



Market Based Mechanism in Indonesia, a JCM case study



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Indonesia NDC: Emission Reduction Target

Indonesia National Determined Contribution (NDC) proposal : “In 2010, the Government of Indonesia *pledged to reduce emissions by 26% (41% with international support) against the business as usual scenario by 2020*”

Sector	GHG Emission level 2010* (MTon CO ₂ e)	GHG Emission Level 2030			GHG Emission Reduction				Annual Average Growth BAU (2010-2030)	Annual Average Growth 2000-2012
		BaU	CM1	CM2	MTon CO ₂ e		%Total BAU			
					CM1	CM2	CM1	CM2		
Energy*	453.2	1669	1355	1271	314	398	11%	14%	6.7%	4.5%
Waste	88	296	285	270	11	26	0.38%	1%	6.3%	4.00%
IPPU	36	69.6	66.85	66.35	2.75	3.25	0.10%	0.11%	3.4%	0.10%
Agriculture	110.5	119.6	110.4	115.9	9	4	0.32%	0.13%	0.4%	1.30%
Forestry**	647	714	217	64	497	650	17.2%	23%	0.5%	2.70%
TOTAL	1334	2869	2034	1787	834	1081	29%	38%	3.9%	3.20%

*Including Fugitive

**Including Peat Fire

CM1 = Counter Measure (Unconditional Mitigation Scenarios)

CM2 = Counter Measure (Conditional Mitigation Scenarios)



Market Based Mechanism's Role in Climate Change Mitigation

According to the **PARIS AGREEMENT**, there is no **"market"** as a term in **stating market based mechanism**-it can only be referred as **"mechanism"**

The Definition of Market Based Mechanism: *A set of Policies which Governs and Regulates **the market readiness, the market regulations, market prices, or other economic variable which incentivise the user to reduce its carbon emission***

Market Based Mechanism

Crediting

A carbon credit is a financial instrument that allows the holder, to emit one ton of carbon dioxide.

Cap and Trade

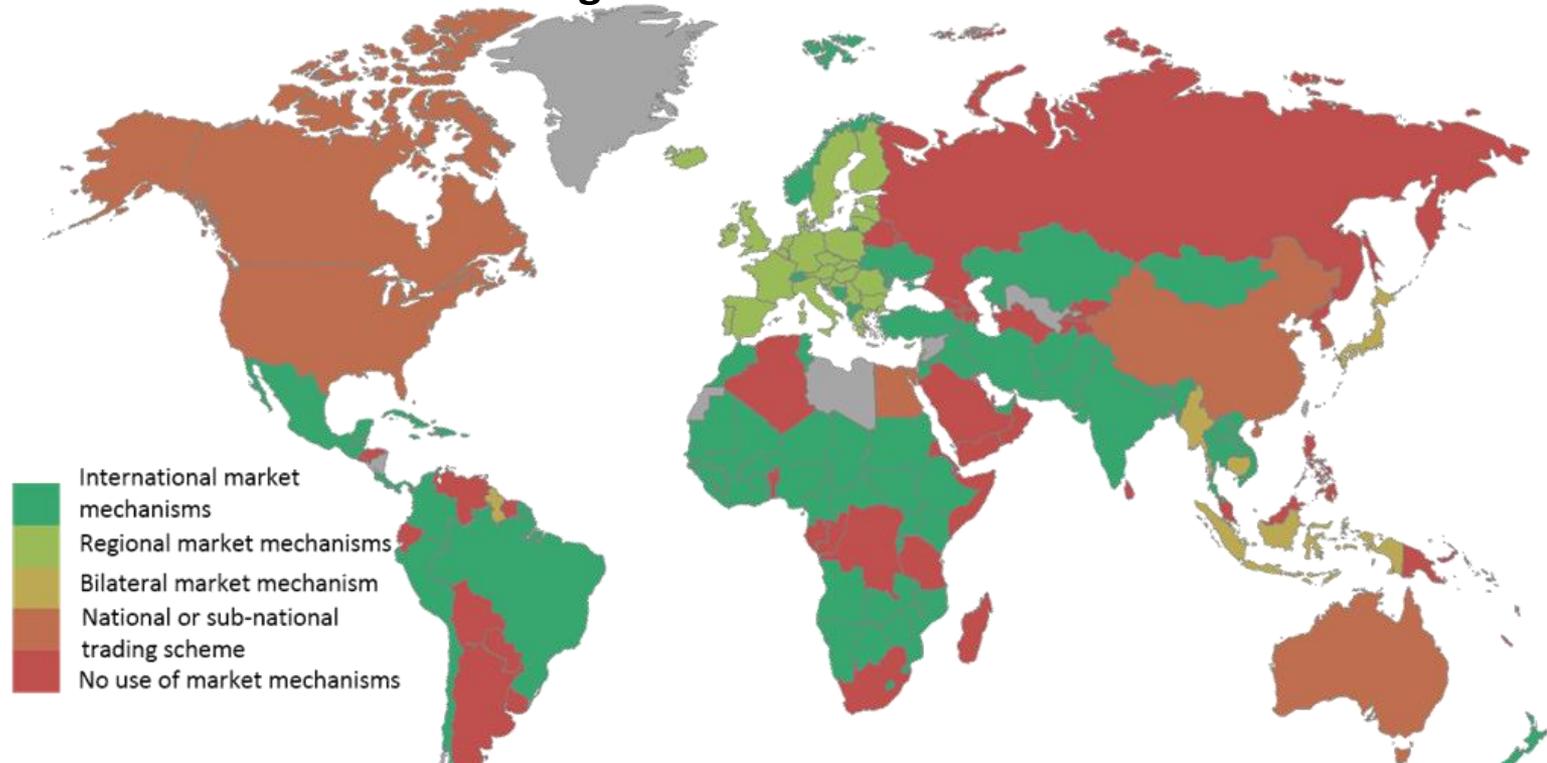
a government regulatory program designed to limit, or cap, the total level of specific chemical by-products resulting from private business activity.

Carbon Tax

A fee - to make users of carbon fuels pay for the climate damage caused by releasing carbon dioxide into the atmosphere

Market Based Mechanism Map

According to Indonesia INDC in 2015, **Indonesia is one of the 97-countries which are “market friendly”** or **A country who has a plan to implement market based mechanism to achieve its emission reduction target**



Market Based Mechanism is proven to be one of the most COST EFFECTIVE mechanism in achieving emission carbon target in comparison with the conventional one.

Market Based Mechanism Implementation in Indonesia

- Stands for *Clean Development Mechanism*
- 202 projects in total,
- Project registered in UNFCCC : 147 projects.
- Total project that already registered its carbon emission reduction : 46 projects.
- Total carbon credit registered: 22.076.416 ton CO₂.

CDM

VCS

- Stands for Verified Carbon Standard
- 13 projects in total.
- Total carbon credit registered : 14.135.243 ton CO₂.
- VCS projects in Indonesia is widely used for REDD+ implementation and aforestation.

- Stands for Joint Carbon Mechanism
- A bilateral cooperation between two countries, i.e., Government of Japan and the host country.
- In Indonesia, there are 28 projects, and 2 projects are already registered the carbon credits.
- Total investment for the project in 150 Mio USD.
- Total carbon credit registered :40 ton CO₂

JCM

Approaches to Integrate Market Based Mechanism to Achieve its NDC Target



Put a Price on a Carbon : Calculation upon emission reduction cost for each of the mitigation activities is required; **The results can be used as starting point of the policy maker in implementing a market mechanism based regulation.**

The Results of Cost Analysis

Further Actions Required

	The Results of Cost Analysis	Further Actions Required
1.	For low carbon emission reduction cost , especially in achieving the unconditional target of 29% carbon emission reduction.	<ul style="list-style-type: none"> • Regulations and policies are set. • Requires support and intensive guidance by the government. • The expenses are covered using government allocation budget or private sectors support.
2.	For middle carbon emission reduction cost , especially in achieving the unconditional target of 29% carbon emission reduction.	<ul style="list-style-type: none"> • Carbon Tax Implementation. • Implementation carbon market mechanism, through <i>trading</i> and/or <i>crediting</i>.
3.	For high carbon emission reduction cost, which are categorised into <i>conditional emission reduction target</i>	<ul style="list-style-type: none"> • Utilise grants which does not belong to non market scheme, • Utilise the international carbon market scheme or International Transfer Mitigation Outcome (ITMO).

Joint Crediting Mechanism (JCM)



The Joint Crediting Mechanism as a G-to-G scheme which encourages private sector organizations to invest in **Low Carbon Development activities in Indonesia** through **incentive from the Government of Japan.**

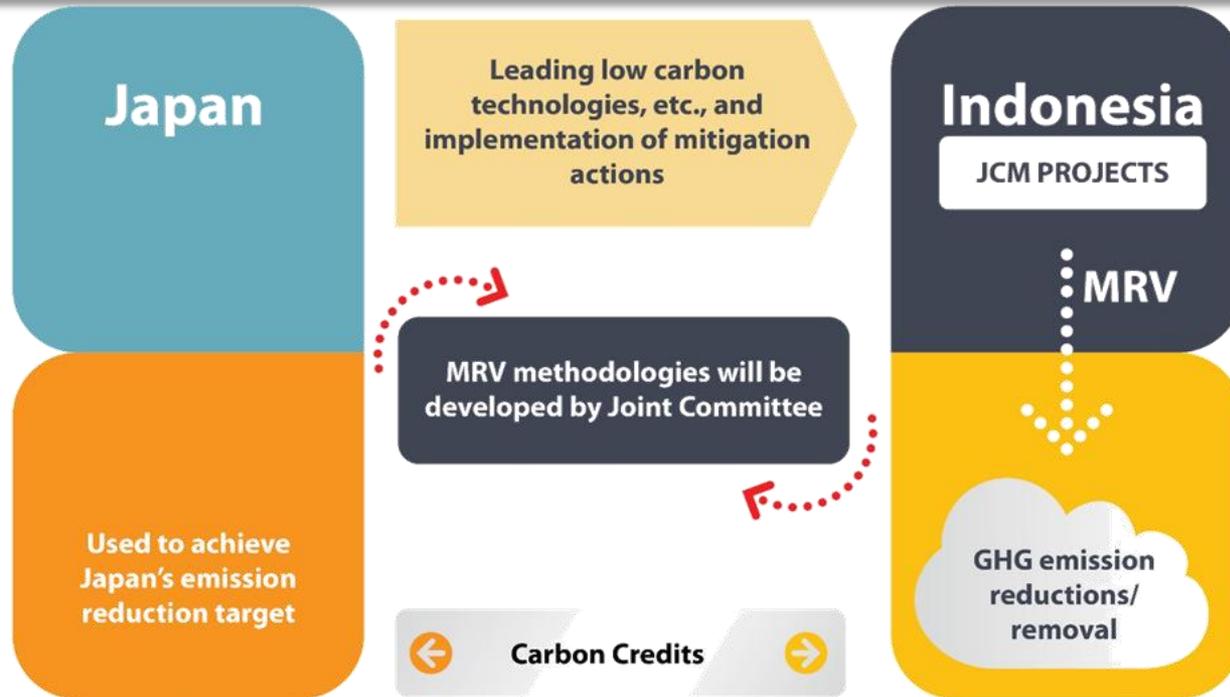
JCM Cooperation between Government Indonesia and Japan **was signed in 2013**

Indonesia JCM Secretariat was established **in 2014**

In 2016, the first JCM credit was issued in Indonesia and in the world

JCM cooperation is **not only conducted by Japan and Indonesia**, but also with **other 17** developing countries.

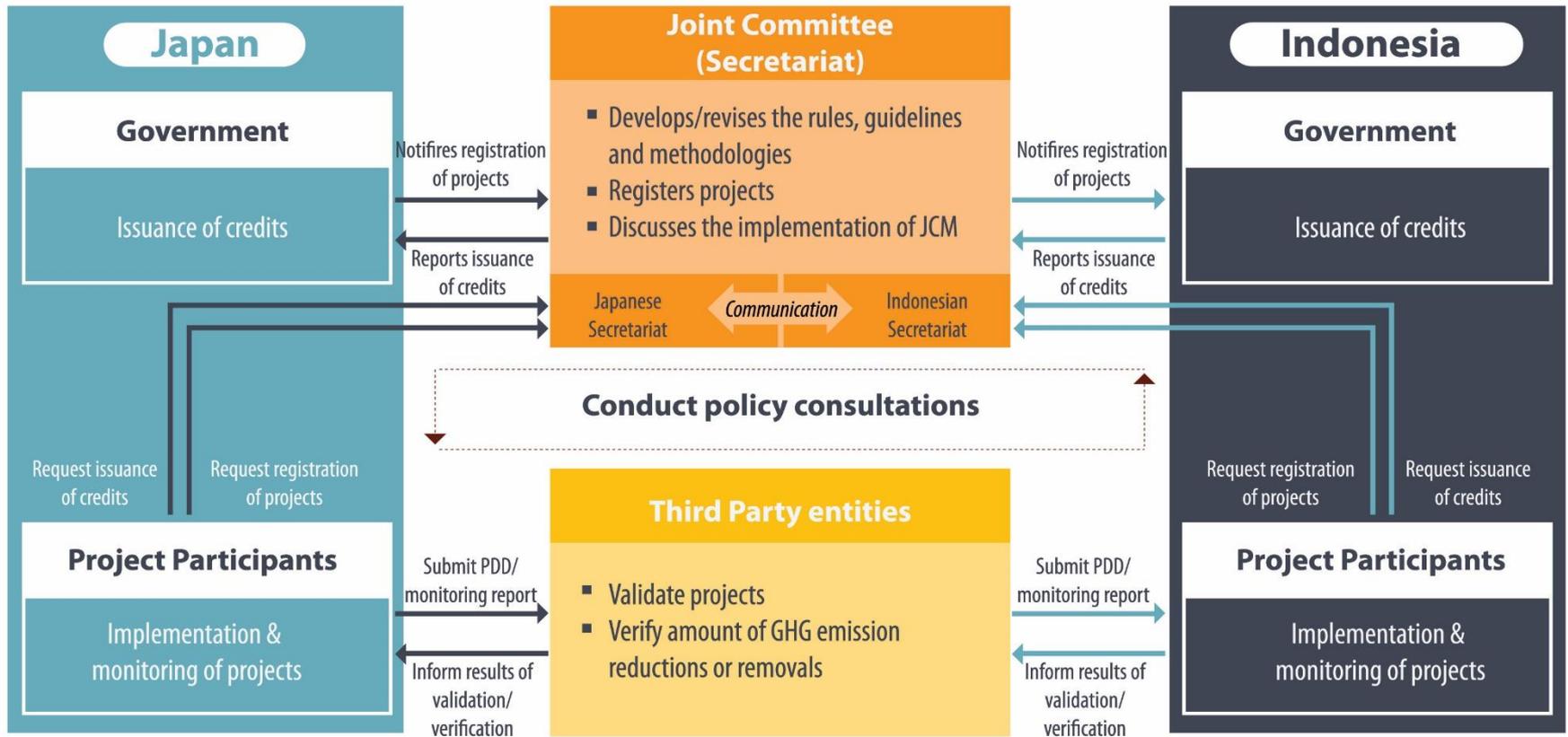
Basic Concept of JCM



The Objective of JCM

- Facilitate 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.
- Evaluate contributions to GHG emission reductions/removals from developed countries in a quantitative manner, through mitigation actions implemented in developing countries and use those emission reductions or removals to achieve emission reduction targets of the developed countries.
- Contribute to the ultimate objective of the UNFCCC by facilitating global actions for emission reductions or

The JCM Cooperation Scheme

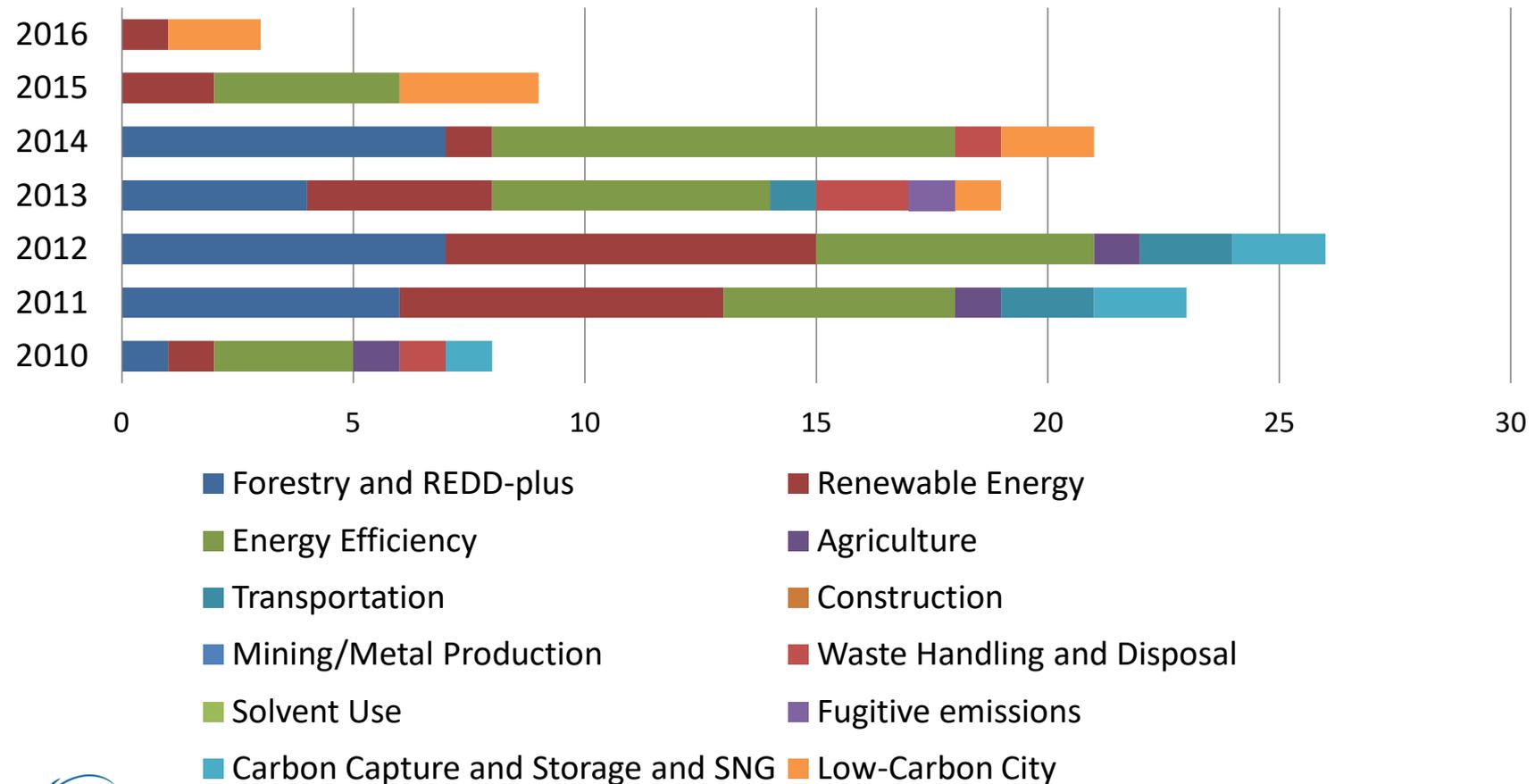


Institutions Related with JCM



Feasibility Study

Feasibility Studies Conducted (2010-2016)



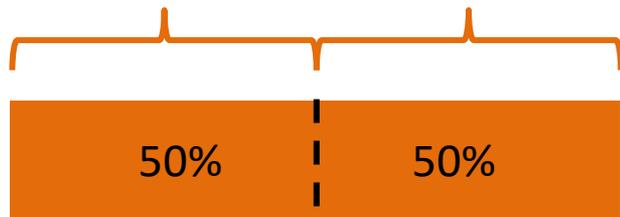
*Per 2016, 109 feasibility studies have been conducted;



Financing Scheme

Model Project

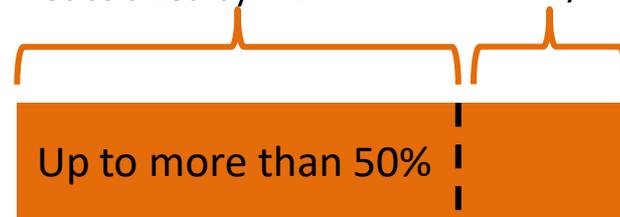
Subsidized by MOE Investment by Participants



Total Cost of the installation

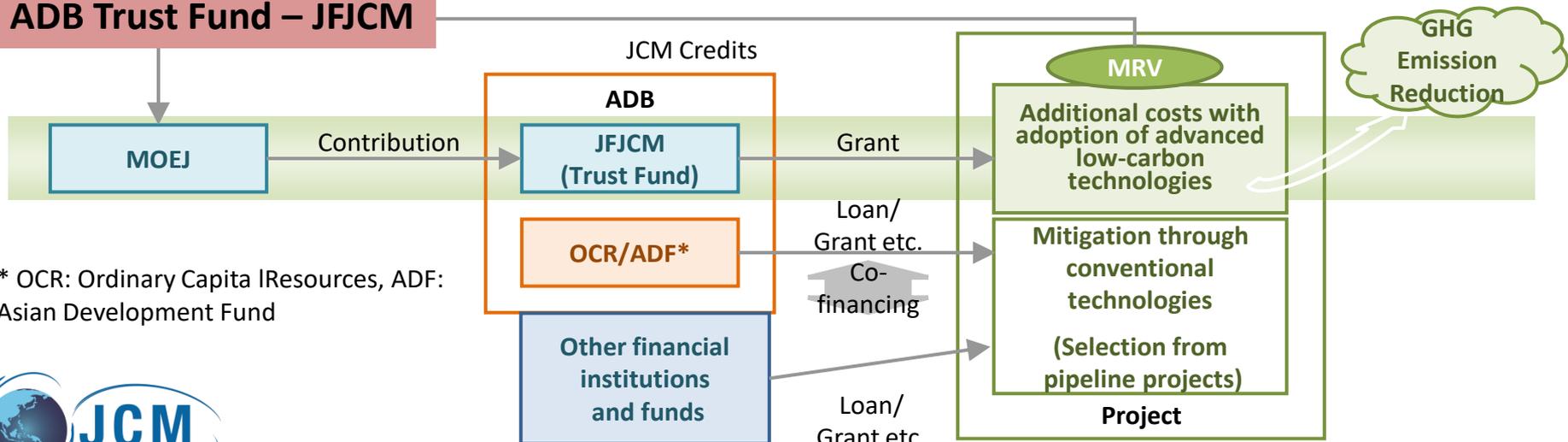
Demonstration Project

Subsidized by METI Investment by Participants



Total investment is discussed and negotiated with METI

ADB Trust Fund – JFJCM



* OCR: Ordinary Capital Resources, ADF: Asian Development Fund

Total Investment of JCM Implementation in Indonesia

1

Grant for
Feasibility Study
10 mio US\$

2

Total investment
of Projects
Implementation
150 Mio US\$



Study and Partnership with several institutions in Japan and Indonesia



37 Mio US\$ of Government of Japan Subsidy



113 Mio US\$ of Project Participants investment

JCM Projects in Indonesia

26 Model
Projects

12 are on-
going
projects

14 projects
are
completed

7 projects are registered (2 of
which are already conducted
its credit sharing mechanism)

3 Demonstration
Projects

1 are on-
going
projects

2 projects are
completed

1 Projects
LULUCF

JCM Projects in Indonesia

JCM Implemented Projects (from 109 Feasibility Studies)		Emission Reduction	
Demonstration Project			
Energy Saving by Optimum Operation at Oil Refinery		3.400 tCO ₂ /year	
Utility Facility Operation Optimization Technology		58.000 tCO ₂ /year	
The low carbonization of mobile communication's BTS by the introduction of TRIBRID system in Indonesia		163 tCO ₂ /year	
Model Project			
Power generation by waste heat recovery in cement industry	122.000 tCO ₂ /year	Energy saving by introduction of high efficiency once-through boiler system in a film factory	428 tCO ₂ /year
Energy saving through introduction of regenerative burners to the aluminum holding furnace of the automotive components manufacturer	856 tCO ₂ /year	Introduction of high efficiency once-through boiler and RO pure water system in golf ball factory	380 tCO ₂ /year
Installation of Solar Power System and Storage Battery to Commercial Facility	549 tCO ₂ /year	Jakabaring Sports City Megasolar Power Plant Project	1,277 tCO ₂ /year
Introduction of High efficient Old Corrugated Cartons Process at Paper Factory	14,884 tCO ₂ /year	Introduction of high-efficiency looms in weaving mill	1,317 tCO ₂ /year
Introduction of 1MW Solar Power System in North Sulawesi	2,394tCO ₂ /year		

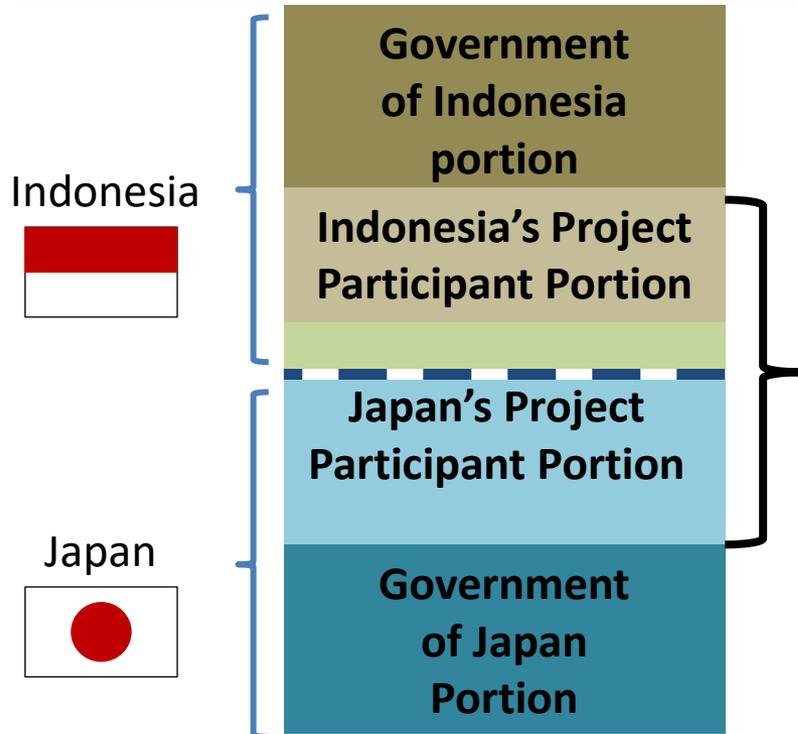
JCM Projects in Indonesia

JCM Implemented Projects (from 109 Feasibility Studies)			Emission Reduction
Model Project			
Reducing GHG emission at textile factories by upgrading to air-saving loom	566 tCO ₂ /year	Energy saving for industrial wastewater treatment system for rubber industry	546 tCO ₂ /year
Installation of Gas Co-generation System for Automobile Manufacturing Plant	20,439 tCO ₂ /year	10MW Mini Hydro Power Plant Project in North Sumatra	42,700 tCO ₂ /year
Energy Saving for Shopping Mall with High Efficiency Centrifugal Chiller	925 tCO ₂ /year	Introduction of LED Lighting to Sales Stores	2,617 tCO ₂ /year
Energy Saving for Industrial Park with Smart LED Street Lighting System	900 tCO ₂ /year	Energy saving for air-conditioning utility system in the airport terminal by introducing high-efficiency operating system	585 tCO ₂ /year
Roof Top Self Consumption Solar Power Generation Project for Food Ingredients and Aroma Ingredients Factory, Indonesia	469 tCO ₂ /year	Introduction of Gas Cogeneration System by absorption type refrigerating system and PV System in Large Shopping Mall in Indonesia	Gas Cogeneration System : 6,883.34tCO ₂ /year Solar Power Generation: 112.4 tCO ₂ /year

JCM Projects in Indonesia

JCM Implemented Projects (from 109 Feasibility Studies)	Emission Reduction
REDD+ Model Project	
REDD+ Model Project in Boalemo district	100.000 tCO ₂ /year
Registered Project	
Energy saving for air-conditioning and process cooling by Introducing High-efficiency Centrifugal Chiller	114 tCO ₂ /year
<i>Project of Introducing High Efficiency Refrigerators to a Food Industry Cold Storage in Indonesia (credit issued)</i>	<i>29 tCO₂/year</i>
<i>Project of Introducing High Efficient Refrigerator to a Frozen Food Processing Plant in Indonesia (credit issued)</i>	<i>11 tCO₂/year</i>
Energy saving for textile factory facility cooling by high efficiency centrifugal chiller	118 tCO ₂ /year
Energy saving for air-conditioning and process cooling at textile factory	117 tCO ₂ /year
Energy Savings at Convenience Stores	372 tCO ₂ /year
Energy saving by double bundle-type heat pump	166 tCO ₂ /year

Credit Sharing Scheme



- Government of Japan and Indonesia will have their contribution in reducing emission
- *Indonesia side* = Government of Indonesia+Indonesia's Project Participant
- *Japan side*= Government of Japan+Japan's Project Participant

How does the credit sharing work?

1. Government of Indonesia will have their share from the emission reduction
2. The project participants will discuss on how the emission reduction will be shared based. This could be based on their total investment of the project.

Example of JCM Project(1)

8 MW cogeneration system at PT. Toyota Motor Indonesia.

This cogeneration system is able to deliver 30% of the total factory electricity demand and also replaces the needs of the utilization of two boilers.

About 3.4 ton of steam per hour is generated through the system. In addition, the system also produces hot water which can be used for the factory manufacturing production such as for the painting process, humidity requirements, and pretreatment in the manufacturing.

Total expected emission reduction is 20,310 tCO₂/year.



Example of JCM Project (2)



“Implementation of Energy Saving Procedure for *Old Corrugated Cartons* (OCC) at Paper Factory” (PT. Fajar Surya Wisesa-Bekasi).

This project enables to reduce energy consumption up to 10% reduction by introducing a high efficient OCC line.

OCC process is a process to prepare clean raw materials containing dissolved paper fibres by mixing used corrugated board into water for defiberization and removing foreign substances.

Total expected carbon emission reduction is 14,800 ton CO₂/year.



Example of JCM Projects (3)



32 MW Waste Heat Recovery Power Generation at Cement Factory.

4 factories units at PT Semen Indonesia in Tuban are able to capture its flue gases emission which is a hot 400 degree celcius air to be used as boiler to generate electricity.

This system enables to reduce electricity consumption up to 25% of the total electricity required in the factory.

Total expected carbon emission reduction is 122,000 ton CO₂/year.



Coordinating Ministry
for Economic Affairs
Republic of Indonesia



Thank you! Terima kasih!

Our website: <http://jcm.ekon.go.id>

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