

Chapter 7

Enhancing the Joint Crediting Mechanism MRV to Contribute to Sustainable Development

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Abstract This chapter looks at the initial progress of the JCM implementation in contributing to sustainable development in developing countries through facilitating diffusion of leading low-carbon technologies and implementation of mitigation actions. The current progress of the JCM in 16 partner countries looks promising with an established MRV system and efficient governance process. MRV methodologies are easy to use and benefits from standardized forms, default values, and practical monitoring system, but the methods in determining the reference emissions need to be strengthened. Rigorous project promotion is needed in underrepresented partner countries, especially least-developed countries, by supporting national programs and initiatives. The JCM should aim not only to complement, but also to improve preceding market mechanisms, by implementing a regulatory framework for evaluating its contributions to sustainable development. There is a need to clarify ways of credit allocation, arrange ways of credits accounting for national report and towards national pledge, and define the pathway of the JCM to a tradable crediting mechanism or retain its status quo of producing non-tradable credits.

Keywords Japan • JCM • Market mechanism • MRV • Technology transfer

7.1 Introduction

The Joint Crediting Mechanism (JCM) was initiated by the Government of Japan in pursuit of achieving global greenhouse gas emissions reduction/removals through facilitating diffusion of leading low carbon technologies, products, systems, services, and infrastructure as well as implementation of mitigation actions to contribute to sustainable development of developing countries. As of January 2016, 16 countries have signed bilateral agreement with Japan to implement the JCM;

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Mongolia, Bangladesh, Ethiopia, Kenya, Maldives, Vietnam, Lao PDR, Indonesia, Costa Rica, Palau, Cambodia, Mexico, Chile, Saudi Arabia, Myanmar, and Thailand. The JCM promotes the use of advanced technologies and measure, report, and verify emissions reduced by the technologies.

7.2 The JCM Overview

The JCM was initially designed to complement the CDM. Some of its main differences with the Kyoto Protocol mechanism are its decentralized governance, simple and practical MRV system, and the credits its projects generate, up to the time of writing, are internationally non-tradable.

The JCM is ‘decentralized’ as it is implemented under bilateral cooperation between Japanese and partner countries government. The measurement, reporting, and verification (MRV) of the JCM are based on projects using the JCM MRV *methodologies* as the tool, which is developed under ‘simplified’ and ‘practical’ principles using clear technology-based eligibility criteria, list of default values, and ready-to-use monitoring templates. As depicted in Fig. 7.1, the Joint Committee between each partner country and Japan develops and approves the technology-based MRV methodologies to be used by projects to procure the greenhouse gas emission reductions/removals. Verified reductions/removals will be issued by each government as *JCM credits*. These credits are not financially valued and cannot be traded internationally. However, the JCM agreements do not rule out the possibility of domestic trade in line with partner country policy.

Instead of buying credits from partner countries, the Japanese government offers project developers upfront financial incentives for installing the advanced technologies. These incentives are expected to contribute to resolving the burden of high capital investments that have been hindering the development and utilization of advanced technologies in developing countries.¹ Currently, incentives to support projects implementation throughout their cycle are available from the Ministry of the Environment Japan (MOEJ), Ministry of Economy, Trade, and Industry Japan (METIJ), Asian Development Bank (ADB, through Japan Fund for JCM with contributions from MOEJ), and Japan International Cooperation Agency (JICA, in cooperation with MOEJ).

Technology installation is supported by either full grant (under long-term entrustment), partial subsidy (direct subsidy up to 50% of project investment cost), loan, or loan interest subsidy. Development of methodology, project design document (PDD), monitoring, reporting, and verification (only the first time) are

¹Mitchell, C., et al., in IPCC, 2011. *Special Report on Renewable Energy Sources and Climate Change Mitigation (SRREN)*. Cambridge: University Press, Cambridge, United Kingdom; Metz et al., in IPCC, 2000. *Methodological and Technological Issues in Technology Transfer*. Cambridge: Cambridge University Press, UK.

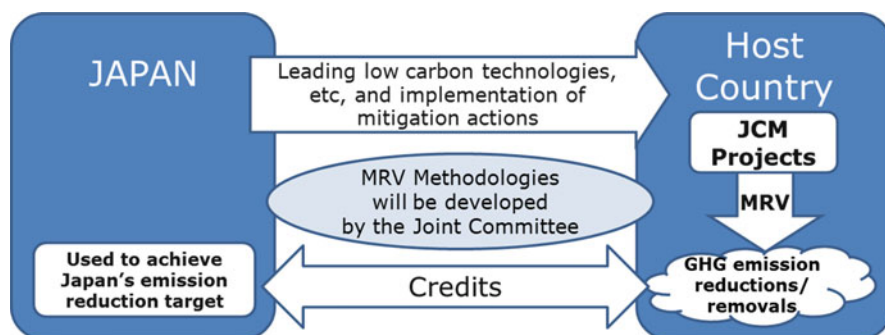


Fig. 7.1 The JCM scheme between Japan and partner country (Government of Japan, 2016)

also supported technically and financially. Feasibility study and capacity building are supported by full grant.

The interaction between the Japanese government, partner country, the JCM Joint Committee and other stakeholders which include project participants, third-party entities, and the Joint Committee secretariat is illustrated in Fig. 7.2.

The Japanese and each partner country government form a JCM Joint Committee with Co-Chairs appointed by each side. Co-Chair from Japanese side is an official of the Embassy of Japan in the partner country, and Co-Chair from the partner country government usually is a representative of the signatory or host ministry. Host ministry from partner countries is typically the Ministry of the Environment or related, except for Indonesia (Coordinating Minister of Economic Affairs), Saudi Arabia (Ministry of Petroleum and Mineral Resources), and Palau (Minister of Public Infrastructure, Industry and Commerce).² The role of Joint Committee is similar to those of Executive Board of the Clean Development Mechanism (CDM). It develops and approves rules and procedures, MRV methodologies, registers eligible projects, and approves request for credits issuance.

The secretariat serves the Joint Committee to support these roles. The Japanese government appoints a private company as its secretariat for all partner countries. Most partner countries appoint an office under its Co-Chairing host ministry, with mandates ranging from disaster management, natural resources management, climate change, sustainable development, to environmental conservation fund. In Indonesia and Mongolia, the Joint Committee established a dedicated entity to implement the JCM. Partner country secretariat collaborates with the Japanese secretariat in development of procedures and document reviews.

Project participants, who may be private companies, public organizations, foundations, or academic institutions from Japan and partner country establish a consortium, or a kind of joint venture, and propose projects jointly.³ The Japanese

²The Joint Crediting Mechanism (JCM) official website, <https://www.jcm.go.jp/>

³Global Environment Center Foundation (GEC), secretariat for the Financing Programme for Joint Crediting Mechanism (JCM) Model Projects in FY2015. Financing Programme for JCM Model Projects Public Offering Guidelines (tentative translation). <http://gec.jp/jcm/kobo/mp150907.html>

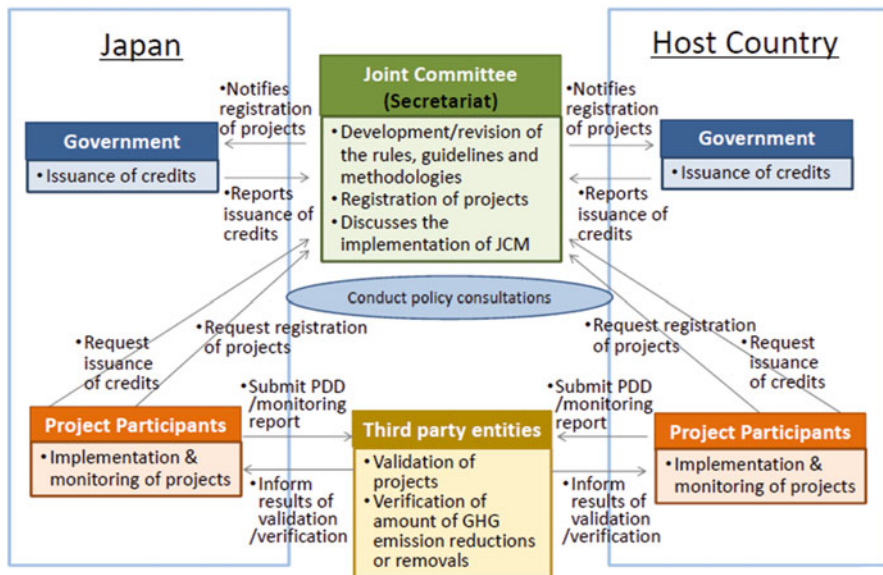


Fig. 7.2 The JCM stakeholders and their role

institution are required to represent the consortium and apply to the Japanese government for subsidy through open biddings. Financial support for selected projects are disbursed directly to participants or indirectly through intermediary organizations. For MOEJ Model Project financing program, the financing is limited only to those costs that can be verified as having been spent for implementation of eligible projects.⁴ Once their project is registered, project participants start monitoring emissions reductions/removal by the project based on the relevant methodology, produce a monitoring report and ask third party entities to verify it.

Third party entities (TPEs) are ISO 14065 or CDM Designated Operational Entity (DOE)-certified organizations who are deemed eligible by the Joint Committee to conduct validation and verification activities in specific countries. Third party entities produce verification report on the project emissions reductions as reported by the project participants. This verification report is used by project participants to request credit issuance. Credits can be used to fulfil both Japan’s and partner country’s emissions reductions pledge.⁵

⁴MOEJ, 2015. JCM Financing Programme for JCM Model Projects Public Offering Guidelines (tentative translation) <http://gec.jp/jcm/kobo/mp150907.html>

⁵Written in bilateral agreement between Japan and partner countries, for example with Thailand (November 2015): (5) Both sides mutually recognize that verified reductions or removals from the mitigation projects under the JCM can be used as a part of their own internationally pledged greenhouse gases mitigation efforts.

The role of the JCM in supporting the Japanese government emissions reductions target post-2020 shows the level of its ambition.⁶ Moreover, most of the JCM partner countries also implies their intention to report the reductions achieved from market-based mechanisms projects to fulfil their intended nationally determined mitigation contributions.⁷ Therefore, the JCM needs a robust MRV system and policy arrangements to ensure the scheme's emissions reductions achievement fulfils the expectations, while contributing to sustainable development in the partner countries, as it aims to do.

7.3 Approach in Evaluating the JCM MRV

As one of the various approaches developed based on COP Decision 1/CP.18,⁸ The overarching goal of the JCM MRV is to deliver *real, permanent, additional and verified mitigation outcomes, avoid double counting of effort and achieve a net decrease and/or avoidance of GHG emissions.*⁹ Under the Paris Agreement, the use of market mechanisms is articulated in Article 6, which covers voluntary cooperative approaches resulting in *internationally transferred mitigation outcomes* that may be used towards nationally determined contribution. These cooperative approaches should promote sustainable development while upholding transparency and environmental integrity and avoiding double counting of outcomes. The JCM credits may be considered as these outcomes.

This chapter explores the early implementation of the JCM to find the possible answers to three questions:

1. What are the key enhancements needed for the JCM MRV to ensure real, permanent, additional and verified mitigation outcomes, avoid double counting of effort and achieve a net decrease and/or avoidance of GHG emissions?
2. What are the key challenges in the initial stage of the JCM and how can they be improved?
3. How can project contribution to sustainable development be properly evaluated through the JCM MRV?

Specific sources are referred to in this chapter. Assessment were mainly done to the publicly available information of official documents, publicly available

⁶In Japan's INDCs, the JCM is not included as a basis of the bottom-up calculation of Japan's emission reduction target, but the amount of emission reductions and removals acquired by Japan under the JCM will be appropriately counted as Japan's reduction. Apart from contributions achieved through private-sector based projects, accumulated emission reductions or removals by FY 2030 through governmental JCM programs to be undertaken within the government's annual budget are estimated to be ranging from 50 to 100 million t-CO₂.

⁷IETA INDC Tracker (2015), IGES INDCs And Market Mechanism Database (2016).

⁸Recent Development of The Joint Crediting Mechanism (JCM), November 2015.

⁹FCCC/CP/2011/9/Add.1 Decision 2/CP.17, para 79.

presentation materials, and databases. External reviews, either academic or institutional, are still very limited. Assessment on the JCM MRV was done by reviewing 19 approved methodologies (as of January 2016). On the JCM governance, project development, and capacity building, assessment were based on observation during author's work experience with the JCM partner countries such as Indonesia, Mongolia, Lao PDR, and Cambodia. Findings from Indonesia were taken from interviews conducted with Indonesia JCM Secretariat member, expert, and project developers from Indonesian side.

This chapter was developed under voluntary initiative. It is important to note the limitations to this assessment; first, examples provided in this chapter are taken only from partner countries in Asia and the Pacific, considering the current progress and experiences concentrated in this region; second, the limited number of interview; third, limited experience on some parts of the JCM MRV project cycle such as verification and credit issuance.

7.4 Enhancing the JCM Measurement, Reporting and Verification (MRV) Framework

Reductions/removals from the JCM projects are likely to be reported as national achievements to the international community. It is thus important to ensure that the JCM reports accountable emissions reductions from projects that contributes to sustainable development in partner country. Four aspects need to be strengthened to deliver this goal: *governance, MRV methodology development, project development and capacity building, and a framework to evaluate sustainable development contribution.*

7.4.1 Governance

The JCM Joint Committee typically consists of six to seven Japanese officials (the Embassy of Japan, Ministry of the Environment, Ministry of Economy, Trade, and Industry, Ministry of Foreign Affairs, and sometimes Forestry Agency) and eight to ten partner country officials related to the environment, foreign affairs, industry, trade, energy, agriculture, and economy and finance. Considering the nature of JCM support scheme which favours energy-related projects, it is important to involve ministries and agencies with a mandate in energy, industry, and infrastructure. It is also recommended to engage organizations with an established, strong relations with private companies such as investment bureaus, trade councils, and business councils.

As the main supporting entity for the Joint Committee, capacity of the JCM secretariat of the partner countries is a key aspect in enhancing the implementation

of the JCM. Not only to support general management, the secretariat could push forward projects that meet the need of country stakeholders by gathering project proposals, review projects contribution to sustainable development, ensure additional features of projects, and enhance capacity building of local entities. Cooperation for capacity building between secretariats and other organizations including through international support not only from the Japanese government is very important. Despite its status as a bilateral partnership, acknowledgment of the JCM contribution in achieving the international goal is inevitable, not different with other regional or national market-based initiatives that are increasingly being developed. Furthermore, the sources or providers of advanced low-carbon technologies to be supported by the JCM are not limited. This opens the door for various countries, companies, and international organizations to be involved and cooperate. To encourage this, transparency and timely information should be enhanced especially on project approval process and financial aspects.

Another important aspect in governance is credit sharing. The existing rule that needs to be clarified is the general term of credits allocation between participants (or countries) to be based on consultations among participants ‘on a pro rata basis’.¹⁰ At the same time, the JCM Model Project are requested to deliver at least half of issued credits to the Japanese government, regardless of the finance rate.¹¹

As the JCM clearly mentions, the credits need to be recorded in a registry system. An online JCM registry system (<https://www.jcmregistry.go.jp/>) is already operational, which also provides the space for partner countries to manage their registry. However, partner countries prefer to run its own registry system and thus the set of common specifications and rules of registry system were agreed beforehand. Both governments also agreed to request projects in Indonesia to allocate at least 10 % of issued credits to the Indonesian government. In May 2016, credits were issued from two projects in Indonesia to the registries of Japan and Indonesia. The information on issuance are available on JCM websites of Japan and Indonesia. From the first project, Japan side received 23 tCO credits (20 tCO allocated to the government and 3 tCO to the project participant) and Indonesia side received 6 tCO credits (3 tCO allocated to the government and the project participant each). From the second project, Japan side received 8 tCO credits (7 tCO allocated to the government and 1 tCO to the project participant) and Indonesia side received 3 tCO credits (2 tCO allocated to government and 1 tCO allocated to the project participant).

Towards and beyond 2020, it is crucial for the partner countries to consider how the JCM emissions reductions will be accounted in their national report to the

¹⁰Joint Crediting Mechanism Project Cycle Procedure in partner countries except Costa Rica (describes that ‘part of the credits is allocated to the project participants from the developed country taking into consideration their contribution to GHG emission reductions or removals through the JCM project’), Chile, Myanmar, and Thailand (information not available).

¹¹Recent Development of the Joint Crediting Mechanism (JCM), September 2015, GEC.

UNFCCC. There are indications that partner countries plan to report their achievement through their Biennial Update Report (BUR) under nationally appropriate mitigation actions (NAMA) umbrella or national registry system. In this regard, the way of accounting the JCM credits in these reports without double counting, double issuance, and double claiming, need to be arranged at the domestic and international level. Countries without an established inventory system may consider reporting outside the inventory for pre-2020 achievements. For post-2020, an international accounting rules and infrastructure for Internationally Transferable Mitigation Outcomes (ITMO) shall be in place.

7.4.2 MRV Methodology and System

As of January 2016, 19 MRV methodologies have been approved under the JCM, all for countries in Asia and Pacific region. More than 50 % (11 methodologies) are in the energy efficiency sector, more than 20 % (4 methodologies) in the energy industry (power generation by waste heat recovery, solar power), energy efficiency (energy-efficient chillers, refrigerators, LED) and the rest in energy distribution (improvement of electricity transmission and distribution grid), waste handling and disposal (anaerobic digestion of market waste for biogas), and transport (digital tachograph in vehicles). These methodologies are technology-based and applicable only in the country where they are approved, as shown in methodology ID number (VN_AM001 means the first approved methodology to be used in Vietnam). There are three key aspects of a JCM methodology: *ensuring net emissions reductions by conservative determination of reference emissions, eligibility criteria, and simple monitoring methods.*

Net emissions reductions are ensured by conservative measurements of reductions, by assuming the highest amount of emissions possible in the baseline scenario, to ensure the emissions reductions achieved by the projects are not overestimated. Baseline, or called “reference emissions” in the JCM, does not necessarily mean result of ‘before project’ emissions calculation. Instead, the calculation can be done in two ways.

The *first way* is to adjust “reference emissions” conservatively. They are set as high as possible while staying below business-as-usual emission, which represent plausible emissions in providing the same outputs or service level of the project. Emission reductions to be credited are defined as the difference between “reference emissions” and “project emissions”. In this case, the reference emissions are assumed to be the highest plausible emissions. Most of the approved methodologies applied this approach.¹² *Second way* is to adjust “project emissions” conservatively. The methodology uses predefined default values instead of the actual values

¹²IGES JCM Database, January 2016 <http://pub.iges.or.jp/modules/envirolib/view.php?docid=6185>

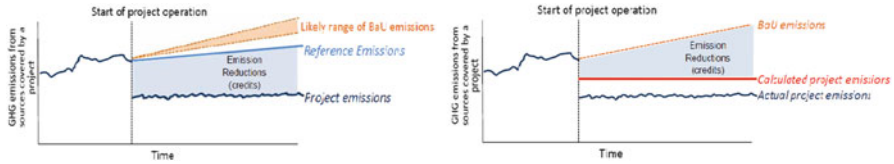


Fig. 7.3 Ways to realize net reduction (*left*: first way, *right*: second way)

measured and monitored from the project. This will result in “calculated project emissions” that are larger than “actual project emissions”. In this case, emission reductions to be credited are defined as the difference between BaU emissions and “calculated project emissions” (Fig. 7.3).

Reference emissions can be determined by conducting a survey on the best available or most widely used technology in the partner country, from legal requirements, the current situation and performance or average historical performance at a relevant project site, and voluntary standards and/or targets, national or international. The use of national standards and regulations as methodology reference need to be supported¹³ and The use of internationally-recognized default values and rules for equipment calibration need to be strengthened continuously.

Procedures for market surveys during methodology development also need to be strengthened as they are heavily used in determining reference emissions. The Joint Committees could consider setting a general standard for survey, data collection and renewal of reference. As reference condition are very likely to improve over time, reference emissions need to be adjusted periodically. A number of methodologies in Indonesia and Mongolia have set the requirement for the default values to be updated every 3 years. However, the responsible party for updating these methodologies needs to be clarified.

Eligibility criteria are developed in a concise manner to reduce the risk of project rejection. They provide specific requirements for each project and technology type, touching upon the concepts of ‘additionality’ and ‘applicability’ of projects under the CDM to a certain extent, through an easy-to-apply simple ‘checklist’ in each methodology. The number of project eligibility criteria defined by the 19 approved methodologies ranges from two to seven, with an average of four criteria in one methodology.¹⁴ Highly used criteria are the specification and components of technology, capacity of service, and the types of eligible activity (for example, new installation or replacement of technologies). These criteria should be specific but also general enough to enable them for use by multiple projects, not only for the projects the methodologies are developed for. Ensuring this among countries will reduce the time and costs of project development.

¹³For example, methodology ID_AM005 refers to Indonesian national standard (SNI) for eligibility criteria on room illuminance and MN_AM001 refers to Mongolian national standard (MSN) for eligibility criteria on electricity transmission loss.

¹⁴IGES JCM Database, January 2016.

List of monitoring parameters is the shortlist of data for monitoring emissions to be collected by project participants, the approved sources, and default values from IPCC or other approved standards that are ready to use. These default values can be applied in the standardized Microsoft Excel-based *monitoring and calculation spreadsheets* in each methodology. The set of spreadsheets is arguably the most valuable aspect of the JCM MRV for the project participants, as they clearly indicate the options of data collection method, default values, and formulas to calculate reference emission, project emission, and emission reduction. In addition to that, project monitoring team is also described in the same spreadsheet. The basic requirements such as continuity of operation, production year, and availability of data are assumed as given, resulting in brief and easy-to-read documents. By using these sheets, project participants do not need to spend much time to justify the calculation formula and ways to acquire required data.

In the long run, quality of methodology and its development process need to be consistent between countries and improve inclusion of local programs or standards. It is also important to design more general methodologies to increase their applicability to similar projects. For example, as opposed to developing methodology for a specific ‘air conditioners with inverters to public sector building’ (VN_AM002), the methodology could be developed for air conditioners with inverters to any kind of building.

7.4.3 Processing Time

Strengthened method and time-efficient approval process will improve the efficacy of JCM MRV. So far approval process are being implemented in an efficient manner. Approving proposed methodologies take from 18 to 384 days with an average of only 107 days from the time of methodology proposed. Similar trend is observed in project registration process, which generally takes less than a month with an average of 10 days.¹⁵ These effective processes benefit from close cooperation between Japanese and partner countries government, supporting agencies, project participants, and the JCM budget allocated for implementation support. This could be expected to continue in the long run, as long as institutional support and commitment from the involved countries at least remain.

As the number of JCM projects continue to increase, however, it may become more challenging to maintain such speed. Thus methodology reviewers such as JCM secretariat and the general public need to ensure time efficiency does not overrule quality. Capacity building, technical assistance, and resources are important factors in this aspect.

¹⁵Ibid.

TPE auditors that perform the future verification should be fully accountable for all their activities.¹⁶ Since the JCM TPEs must be certified under CDM Designated National Authority or ISO 14064, their accountability should be high enough. Moreover, the Joint Committee and accreditation organizations have the authority to suspend or withdraw them in case of non-performance.

However, as next verification process is not financially supported, there is a need for a clear incentive for projects to verify emissions reductions and issue credits in the future, especially in 2021 and 2030, since the JCM credits are so far non-tradable and there has not been any indication of making it otherwise. Currently, the Japanese government supports the cost of first verification achieved at the end of first year of project. After the first request, participants may request issuance of the JCM credits for emission reductions achieved during several years in one time, but they shall request issuance of the JCM credits for emission reductions achieved by 2020 by the end of 2021.¹⁷ The projects participants (especially from partner countries without any agreement with their government) who may not have enough budget for verification may be reluctant to continuously monitor and verify their achievements by the end of the project period, which is 13 years in average among registered projects.¹⁸

The pathway to transform the JCM into tradable scheme, if there is any plan, is important not only for the participants but also for partner countries. While Japan requires verification at the end of 2020 in the project financing rules, it is important for partner countries to take measures for the future use of credits owned by partner country participants.

7.4.4 Project Development and Capacity Building

Since the first batch of selected projects for funding in 2013, the JCM have registered eight projects, all in the Asia and Pacific region (Indonesia, Mongolia, Vietnam, and Palau). In total, 89 projects have been selected for funding and currently in the implementation pipeline as of January 2016.¹⁹ They are concentrated in Indonesia and Vietnam and to a lesser extent in Bangladesh and Mongolia.

The “standard” project proposal procedure starts from submission by a project consortium to the Japanese government during call for request period, usually two to three times a year for 1 month. A consortium includes Japanese company and

¹⁶Stockholm Environment Institute (SEI). 2015. *Has Joint Implementation reduced GHG emissions? Lessons learned for the design of carbon market mechanisms*. Seattle: Stockholm Environment Institute.

¹⁷MOEJ, 2015. JCM Financing Programme for JCM Model Projects Public Offering Guidelines (tentative translation).

¹⁸IGES JCM Database, January 2016.

¹⁹IGES JCM Database, January 2016.

local company in partner countries. The application is to be made by Japanese institution as the main representative the consortium and showing an evidence of agreement. This procedure inadvertently leaves out local companies without a Japanese partner to submit on their own at times.

Due to this constraint, Indonesia created “Project Idea Note” procedure, learning from the CDM. Indonesian parties without Japanese partners can propose their technology needs to the Indonesian secretariat who will communicate it to the Japanese government. According to the Indonesian government, proposals from Japanese side are typically “normal” projects under previously established cooperation with Indonesian side, while proposals from Indonesian companies are usually more crucial for their own development and come with a guarantee that the project will face less non-technical burdens, but the Japanese technology may not always available.²⁰ This may be one of the reasons why only one out of six PINs were able to be followed up (“Power Generation by Waste Heat Recovery in Cement Industry”).

This situation shows the need of strengthening project identification and development through close collaboration with partner countries. Some options for matchmaking could be innovated, for example (1) improving the use of available websites, also publishing a list of technology ideas and companies,²¹ (2) promoting the involvement of state-owned companies, municipal governments and local companies, for example those experienced in the CDM, (3) working with the mass media and local company network.

Ideally, network of local companies and business-research institutions have the capacity to investigate the needs and potentials to support ‘matching’ between local and Japanese companies, as this needs to be done in business approaches. Effectiveness of processes and capacity building events must be enhanced through a long-term engagement with these organizations.

The INDCs from partner countries should also be promoted as key reference document for project development. Combining partner country emissions reductions potential and priority sectors under its INDCs shows a way to promote nationally-appropriate projects. In the future, the JCM also needs projects with bigger emissions reduction potential to increase cost-effectiveness. Some potential options are increasing partner country and local participants involvement, promote a ‘program JCM’ or group of projects, similar to CDM’s Programme of Activities

²⁰Manansang, Dr. Edwin, Head of Indonesia Joint Committee, Coordinating Ministry of Economic Affairs. *The JCM Development in Indonesia and Its Evolution Towards Sustainable Low Carbon Growth Cooperation*. Presented at International Forum for Sustainable Asia and the Pacific (ISAP) 2015, Parallel Session “Showcasing Successful Partnerships for Low Carbon Technology Transfer”, Institute for Global Environmental Strategies.

²¹Asia Low-Carbon Development Collaboration Platform website, <http://lowcarbon-asia.org/english/city.html>

(PoA).²² The Joint Committee can also consider identifying projects that were planned for the CDM but never could start. In any case, project approval must always uphold additional aspects of projects support, promote new activity, and more advanced technology than the prevailing technology in the country, and start after the earliest date decided by each partner country (most countries decided 1 January, 2013).

The functions of the JCM websites (so far, Indonesia, Vietnam, and Mongolia have established their own JCM websites in addition to the Japanese websites) should also be optimized to facilitate project developers showcasing their needs and availability, which can be followed up by the JCM secretariats and intermediary organizations. Transparency of information must always be ensured in communicating the JCM opportunities and approval process to eligible entities.

These information are crucial for private companies, whom are naturally attracted to the offered JCM subsidy of ‘up to the half of investment cost’, grant, and full ownership of the technologies. Although the price of advanced low-carbon technologies are generally higher than those available in the market, they are willing to invest because the subsidy helps pushing down payback period to a reasonable period of time. The emphasis on use of advanced technology should also be promoted. Current experience shows that the approved technologies have better efficiency and/or performance than those commonly used in partner countries. As a more specific criteria, MOEJ specifies cost effectiveness level and payback period as eligibility criteria for JCM Model Project support.

The role of state actors such as local government and their contribution to national emissions reductions efforts should also be encouraged. As the JCM has the additional value of realizing cost-intensive projects that may support local development plans, the global movement towards realizing sustainable cities and city-to-city cooperation programs can further encourage JCM projects. Schemes such as “sister city” and municipality international cooperation offices have been the playmakers for these cooperation. The City of Yokohama, for example, established a “Y-PORT” program in 2014, which aims to enhance collaboration between the government and private companies in the city to promote sustainable cities in other countries, utilizing, among others, the JCM. High social awareness and leadership on the environmental issues are helping to push these initiatives.

²²Saito, Tetsuya. 2015. *Opportunities and challenges under the JCM scheme*. Presented at International Forum for Sustainable Asia and the Pacific (ISAP) 2015, Parallel Session “Showcasing Successful Partnerships for Low Carbon Technology Transfer”, Institute for Global Environmental Strategies.

Case Study: PT Semen Indonesia Tuban

PT Semen Indonesia (Persero), Tbk. is the largest cement producing company group in the country. The company has experience in developing a CDM project in power generation by waste heat recovery in its Semen Padang factory. In 2013, PT Semen Indonesia proposed another “[Power Generation by Waste Heat Recovery in Cement Industry](#)” project, developed with their Japanese partner JFE Engineering.

The project introduces a waste heat recovery at a Semen Indonesia cement production plant in Tuban, East Java, Indonesia. The waste recovery system is designed to utilize waste heat emitted from the cement factory to generate electricity for own consumption, therefore reducing electricity import from the national electricity grid of approximately 165,000 MWh/year, which will lead to the reduction of fossil fuel combustion at grid-connected power plants. A power generation facility with 30.6 MW capacity was proposed.

After feasibility in fiscal year 2013, official Project Idea Note proposal was submitted in May 2014 and the project was selected for funding as JCM Model Project (expected to be registered in 2017). Benefiting from project participants’ preparation, technical expertise, understanding and experience, as well as effective governmental consultation process, the approval of its MRV methodology (ID_AM001) took only 1 month.

PT Semen Indonesia sees three benefits from engaging in the JCM: environment, economic, and company image. Environmental benefits include CO₂ emission reduction (approximately 122,000 tCO₂/year, the largest selected project in Indonesia so far) and low stack gas temperature. Energy and water consumption reduction resulting from WHR process lead to both environmental and economic benefit. By utilizing about 30 MW electricity generated by the installed facility, more than 150 million kWh electricity per year can be saved, leading to more than 85 % cost saving. The company is also able to enhance company image, create jobs, and contribute to the community. The project investment costs around 50 million USD, and the JCM subsidy from the Ministry of Environment Japan, which accounts to around 18 % of this cost, decreases the project investment index (IDR/kWh).

From their experience in the CDM, PT Semen Indonesia sees that the JCM offers a simpler, more reliable, and faster mechanism for the private sector and its MRV system preferable for its simplicity. The JCM encouragement for private sector active engagement is appreciated. PT Semen Indonesia suggests to address the following to further enhance the JCM implementation:

1. Improve appropriateness of MRV system by increasing the number of Indonesia TPE, ensure affordability of their services, and including MRV cost in the project budget

(continued)

2. Optimize capacity building for project host. For example, improve the role of project host to in equipment design and selection as well as supplier selection
3. Improve leadership of project host in the consortium, as the Japanese government requires Japanese entities to apply as head of consortium to apply for subsidy.

PT Semen Indonesia also addresses a concern on how to share the JCM credits among participants. To them, sharing the credits “on a pro rata basis” may relate to ‘the benefit earned by each party along the MRV period’. On the other hand, under the JCM Model Project subsidy scheme, the Japanese government requires at least half of the credits to be delivered to its government. This concern needs to be clarified by the Joint Committee.

7.4.5 Sustainable Development Evaluation Framework

Environmental impact assessment, local stakeholder consultations, and capacity building as part of the JCM MRV are important aspects in ensuring contribution to sustainable development. Requirement of an environmental impact assessment for each project refers to the partner country regulation. To date, only two registered projects were required to conduct environmental impact assessment, both for installation of highly efficient heat-only boilers in Mongolia.²³

The efforts by partner countries to enhance local stakeholders’ engagement could be replicated. For example, Mongolia has been promoting local perspective in developing JCM projects by requiring project documents into Mongolian language in addition to Japanese. In Vietnam, a circular on the JCM implementation guidelines was distributed to governmental agencies.²⁴ To promote common standard and enhance the results of the JCM as a market mechanism,²⁵ these efforts and a guideline from the Joint Committee in conducting local stakeholders’ consultation are useful. In the future, grievance mechanism could be established.

Public involvement in the public comment process also needs be further promoted, as the level of response for methodologies and projects are still low, receiving only up to three comments, with an average of two comments.²⁶

²³IGES Joint Crediting Mechanism (JCM) Database, January 2016.

²⁴Ministry of Natural Resources and Environment. 2015. *Circular on regulations of development and implementation of JCM projects in the framework of cooperation between Vietnam and Japan*. <http://en.jcmvietnam.vn/rules/circular-on-regulations-of-development-and-implementation-of-jcm-projects-in-the-framework-of-cooperation-between-vietnam-and-japan-a288.html>

²⁵Öko-Institut e.V. Institute for Applied Ecology. 2015. *Delivering Results-Based Funding Through Crediting Mechanisms: Assessment of Key Design Options*. Berlin: Öko-Institut e. V. Institute for Applied Ecology.

²⁶Ibid.

Capacity building under the JCM is a must to ensure appropriate management and MRV implementation on the ground. Although capacity building is not regulated under the JCM, and surprisingly does not seem to be the main interest of project participants, it should be required from feasibility study phase to project implementation including on equipment use and maintenance training for end-users. The partner countries may also provide recommendations on project-level capacity building strategies. Attractive information media are always beneficial.

Ultimately, there is a need for an overarching framework for ensuring sustainable development contribution. At present, a guideline of Sustainable Development Criteria has been released by the Joint Committee between Japan and Indonesia for ex-ante and ex-post evaluation on the JCM projects contribution to sustainable development. The guideline assesses the benefits of each JCM project to the environment, economy, social conditions, and technological improvement. It consists of a Sustainable Development Implementation Plan (SDIP) and Sustainable Development Implementation Report (SDIR). Project participants are required to evaluate their own project using SDIP, which identifies potential impact of the project through a negative/exclusion checklist. After a chosen period, the project participant develop a SDIR to report the impact of their project, or outcomes of their SDIP, and review the contribution of their project to sustainable development, especially at the project area and its surrounding. The SDIP and SDIR are essential to integrate the JCM projects into the broader environmental, economic, and social impact management of the hosting entity, as well as to assess the co-benefits of projects.

The SDIP and SDIR are reviewed by the Joint Committee. The three registered projects were approved before adoption of these guidelines, but they may still be required to submit their plans. This procedure is applicable for all selected projects before they are registered by the Joint Committee. Availability of this procedure should be seen as an opportunity for the JCM to improve the sustainability assurance of projects in market-based mechanisms. There are benefits for the project participants, too, in preventing the project risks. These guidelines could be made as a mandatory part of submission. The application of similar guideline in the other partner countries and a procedure for grievance/complaints from stakeholders during project should also be considered as a follow up of SDIP and SDIR.

The collective evaluation on these project-based SDIPs and SDIRs by the Joint Committee or the Japanese government may be used to evaluate contribution to sustainable development at mechanisms-level for the JCM.²⁷ Negotiations under the Article 6 of the Paris Agreement could consider the development of

²⁷Mapping the Indicators: An Analysis of Sustainable Development Requirements of Selected Market Mechanisms and Multilateral Institutions. Berlin: German Emissions Trading Authority (DEHSt) at the Federal Environment Agency.

mechanisms such as the JCM. Once the negotiations start discussing sustainable development the JCM approach to sustainable development evaluation can be an example.

7.5 Recommendations

The assessment could recommend several improvement opportunities as follows.

Governance: There is a need to discuss the ways of accounting and reporting emissions reductions by the JCM projects in national reports, and to discuss the pathway towards tradable scheme or to stay non-tradable.

MRV methodologies: Procedures for conducting market surveys in methodology development need to be strengthened as they are heavily used for setting reference emissions. In the long run, quality of methodologies and their development process as well as their applicability need to be consistent between countries and continue promoting local standards.

Project development and capacity building: Future capacity building activities should put more focus in project identification, development, and approval. The challenge of ‘matchmaking’ local companies in partner countries and Japanese companies may be tackled through business approaches with highlights on economic benefits, and increasing visibility of potential projects in NDCs. Enhancing capacities and promoting involvement of local entities as third-party entities and project participants are important to increase quality of projects and MRV.

Sustainable development evaluation framework: Focus is needed in the regulatory framework of the JCM sustainable development criteria evaluation, enhancing capacity building and local stakeholders engagement. Other ways to evaluate the JCM effectiveness should also be explored, for example by evaluating the variety of implemented sector and each sector’s emission reduction to investigate how mitigation actions from multiple sector can be facilitated through the JCM.

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