



The Implementation of the Market Based Mechanisms in Indonesia

a JCM Case Study

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JCM
JOINT CREDITING MECHANISM
INDONESIA SECRETARIAT

Coordinating Ministry
for Economic Affairs
Republic of Indonesia

Current market based mechanisms in Indonesia

CDM

- Giving very high expectation in the beginning, very difficult and complex to be implemented, and suddenly everything was stopped due to the lack of demands, now we have no new projects for CDM.
- The credits were transferred to the buyer countries, while in Indonesia we only receive co-benefits of the implementation.

VCS

- Relatively small compare to CDM, but still growing smoothly.
- Indonesia has the biggest REDD+ project under the VCS, there is until now the only land based project under Indonesia VCS development.
- Some of the CDM projects change to be VCS projects because of the lack of CER's demand from EU-ETS and other countries.

Domestic Scheme

- Still in the very preliminary stage.
- High expectation to have the domestic scheme in Indonesia, but it will need very strong government support.
- It is expected to be one of the alternative for the market based mitigation actions.

Carbon Tax

- The Energy Security Fund/Levy is planned to be established.
- This is a very good opportunity for the Carbon Tax Implementation.

Indonesia INDC

Market and non market approaches

The JCM Scheme

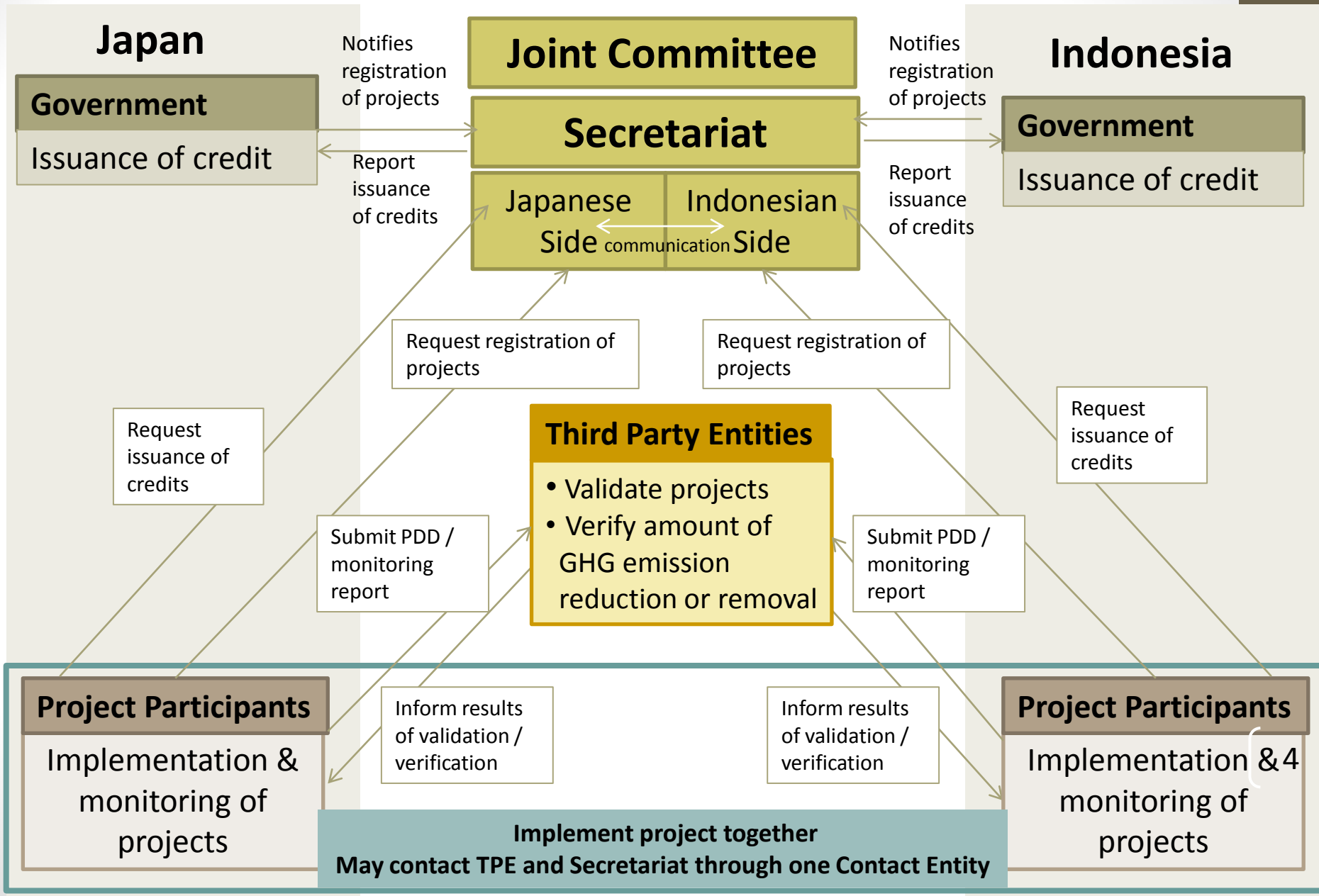
- **The Joint Crediting Mechanism currently is the most progressive market based mechanism and climate change mitigation activities in Indonesia and in the world.**
- **It is not only about the bilateral carbon trading, but rather how to develop and implement the green investment as well as low emission development and technology transfer between the 2 countries.**
- **Japan and Indonesia have their own national target on emission reduction to be achieved, and it can be done through JCM, the emission reduction can be shared.**
- **Both countries are required to increase their economic development as well as develop more opportunities for their private sectors to grow.**

JCM is the newest market based mechanism to be developed, but the fastest growing in the world

JCM basic Concept

- **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 is not only conducted by Japan and Indonesia, but also with other 16 developing countries.**
- **Bilateral Cooperation on the Joint Crediting Mechanism for the Low Carbon Growth Partnership between the Republic of Indonesia and Japan has been signed** by the Coordinating Minister for Economic Affairs of Indonesia and Minister for Foreign Affairs of Japan.
- **Objectives of the JCM:**
  1. Facillitate 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.
  2. 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.
  3. Contribute to the ultimate objective of the UNFCCC by facilitating global actions for emission reductions or removals.

JCM scheme


Japan
Government
Issuance of credit
Notifies registration of projects
Report issuance of credits
Joint Committee
Secretariat
Japanese Side
communication
Indonesian Side
Notifies registration of projects
Report issuance of credits
Indonesia
Government
Issuance of credit
Request registration of projects
Request registration of projects
Request issuance of credits
Request issuance of credits
Third Party Entities
• Validate projects
• Verify amount of GHG emission reduction or removal
Submit PDD / monitoring report
Submit PDD / monitoring report
Project Participants
Implementation & monitoring of projects
Inform results of validation / verification
Inform results of validation / verification
Project Participants
Implementation & monitoring of projects
Implement project together
May contact TPE and Secretariat through one Contact Entity

JCM feasibility studies in Indonesia

The JCM FS scheme provides financing funded by the Ministry of Environment Japan (MoEJ) and Ministry of Economy, Trade and Industry Japan (METIJ)

List of JCM implemented project (1)

No	Project	Entities	Estimated Annual Emission Reduction (tCO2)
1	***Remote Auto-Monitoring System for Thin-Film Solar Power Plant in Indonesia***	Sharp & PLN	1,433
2	***Energy Saving by Optimum Operation at Oil Refinery***	Yokogawa & Pertamina	3,400
3	***Utility Facility Operation Optimization Technology***	Azbil & Pertamina	58,000
4	***The low carbonization of mobile communication's BTS (Base Transceiver Station) by the Introduction of "TRIBRID system" in Indonesia.***	KDDI Corporation, Ernst & Young Sustainability Co., Ltd. , PT. Packet Systems Indonesia , and PT Huawei Services	163
5	***Power generation by waste heat recovery in cement industry***	JFE Engineering Corporation & PT Semen Indonesia Tbk	122,000
6	***Energy Savings at Convenience Stores***	Lawson & PT Midi Utama Indonesia, Tbk	396
7	***Energy saving through introduction of regenerative burners to the aluminum holding furnace of the automotive components manufacturer***	Toyotsu Machinery Corporation, PT Yamaha Motor Parts Manufacturing Indonesia, Hokuriku Techno Co. Ltd., PT Matahari Wasiso Utama	856
8	***Solar power hybrid System installation to existing base transceiver stations in off-grid area***	ITOCHU Corporation & PT Telekomunikasi Selular	2,786
9	***Energy saving for textile factory facility cooling by high efficiency centrifugal chiller***	Ebara Refrigeration Equipment & System Co., PT Nikawa Textile Industry, PT Ebara Indonesia	118
10	***Energy saving by double bundle-type heat pump***	Toyota Tsusho Corporation & PT TTL Indonesia	170

List of JCM implemented project (2)

No	Project	Entities	Estimated Annual Emission Reduction (tCO2)
11	***Introduction of High efficient Old Corrugated Cartons Process at Paper Factory***	Kanematsu Corporation & PT Fajar Surya Wisesa Tbk	14,884
12	***Reducing GHG emission at textile factories by upgrading to air-saving loom***	Toray Industries, Inc, PT Indonesia Synthetic Textile Milles (ISTEM) / PT Easterntex / PT Century Textile Industry Tbk (CENTEX) / PT Toray Industries Indonesia (TIN)	566
13	***Energy saving for air-conditioning and process cooling at textile factory***	Ebara Refrigeration Equipment & Systems & PT Primatexco Indonesia	117
14	***Energy Saving for Shopping Mall with High Efficiency Centrifugal Chiller***	NTT Facilities, INC & PT. Pakuwon Jati Tbk	925
15	***Energy Saving for Industrial Park with Smart LED Street Lighting System***	NTT Facilities, INC dan PT. Maligi Permata Industri Estate, PT. Harapan Anang Bakri & Sons, PT. Karawang Tatabina Industrial Estate	900
16	***Energy saving by introduction of high efficiency once-through boiler system in a film factory***	Mitsubishi Plastics, INC & PT. MC Pet Film Indonesia	429
17	***REDD+ Model Project in Boalemo District***	Kanematsu Corporation & PT. Gobel Group DKM)	100,000

List of JCM implemented project (3)

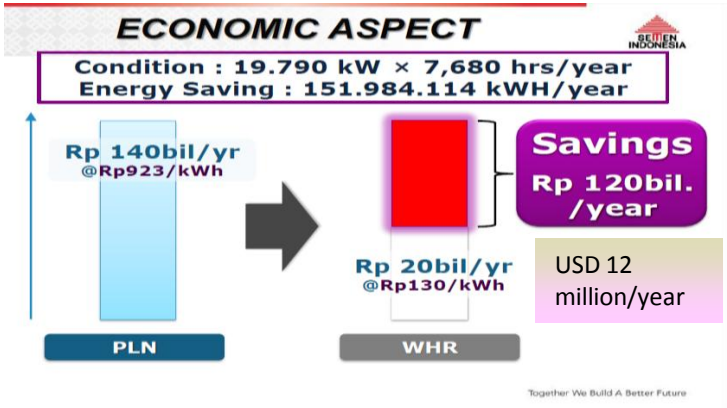
No	Project	Entities	Estimated Annual Emission Reduction (tCO2)
18	***Installation of Gas Co-Generation System for Automobile Manufacturing Plant***	Toyota Tsusho Corporation & PT Toyota Motor Manufacturing Indonesia	20,439
19	***Jakabaring Mega Solar Power Plant Project***	Sharp Corporation & local company	1,265
20	***Introduction of high efficiency once-through boiler and RO pure water system in golf ball factory***	Sumitomo Rubber Industries, Ltd, & PT Sumi Rubber Indonesia	380
21	***Energy saving for air-conditioning and process cooling by Introducing High-efficiency Centrifugal Chiller***	Ebara Refrigeration Equipment & Systems, Nippon Koei, dan PT Primatexco Indonesia	116
22	***Project of Introducing High Efficiency Refrigerators to a Food Industry Cold Storage in Indonesia***	Mayekawa Manufacturing Co., Ltd, PT Adib Global Food Supplies, PT Mayekawa Indonesia	120
23	***Project of Introducing High Efficiency Refrigerator to a Frozen Food Processing Plant in Indonesia***	Mayekawa Manufacturing Co., Ltd, PT Adib Global Food Supplies, PT Mayekawa Indonesia	21
		Total Estimated Annual Emission Reduction	**329,483**

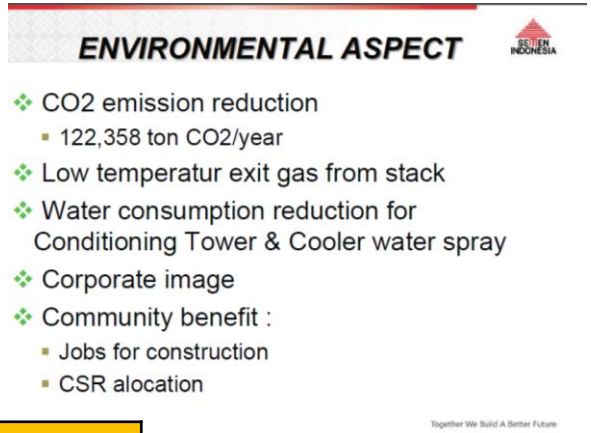
Registered projects

In 2 years we have received about 41 millions USD JCM subsidy from Japan Government and generate about 70 millions USD from Indonesia private sectors! The average abatement cost is more than 200 USD per ton CO2....

JCM project implementation (1)

30.6 MW power generation by waste heat recovery at cement factory





No.	DESCRIPTION	SHARE	REMARKS
1.	***INVESTMENT COST***		
	> Foreign scope	*49.05%*	*Major equipment supply, supervision*
	> Local scope	*50.95%*	*Local installation, civil buidling, local fabrication, dust conveying, water treatment plant*
	TOTAL INVESTMENT	*100.00%*	
2.	***NET INVESTMENT***	*81.56%*	
3.	***SUBSIDY (from JCM)***	*18.44%*	*(from JCM)*

Total Investment: IDR 638 billion (51 million USD), Japan government JCM subsidy scheme is around 11 million USD.

Lower investment index (Rp/kW) by utilization of JCM

JCM project implementation (2)

Registered projects

Energy Saving for Air-Conditioning and Process Cooling by Introducing High-efficiency Centrifugal Chiller

- Ebara Equipment & Systems and PT Primatexco Indonesia
- Estimated total emissions reduction of **799 tCO_2 eq.** by 2020

Project of Introducing High Efficiency Refrigerator to a Food Industry Cold Storage in Indonesia

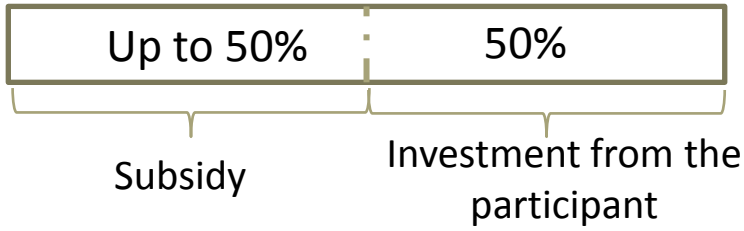
- Mayekawa MFG Co., Ltd and PT Adib Global Food Supplies
- Expected total emission reduction of 845 tCO_2 by 2020

Project of Introducing High Efficiency Refrigerator to a Frozen Food Processing Plant in Indonesia

- Mayekawa MFG Co., Ltd and PT Adib Global Food Supplies
- Expected total emission reduction of 151 $tCO_{2\ by\ 2020}$

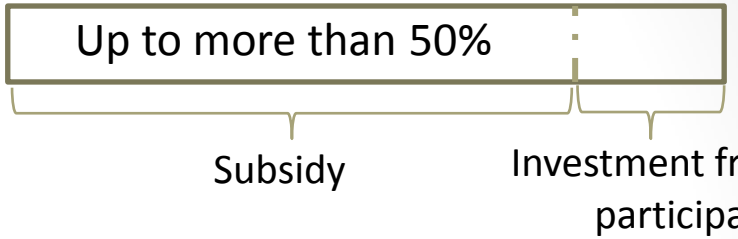
JCM Project Funding Scheme

Model Project by MOEJ



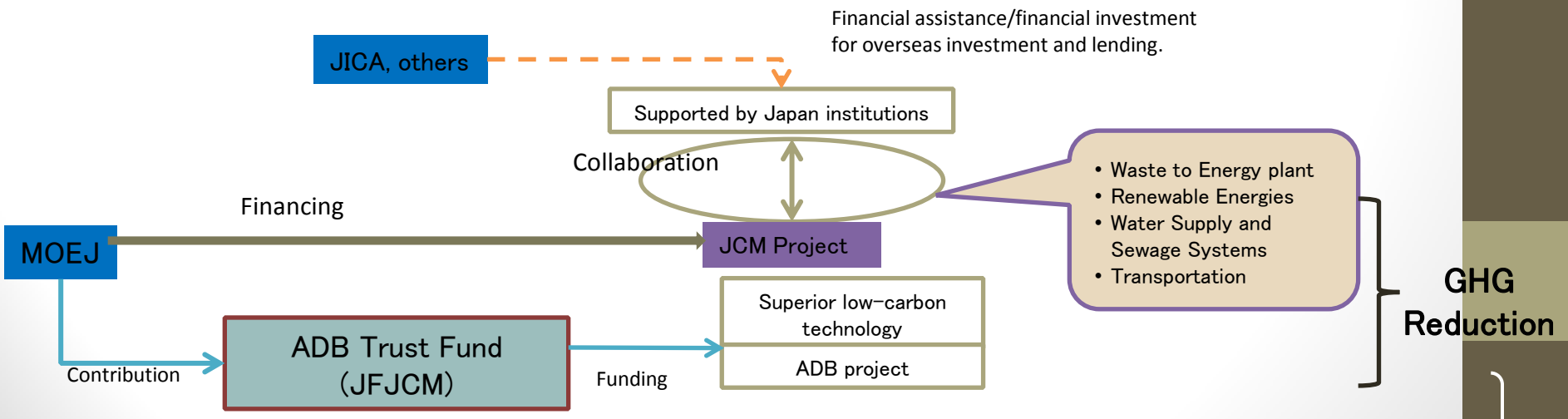
- Covers up to 50% of the installation cost of the installed emission reduction equipment.
- Establishment of Joint Venture is mandatory.

Demonstration Project by METI



- Within certain period, the equipment will be owned by METI, subsequently it will be transferred to the participant.
- Establishment of Joint Venture is not mandatory.

New Support Program Enabling "Leapfrog" (Development Fund/ADB) by MOE



ADB financing program (Japan Fund-JCM/JF-JCM)

- JFJCM provides financial incentives for adoption of advanced low-carbon technologies in ADB-financed sovereign and non-sovereign project utilizing the JCM.
- As of November 2015, the contribution reach to $ 31.6 Mio (3.6 billion Yen)
- Maximum grant is $10 mio or 10% of the project whichever is lower

Sovereign Project

- To fund incremental cost of deploying low-carbon technologies from a "BAU" technology cost
- Project costing less than $50 mio → ceiling $5 mio
- Financed for the government and public sector entities in the form of Grant

Non-Sovereign Project

- To find a portion of the interest margin of ADB-financed loan
- Direct financial assistance to private sector projects
- Financial support in the form of reduction in the interest margin of ADB-financed loans.

Indonesia commitment to various sources of financing in INDC:

…. Indonesia's addition al 12% of intended contribution by 2030 is subject to provision in the global agreement including through bilateral cooperations, covering technology/ deployment and transfer, capacity building, payment for performance mechanisms, technical cooperation and access to financial resources.

…. Indonesia will meet its unconditional commitments regardless of the existence of international market mechanisms. Indonesia welcomes bilateral, regional and international market mechanisms that facilitate and expedite technology development and transfer, payment for performance, technical cooperation, and access to financial resources to support Indonesia's climate mitigation and adaptation efforts toward a climate resilient future.

The article 6 of Paris Agreement

1. Parties recognize that some Parties choose to pursue voluntary cooperation in the implementation of their nationally determined contributions to allow for higher ambition in their mitigation and adaptation actions and to promote sustainable development and environmental integrity.
2. Parties shall, where engaging on a voluntary basis in cooperative approaches that involve the use of internationally transferred mitigation outcomes towards nationally determined contributions, promote sustainable development and ensure environmental integrity and transparency, including in governance, and shall apply robust accounting to ensure, inter alia, the avoidance of double counting, consistent with guidance adopted by the Conference of the Parties serving as the meeting of the Parties to the Paris Agreement.
3. The use of internationally transferred mitigation outcomes to achieve nationally determined contributions under this Agreement shall be voluntary and authorized by participating Parties.
4. A mechanism to contribute to the mitigation of greenhouse gas emissions and support sustainable development is hereby established under the authority and guidance of the Conference of the Parties serving as the meeting of the Parties to the Paris Agreement for use by Parties on a voluntary basis. It shall be supervised by a body designated by the Conference of the Parties serving as the meeting of the Parties to the Paris Agreement, and shall aim:
    1. To promote the mitigation of greenhouse gas emissions while fostering sustainable development;
    2. To incentivize and facilitate participation in the mitigation of greenhouse gas emissions by public and private entities authorized by a Party;
    3. To contribute to the reduction of emission levels in the host Party, which will benefit from mitigation activities resulting in emission reductions that can also be used by another Party to fulfill its nationally determined contribution; and
    4. To deliver an overall mitigation in global emissions.

The article 6 of Paris Agreement

5. Emission reductions resulting from the mechanism referred to in paragraph 4 of this Article shall not be used to demonstrate achievement of the host Party's nationally determined contribution if used by another Party to demonstrate achievement of its nationally determined contribution.
6. The Conference of the Parties serving as the meeting of the Parties to the Paris Agreement shall ensure that a share of the proceeds from activities under the mechanism referred to in paragraph 4 of this Article is used to cover administrative expenses as well as to assist developing country Parties that are particularly vulnerable to the adverse effects of climate change to meet the costs of adaptation.
7. The Conference of the Parties serving as the meeting of the Parties to the Paris Agreement shall adopt rules, modalities and procedures for the mechanism referred to in paragraph 4 of this Article at its first session.
8. Parties recognize the importance of integrated, holistic and balanced non-market approaches being available to Parties to assist in the implementation of their nationally determined contributions, in the context of sustainable development and poverty eradication, in a coordinated and effective manner, including through, inter alia, mitigation, adaptation, finance, technology transfer and capacity-building, as appropriate. These approaches shall aim to:
    1. Promote mitigation and adaptation ambition;
    2. Enhance public and private sector participation in the implementation of nationally determined contributions; and
    3. Enable opportunities for coordination across instruments and relevant institutional arrangements.
9. A framework for non-market approaches to sustainable development is hereby defined to promote the nonmarket approaches referred to in paragraph 8 of this Article.

Some thinking of the article 6 of Paris Agreement (PA)

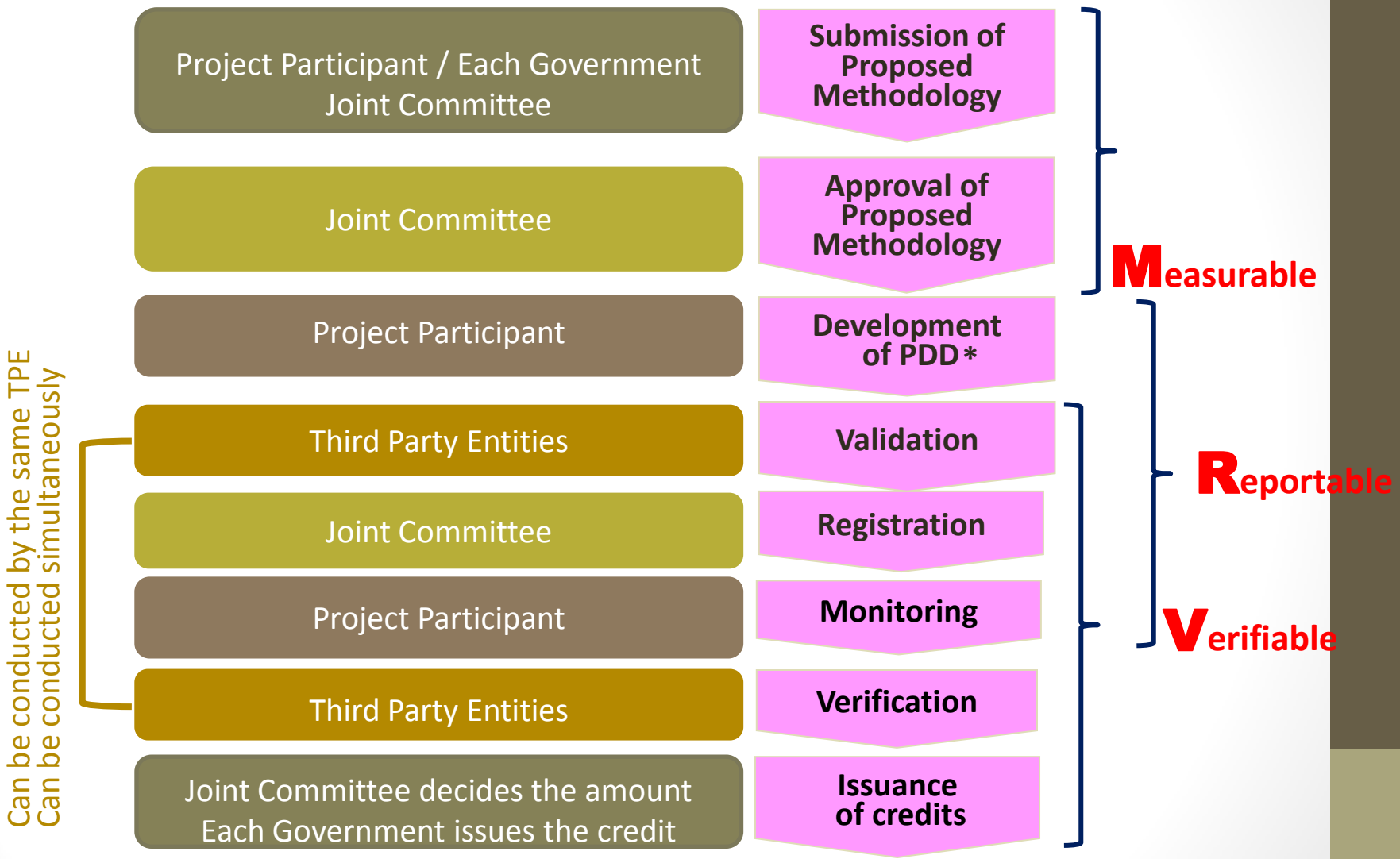
1. Article 6 has a strong linkage with article 5 of the PA (REDD+).
2. Parties can develop voluntary cooperation (bilateral, regional, or multilateral) to pursue their emission reductions.
3. The use of internationally transferred mitigation outcomes (ITMO's) are allowed to support the NDC's.
4. New mechanism called "Sustainable Development Mechanism" will be established under the PA.
5. The emission reduction that comes from the mechanism shall promote sustainable development and ensure environmental integrity and transparency, including in governance, and shall apply robust accounting to ensure, inter alia, the avoidance of double counting.
6. Non market approaches (NMA) also allowed to be used in NDC fulfilment.

What else?
A lot of things have to be agreed in order to develop technical elements for the NDC implementations!

JCM and article 6 of Paris Agreement (PA)

1. JCM was designed to fulfill international commitment of the emission reduction.
2. All of the JCM infrastructures aims to deliver and promote sustainable development and ensure environmental integrity and transparency, including in governance, and shall apply robust accounting to ensure, inter alia, the avoidance of double counting.
3. As a voluntary cooperation between countries, JCM is proposed to support the involved countries of the use of internationally transferred mitigation outcomes (ITMO's) . JCM credits can be categorized as ITMO's.
4. Hopefully in the near future, the JCM can be recognized and then integrated to the new mechanism that will be developed based on PA because of almost all of the requirements can be fulfilled.

MRV in JCM steps



*PDD: Project Design Document

JCM Indonesia infrastructures development

Since JCM establishment in 2013, it has developed several guidelines, procedure, rules, registry system and methodologies

Guideline:

1. **Project Design Document**
2. **Proposed Methodology**
3. **Third Party Entity**
4. **Validation and Verification**
5. **Sustainable Development Implementation Plan and Report (Indonesia specific JCM)**

Rules: 1. Rules of Implementation
2. Rules of Procedure for JC

Procedure: Project Cycle Procedure

Methodologies:
10 methodologies of energy efficiencies and renewable energy have been developed

ISO 14065 based

Registry system:
We have developed the first climate change mitigation registry system in Indonesia, and it is expected to connect with the National Registry

JCM methodologies in Indonesia

The role of Indonesia JCM Secretariat in the proposed methodologies review:

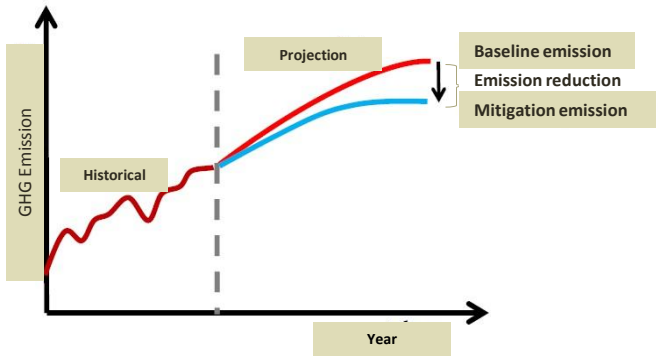
- Secretariat team conduct completeness check and review (in conjunction with experts)
- Using methodology review form
- Discussion meetings between related ministries
- Prepare website for public comment

10 Approved Methodologies

1. Power Generation by Waste Heat Recovery in Cement Industry
2. Energy Saving by High-Efficiency Centrifugal Chiller
3. Installation of Energy-Efficient Refrigerators Natural Refrigerants at Food Industry Cold Storage and Frozen Food Processing Plant
4. Installation of Air-Conditioning for Grocery Store
5. Installation of LED lighting for grocery store
6. GHG emission reductions through optimization of refinery plant
7. GHG emission reductions through optimization of boiler operation in Indonesia
8. Installation of a separate type fridge-freezer showcase by using natural refrigerant for grocery store to reduce air-conditioning load inside the store
9. Replacement of conventional burners with regenerative buners for aluminum holding furnaces
10. Introducing double-bundle modular electric heat pumps to a new building

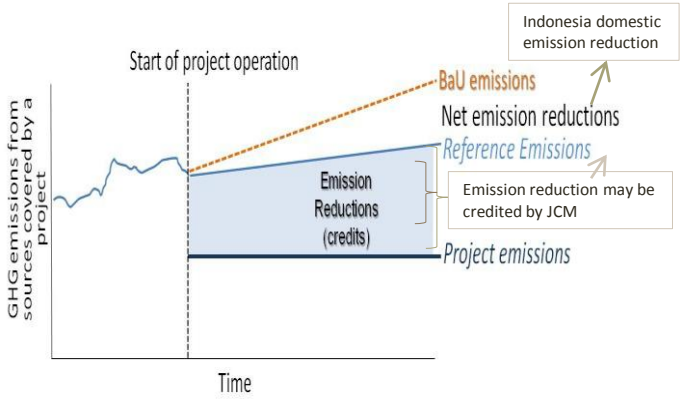
Comparison between JCM basic MRV with other schemes

Baseline emission based calculation



Other mitigation project in Indonesia

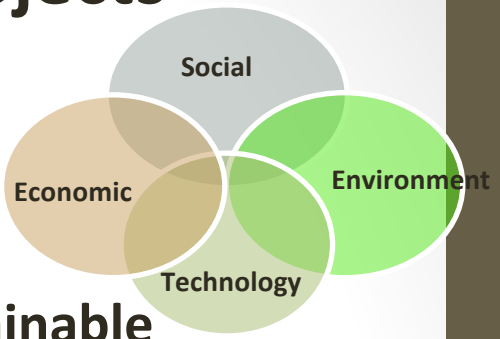
Reference emission based calculation



JCM project

1. In the JCM, *emission reductions* to be credited are defined as the difference between **reference emissions** and project emissions.
2. *Reference emissions* are calculated below business-as-usual (BaU) emissions which represent **plausible emissions** in providing the same outputs or service level of the proposed JCM project in the host country.
3. JCM approach will ensure a net decrease and/or avoidance of GHG emissions.
4. *The value of Reference Emissions in JCM depends on the methodology. Therefore, the value can be equal or different with Baseline Emission.*

Sustainable Development in JCM projects



1. One of the JCM purpose is to contribute to sustainable development
2. Indicator is needed to evaluate achievement in JCM.
3. Ensure every JCM project will deliver co-benefit for Indonesia.
4. To fulfill global standards for appropriate climate change mitigation action under the UNFCCC
5. Enforcement of sustainable development criteria suitable for Indonesian conditions

- Sustainable Development Implementation Plan (SDIP) must be submitted during request of registration
- Sustainable Development Implementation Report (SDIR) is assessed during request of issuance

JCM registry system

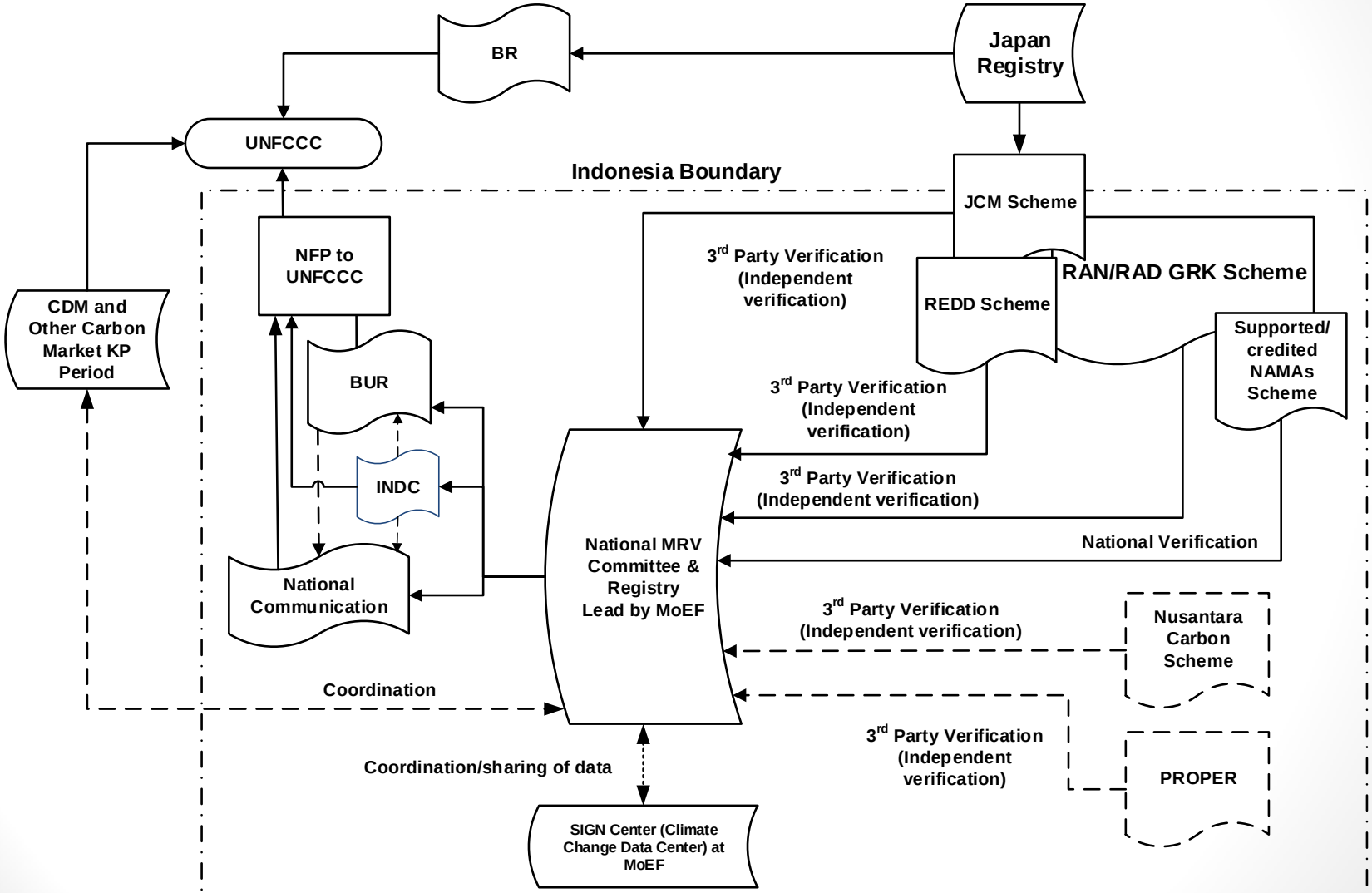
Components of the Registry			
	Operation	Remarks	Sheets Link
Master Operation	Register Project		Register Project
	Open Account	One account for one entity	Open Account
	Edit Project Info		Edit Project
	Edit Account Info	Editing credits info is not allowed	Edit Account
Credits Related Operation	Issuance of Credits		Issuance
	Transfer of Credits		Transfer
	Retirement of Credits		Retirement
	Cancellation of Credits		Cancellation
	Balance Inquiry		Balance
	Database	Remarks	Sheets Link
Master	Project Info Master		Project Master
	Credit Issuance Master		Credit Master
	Account Master		Account Master
	Histry of Operation		History
Account	Holding Accounts	For Indonesian gov and entities	Account Number / Move To
	Retirement Account		Retirement Account
	Cancellation Account		Cancellation Account

The JCM registry system is the first GHG registry developed in Indonesia!

The registry system in Indonesia is developed and maintained to ensure the accurate accounting of the issuance, holding, transfer, acquisition, cancellation and retirement of JCM credits.

- **Three (3) basic transactions in JCM registry: transfer, cancellation, and retirement.**
- **Components in the Indonesia JCM registry:**
  - **"Master Operation sheet" to register JCM project and new account in the system and to modify the information which already in the registry system**
  - **"Credit Related Operation sheet" to manage the JCM credit in the registry system**
  - **"Master sheets" act as a database that store all operation and input in the system.**
  - **"Account sheets" is to manage the credit amount of each account.**

Possible linkages among emission reduction schemes in Indonesia to fulfil NDC



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JCM
JOINT CREDITING MECHANISM
INDONESIA SECRETARIAT

JICA

Thank you! Terima kasih!

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