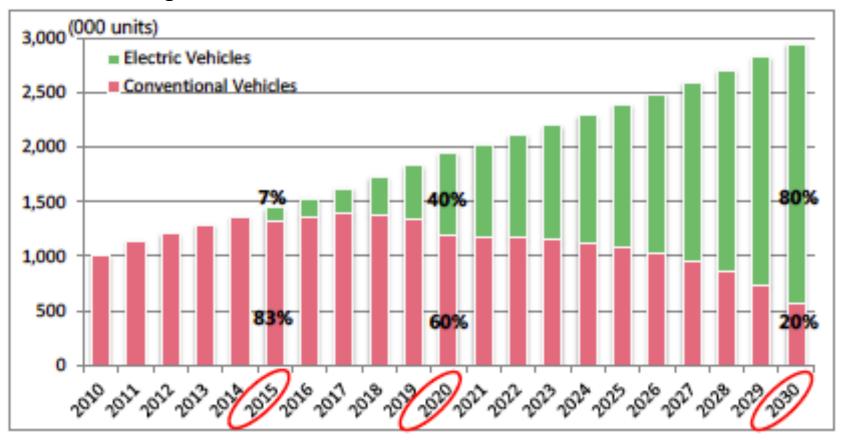
- XX No of EV
- XX No of Bus

(MONRE, OECC)

Analysis of Basic Data of Lao PDR



Diffusion Target of EV in Lao PDR:



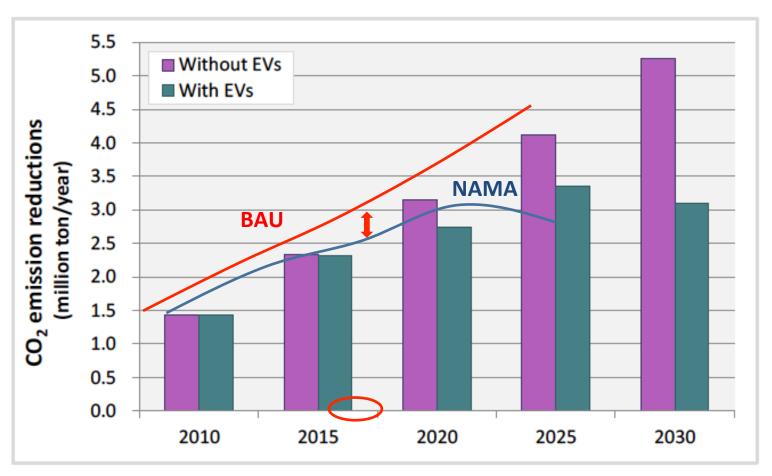
Source: Basic Data Collection Study on Low-emission Public Transport System in Lao PDR, JICA

NAMAs Project Emission Calculation



NAMA Project Emission Reduction in 2020

Around 0.5 million tons of reduction by the introduction of EV



Source: Basic Data Collection Study on Low-emission Public Transport System in Lao PDR, JICA

List of outputs



	As indicated in the MOU	Outputs / Results
1	Identify BAU and NAMA Scenarios	Quantification of GHG emissions in BAU and emissions reduction by NAMA
2	A draft implementation plan for NAMAs	Provided a list of NAMA alternatives with consideration of MRV criteria. NAMA: "Promotion of Electric Vehicles"
3	A draft implementation plan for MRV of NAMA	Proposed an Implementation Plan for MRV and NAMA (under discussion)
4	Proposal of a modalities for domestic institutional arrangement for NAMA implementation	Proposed Institutional Arrangement for NAMA implementation
5	Provide a menu of appropriate mitigation technologies	Provided a List up Environmental Technologies in relation to NAMA selections. Conducted an Environmental Mission (private sector)

Lao PDR

Selected Sector: Transport Sector

NAMAs: Replacement of conventional vehicle with EV

Working Group: 7 Ministries participates, including MONRE, MPWT, MIME, MOIC, MOST, chaired by Results:

Calculated BAU and ER by NAMAs ex ante

 Activity data (fuel economy data) originally collected and based on JICA Study

 Proposed institutional arrangements are planned to be a part of technical WG under the National Climate Change

Committee

	5.5							
	5.0 -	■ Without EVs						
	4.5 -	■ With EVs				4		
CO ₂ emission reductions (million ton/year)	4.0 -							
ucti ar)	3.5 -					ALA I	MA	•
redi n/ye	3.0 -		D			VA	VIA	1
ro Fo	2.5 -					-		
issi	2.0 -				_	-		
m i	1.5 -				_	-		
02	1.0 -	_			_			
U	0.5 -							
	0.0							
		2010	2015	2020	2025	203	0	

Source: Basic Data Collection Study on Low-emission Public Transport System in Lao PDR, JICA, modified by OECC

	Motorcycle	Passenger car	Tuk Tuk / Mini bus	Song Thew / Middle size bus	Large bus	Total
Baseline Emissions						
Baseline fuel economy (km/liter)	40	13.0	20	6.5	2.5	
Baseline fuel economy (km/liter) (2020)	43.3	14.1	21.7	7.0	2.7	
Driving distance (km/day)	16	25	45	85	120	
CO ₂ emission factor (kgCO ₂ /liter)	2.18	2.18	2.70	2.70	2.70	
Days per year	365	365	365	365	365	
Baseline emission (tCO ₂ /year/vehicle)	0.3	1.4	2.0	11.9	43.8	
Project Emissions						
Driving distance (km/day)	16	25	45	85	120	
Project electricity economy (kWh/km)	0.080	0.130	0.130	0.310	1.000	
Grid electricity emission factor (tCO ₂ / MWh)	0.135	0.135	0.135	0.135	0.135	
Days per year	365	365	365	365	365	
Project emission (tCO ₂ /year/vehicle)	0.1	0.2	0.3	1.3	5.9	
Emission reduction (tCO ₂ /year/vehicle)	0.2	1.3	1.8	10.6	37.9	
Number of EV	698000	45000	12000	4000	1000	
						10
Total Emission Reduction (tCO ₂ /year)	161,204	56,280	21,065	42,537	37,887	318,973







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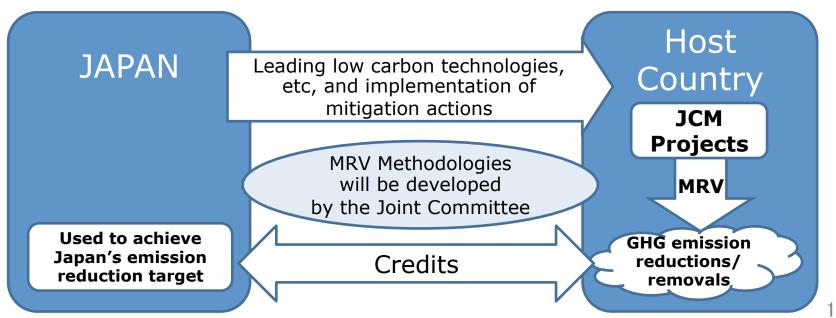


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Basic concept of the Joint Crediting Mechanism (JCM)



- Facilitating diffusion of leading low carbon technologies, products, systems, services, and infrastructure as well as implementation of mitigation actions, and contributing to sustainable development of developing countries.
- Appropriately evaluating contributions to GHG emission reductions or removals from Japan in a quantitative manner, by applying measurement, reporting and verification (MRV) methodologies, and use them to achieve Japan's emission reduction target.
- Contributing to the ultimate objective of the UNFCCC by facilitating global actions for GHG emission reductions or removals, complementing the CDM.



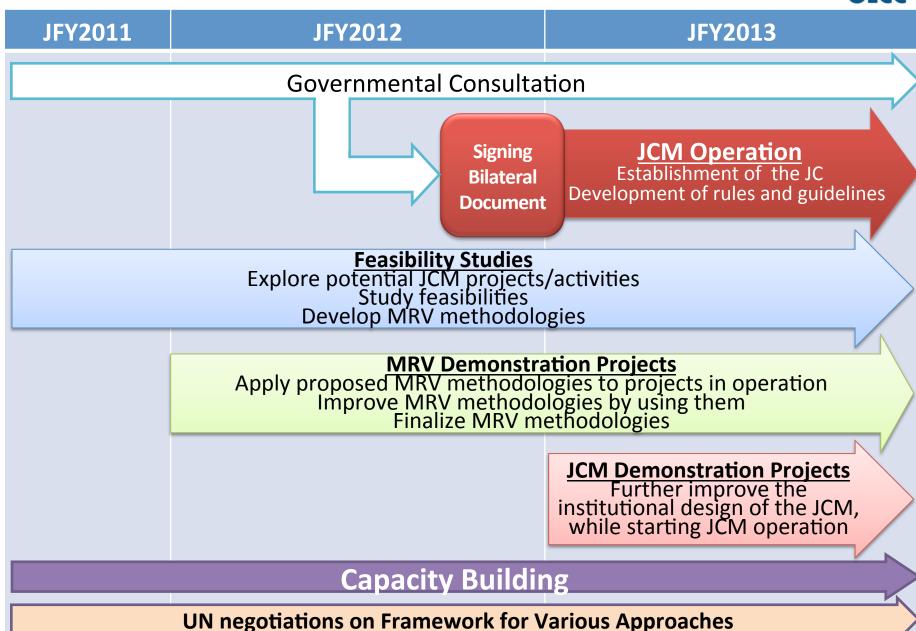
Features of the JCM



- (1) The JCM starts its operation as a non-tradable credit type mechanism.
- (2) Both Governments continue consultation for the transition to the tradable credit type mechanism and reach a conclusion at the earliest possible timing, taking account of implementation of the JCM.
- (3) The JCM aims for concrete contributions to assisting adaptation efforts of developing countries after the JCM is converted to the tradable credit type mechanism.
- (4) The JCM covers the period until a possible coming into effect of a new international framework under the UNFCCC.

Roadmap for the JCM

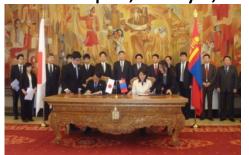




Countries with which Japan has signed on bilateral documents



> Japan has held consultations for the JCM with developing countries since 2011 and signed the bilateral document for the JCM with Mongolia, Bangladesh, Ethiopia, Kenya, Maldives, Viet Nam, Lao PDR and Indonesia.



Mongolia On January 8, 2013 (Ulaanbaatar)



On March 19, 2013 (Dhaka)



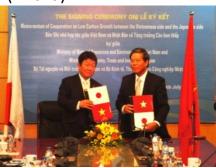
Ethiopia On May 27, 2013 (Addis Ababa)



Kenya On June 12,2013 (Nairobi)



Maldives On June 29, 2013 (Okinawa)



Viet Nam On July 2, 2013 (Hanoi)



Lao PDR On August 7, 2013 (Vientiane)



Indonesia On August 26, 2013 (Jakarta)

> Japan held the 1st Joint Committee with Mongolia, Bangladesh, Ethiopia and Kenya respectively. 15

JCM Feasibility Studies by METI & NEDO (FY2012)

54 projects were selected (19 countries)

- (Black) → METI's FSs for Policy Recommendation (33 projects)
- (Yellow) → NEDO's FSs for Project Exploration / Development (21 projects)

OECC

Kazakhstan: Mongolia: Vietnam: Coal-fired Power Generation •Highly Efficient Transmission and Coal Power Plant •Small-Medium Hydropower Generation Highly Efficient Energy Conservation Systems Bangladesh: Thailand: •Highly Efficient Air Conditioner Myanmar: •CCGT power generation Introducing Heat Recovery Energy Efficiency Technologies for Integrated steel works Run-of-river Micro **Heat Pumps** Promotion of Water-Saving Showerheads **Hydro Power Generation** Maldives: Disseminating and Promoting Electric Motorcycles Air conditioners by using Highly Efficient Coal Power Plants(Ultra Super Critical) deep sea water **Philippines:** Djibouti, Ethiopia: •Electric Three-Wheeled Vehicles •Geothermal Power ·Flash and Binary Geothermal Power Generation Generation Kenya: Malaysia: Mexico: Hybrid Mini Grids Using •Erea Energy Network Construction Introduction of Renewable Energy and Cogeneration Facilities

Mozambique: BDF (Bio Diesel Fuel)

&PV (Photovoltaic)

Hybrid Power Generation System

South Africa:

 Energy Saving project at cement industry

Mauritius & etc:

 Multi-Stage Deep Seawater **Utilization System**

Thailand, Vietnam:

Commercial Facilities

Green Convenience Stores

Cambodia:

Energy Saving Systems at

Micro-Scale Hydro Power Generation

Vietnam, Myanmar,

Highly Efficient Coal Power

Plants(Ultra Super Critical)

Thailand, Vietnam, Malaysia:

India:

- Energy Efficient Technologies for Integrated Steel Works
- •Run-of-river micro hydro power project
- Energy Efficient Air Conditioners (HFC 32)
- •Coal Drying Technology (Low Temperature Waste Heat Recovery)
- Highly Efficient Servers at Data Centers
- Highly Efficient Coal Power Plants(Ultra super critical) Energy Efficient Technologies for Integrated steel works

Malaysia/Indonesia:

•Reducing N2O emission by using coating fertilizer

Energy Management System (FMS) Indonesia:

- •Renewable Energy Hybrid System
- Utility Facility Operation Optimization Technology •Replacement Project of the Existing Thermal Power Plants
- •Rehabilitation of Hydro Power Plants
- •REDD+ (5 projects)
- Optimum control of plant equipment (by IT)
- Wind-Power Generation(by EMS)
- •Mega-Solar Power Plants Using Thin-Film Solar Cells
- Developing Technology of Biodiesel Fuel (BDF)
- SNG project (Substitute Natural Gas)
- CCS (Carbon dioxide Capture and Storage)
- Biomass Power Generation
- Eco-shipping for Coastal Cement Tanker
- Small Hydro Power Generation Geothermal Power Generation
- Low-Rank Coal Fuel Waste Heat Drying Project

New Mechanism Information Platform





- New Mechanisms Information
 Platform website was established to provide the latest movements and information on the JCM.
- Help Desk also accepts and answers inquiries regarding the JCM.
- Another dedicated website for the JCM will be launched. In the meantime, all the documents regarding the JCM development (e.g. outcome of the JC, decisions, methodologies, and projects) are uploaded on this website.
- URL:

http://www.mmechanisms.org/e/initiatives/index.html

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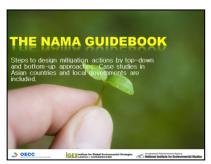


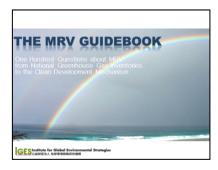
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NAMA and MRV Guidebooks



- Comprehensive understanding of NAMAs and MRV (e.g. project-based bottom-up approach and policy-based top-down approach)
- 2. Based on case studies in Asia and the world that we have conducted together with Asian and global experts
- 3. Invite any kind of volunteer efforts to create "NAMAs and MRV Guidebooks" as our common goods to achieve net global GHG reduction and sustainable development









Thank you for your attention!

Please visit: The New Mechanisms Information Platform (http://www.mmechanisms.org/e/index.html)



Miguel Jiro Ogahara
Overseas Environmental Cooperation Center, Japan (OECC)
ogahara@oecc.or.jp

