

CAI Newsletter

Clean Asia Initiative [CAI]

Leapfrog approach toward Sustainable Development Goals (SDGs)

January 2016

vol.14



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Leapfrog Approach toward Sustainable Development Goals (SDGs)



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Report

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At the United Nations Sustainable Development Summit held in New York in September 2015, the "Transforming Our World: the 2030 Agenda for Sustainable Development" was adopted. Here, Sustainable Development Goals (SDGs) were officially decided as globally shared targets for the next 15-year period up to 2030, following the expiration of the Millennium Development Goals (MDGs) agreed in 2000. What is this new set of international development goals or SDGs?

The MDGs addressed eight targets, including the eradication of extreme poverty and hunger, and mainly focused on international support from developed countries to developing countries. Although they have achieved a certain level of results, many issues have remained unsolved, including ones that MDGs failed to achieve, and new challenges have arisen due to changes in the global situation as a result of rapid economic development and associated environmental destruction by such development. Under these circumstances, addressing issues that have not been solved by MDGs and establishing a new and broader set of goals became necessary.

In this context, the UN High Level Panel on the Post-2015 Development Agenda was launched and discussions on the establishment of post-2015 development goals had been accelerated. At the same time, the UN Conference on Sustainable Development (Rio+20), held in Brazil in 2012, reemphasized the importance of addressing economic, environmental, and social dimensions of sustainable development in a balanced manner. Countries agreed to establish SDGs as post-2015 goals, with the United Nations Open Working Group (OWG) as its negotiation venue. More than one year of negotiations took place, and countries came up with a concrete set of development goals.

The SDGs consist of 17 goals and 169 targets which require actions from all countries, including not only developing countries and emerging economies, but also developed countries. The goals range from poverty eradication as a primary goal to meeting basic needs such as access to education and health, as well as economic growth and creation of job opportunities for ensuring quality of life. Likewise, concrete environment-related goals and targets are also proposed including those on climate change, energy, and natural disaster.

The final document of SDGs was agreed by 193 UN member states in July 2015 and officially adopted at the UN Sustainable Development Summit in September 2015. In January 2016, countries will start implementing SDGs. To effectively realize SDGs, Japan can share various approaches and success stories and assist countries in need based on its experiences. This newsletter introduces some examples of these approaches.



17 SUSTAINABLE DEVELOPMENT GOALS



Goal 1

End poverty in all its forms everywhere



Goal 2

End hunger, achieve food security and improved nutrition and promote sustainable agriculture



Goal 3

Ensure healthy lives and promote well-being for all at all ages



Goal 4

Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all



Goal 5

Achieve gender equality and empower all women and girls



Goal 6

Ensure availability and sustainable management of water and sanitation for all



Goal 7

Ensure access to affordable, reliable, sustainable and modern energy for all



Goal 8

Promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all



Goal 9

Build resilient infrastructure, promote inclusive and sustainable industrialization and foster innovation



Goal 10

Reduce inequality within and among countries



Goal 11

Make cities and human settlements inclusive, safe, resilient and sustainable



Goal 12

Ensure sustainable consumption and production patterns



Goal 13

Take urgent action to combat climate change and its impacts*



Goal 14

Conserve and sustainably use the oceans, seas and marine resources for sustainable development



Goal 15

Protect, restore and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification, and halt and reverse land degradation and halt biodiversity loss



Goal 16

Promote peaceful and inclusive societies for sustainable development, provide access to justice for all and build effective, accountable and inclusive institutions at all levels



Goal 17

Strengthen the means of implementation and revitalize the global partnership for sustainable development

* Acknowledging that the United Nations Framework Convention on Climate Change is the primary international, intergovernmental forum for negotiating the global response to climate change.

Source: United Nations SUSTAINABLE DEVELOPMENT KNOWLEDGE PLATFORM and The Global Goals (<http://www.globalgoals.org>)

City of Kitakyushu builds Low-Carbon Project through JCM city-to-city collaboration



◆ Kitakyushu history — tackling pollution and developing green growth policy

In the 1960s, Japan enjoyed rapid economic growth characterized by the expansion of heavy industries such as steel, machinery and chemicals. As these industries were increasingly in demand, they caused the most severe pollution that the country had ever experienced.

Kitakyushu was known as one of Japan's four major industrial zones, but faced serious air pollution, notoriously referred to as the "sky of soot and smoke." Meanwhile, discharge of industrial effluent, domestic wastewater and sewage turned Dokai Bay

into a "sea of death" where E. coli bacteria could not even live.

To deal with this pollution, citizens actively organized campaigns; industries took exhaustive measures, and local government acted swiftly. These collective efforts led to dramatic environmental improvements in the 1980s. As a result, Kitakyushu earned its recognition as a "miracle town" both nationally and internationally.

In recent years, based on its experience in overcoming pollution and developing environmental technologies, Kitakyushu has helped developing countries and formed a network for international partnerships aimed at achieving similar environmental improvements in those countries. In 2010, it opened the Kitakyushu Asian Center for

Low Carbon Society to strengthen such partnerships. The Center is designed to improve environmental conditions and create low-carbon and sustainable societies in Asian countries through introduction of the "Green City" -- a model of environmentally friendly urban growth that concentrates on the areas of waste, energy, water and sewage and environmental protection.

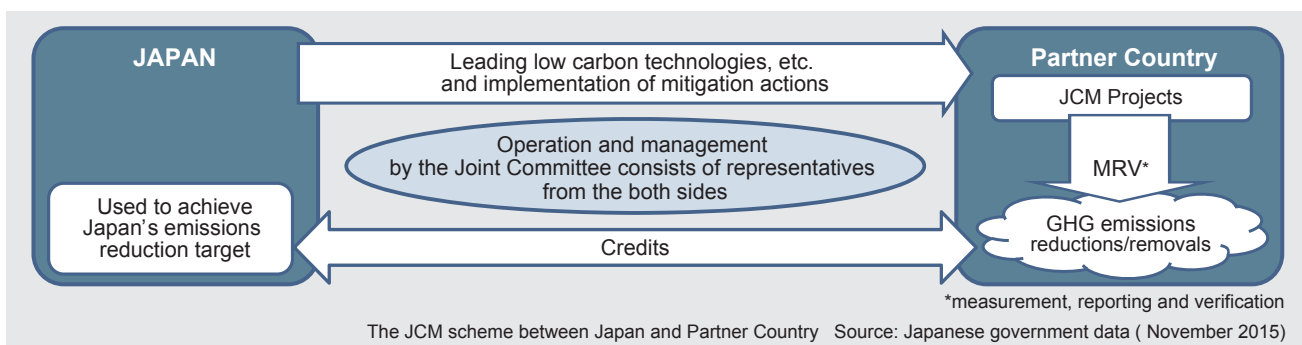
As one of the supporting activities for environmental improvement, Kitakyushu supports low-carbon city formulation in four Asian cities based on city-to-city collaboration by utilizing feasibility studies (FS) of the Joint Crediting Mechanism (JCM) provided by the Ministry of the Environment of Japan. We interviewed representatives of the International Environmental Strategies Division of the Environment Bureau of the Kitakyushu Asian Center for Low Carbon Society about low-carbon city formulation in the four Asian cities.

◆ What is the JCM?

Japan establishes and implements the JCM in order both to appropriately evaluate contributions from Japan to GHG emission reductions or removals in a quantitative manner achieved through the diffusion of low carbon technologies, products, systems, services, and infrastructure as well as implementation of mitigation actions in developing countries, and to use them to achieve Japan's emission reduction target. Japan has held consultations for the JCM with developing countries since 2011 and has established the JCM with sixteen partner countries (Mongolia, Bangladesh, Ethiopia, Kenya, Maldives, Viet Nam, Lao PDR, Indonesia, Costa Rica, Palau, Cambodia, Mexico, Saudi Arabia, Chile, Myanmar, and Thailand).

In order to promote the JCM, the Government of Japan

offers the JCM Financing Programs, for example, JCM Model Projects, JCM Collaborative Financing Programme (with JICA, etc.), ADB Trust Fund (Japan Fund for Joint Crediting Mechanism [JF JCM]). The Ministry of the Environment implemented 59 projects in JCM Financing Programs. Seven out of these projects have been registered among them as JCM projects. Moreover, the JCM Feasibility Study for Large Scale JCM Project Development through city-to-city collaboration aims at realizing low-carbon society in a city as a whole. This type of the JCM FS adjusts low-carbon technologies and systems to suit local situations in each partner country and establishes operation and maintenance systems. Furthermore, the FS investigates and inspects by when and to what extent it would be possible to implement a large-scale project targeting an entire city or region.





Mr. Naoki Motojima,
Section Chief for Project Support

Background on city-to-city collaboration

The city-to-city collaboration between the City of Kitakyushu and the City of Surabaya has a history of more than 15 years. It started with the participation of Surabaya city officials in the "Environmental Cooperation Network of Asian Cities" in 1997 and gradually expanded to acceptance in training programs and field surveys. Subsequently, cooperation on the environment between the two cities

grew strong, particularly in the areas of compost and river/sewage treatment. The year 2012 marked another milestone in city-to-city collaboration when the two cities signed a "Green Sister City" agreement to foster further exchanges between them. The City of Kitakyushu's assistance was extended to the City of Surabaya's low-carbon city plans utilizing means such as the JCM FS. At present, nine projects (including those under negotiation) are on-going.

Challenges

The fact that local contact points for arranging the researches change frequently is one of the challenges for smooth implementation of research. Due to institutional reforms and personnel changes, officials in charge of the local contact points are often moved on to different positions. At present, there is one centralized contact point, but communication gaps sometimes arise with departments in charge of projects. In order to overcome this issue, we have devised ways of communicating to improve coordination with the departments in charge of the projects, such as requesting local interpreters, who have supported cooperation activities between Kitakyushu and Surabaya for a long time, to arrange liaison and coordination with the departments.

Moreover, it is necessary to develop actual business opportunities rather than just aid. When discussion focuses on abstract concepts, local people lose interest in the JCM FS. Therefore, we offer support to our counterparts in translating abstract needs into concrete actions. In addition, we believe that it is important to make steady efforts to overcome these challenges.

Overview of JCM Feasibility Studies (JCM FS)

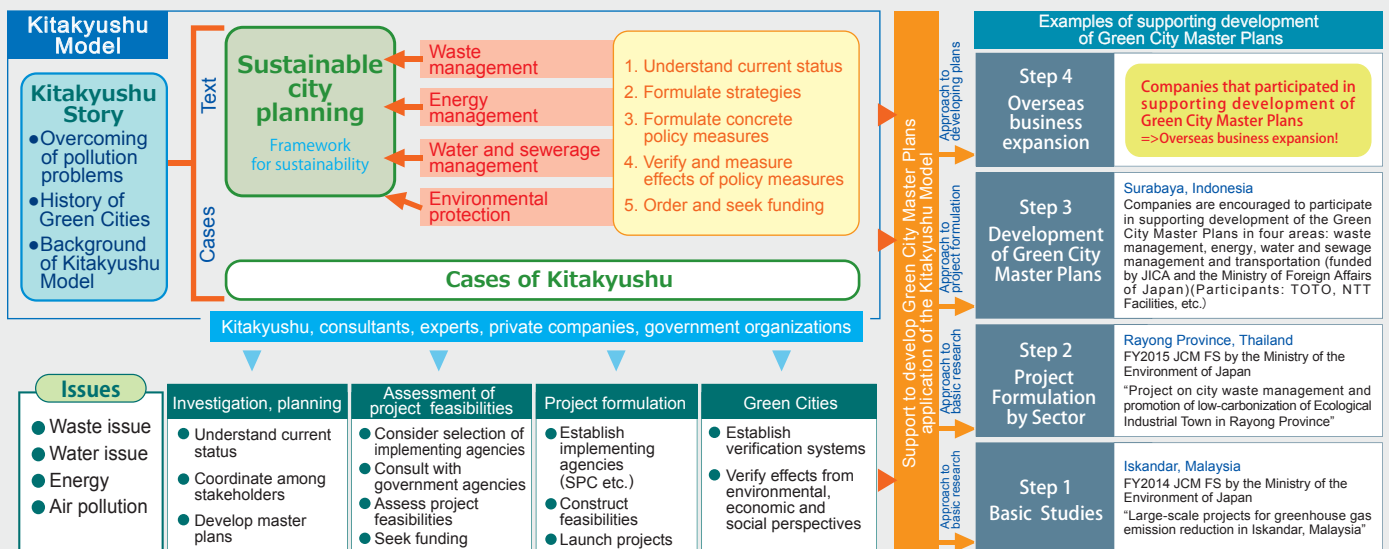
- The Technical Assistance on Low-carbon and Environmentally Sustainable City Planning in Surabaya, Indonesia, a JCM FS in FY2013, investigated the potential for CO₂ reduction and other features in four sectors, transportation, water resource, waste and energy, to support decarbonization of Surabaya. The FS identified areas for future research.
- The JCM FS since FY2014 has continued research by focusing on energy and waste sectors, in which reasonable CO₂ reduction and cost effectiveness have been expected. For the energy sector, the FS has researched energy-saving targeted at buildings and industrial parks. For the waste sector, conversion of commercial waste to raw material for cement are examined. Meanwhile, in the area of policy, Kitakyushu has supported the design of institutional arrangements on Surabaya's green construction awareness award that was initiated in 2014.

Prospects for the future

Future challenges include transforming present projects to business, considering new dimensions of the JCM and increasing sectors subject to the JCM. In order to expand activities in cities subject to "Low Carbon and Environmentally Sustainable Cities" as a whole, it is important not only to implement individual one-off projects but also to support development of a city master plan. In Surabaya, we support Surabaya's master plan through another project. During the development of this plan, we have endeavored to tailor the Kitakyushu model* to Surabaya's local needs. Furthermore, in order to formulate mid- and long-term consensus, we have also encouraged not only the local government but also citizens to get involved in developing the plan. We will also deal with developing business-based projects and making a system for enhancing intercommunication among citizens.

*Kitakyushu model: institutional arrangements of technologies and administrative know-how on city environment infrastructure accumulated in Kitakyushu city

Deployment of the Kitakyushu Model and Utilization of JCM



Source of Kitakyushu model diagram: Asian Center for Low Carbon Society



Mr. Hironori Sakai, Subsection Chief on Special Projects

Background on city-to-city collaboration

Kitakyushu signed a Friendship Cooperation Agreement with Haiphong in 2009. This was followed by a sister city agreement in 2014 after five years of intercommunication between Kitakyushu and Haiphong. As one of the earliest cooperation activities, Kitakyushu and Haiphong implemented technology transfer and human resource development in the water supply sector.

In FY2013, basic research (needs assessment) was carried out by utilizing the city budget of Kitakyushu to find potential needs for cooperation with Haiphong on environmental issues. Subject to the research were four areas covered by the Kitakyushu Model*: waste management, energy management, water and sewerage management, and environmental protection (air and water environments quality, etc.). Based on the needs identified in the basic research, Kitakyushu applied a FY2014

JCM Project on the Development of Green Growth Action Plan in Haiphong through city-to-city collaboration. The Project was adopted as a JCM FS in FY2014.

The JCM FS supported development of the "Haiphong Green Growth Promotion Plan" by applying the Kitakyushu Model. The Plan was to respond to the target of 20% reduction in greenhouse gas (GHG) emissions compared to the 2010 level that was determined by the Government of Viet Nam in 2012. The Plan has included 15 pilot projects, which should be dealt with in advance for achieving the target by 2020, in order to visualize a process from planning to implementation and to enhance effectiveness of the entire plan.

In FY2015, initiatives such as the Venous Industry Project provided by the Ministry of the Environment and Japan and the Overseas Promotion of Infrastructure-related Systems provided by the Ministry of Economy, Trade and Industry are being utilized to implement these pilot projects, in addition to running the JCM Feasibility Study Project on Low Carbonization of the Whole City of Haiphong.

* Institutional arrangements of technologies and administrative know-how on city environment infrastructure accumulated in Kitakyushu city

Challenges

Financial situation of the counterpart city: When the Green Growth Promotion Plan is actually implemented, we sometimes face challenges on funding for and stable operation of actual projects. For instance, a project on waste power generation needs to secure income from selling power and set a tipping fee (charge levied on disposing of waste at a waste power generation facility) in order to assure profitability of the project. Cooperation and determination of the government of Haiphong to make use of the fee system and to set the fees are indispensable for actually setting and applying the fee system and fees. This cooperation and determination strongly affect the feasibility of the project.

Moreover, Cat Ba Island in Haiphong City that intends to be registered as a World Heritage Site is exploring ways to achieve resource recycling and commercialization of electric buses on the island. A green charge is being proposed to cover a portion of the cost for materials, equipment and management of the resource recycling and electric buses. However, there are concerns that introduction of the green charge may cause a decrease of the number of tourists. This proposal, therefore, is under careful deliberation. The City of Kitakyushu can give its support to solve such challenges related to local government's authorities, which, we believe, is an advantage of city-to-city collaboration.

Barriers on permits and licenses: A permit is required for collection and treatment of waste into raw material for cement, and coordination with local stakeholders (specifically those who have vested interests) is one of the challenges for actual implementation of projects. Kitakyushu will support Haiphong to overcome these

Green Growth Promotion Plan of Haiphong

- The Green Growth Promotion Plan of Haiphong, which was a master plan of Haiphong, was developed through cooperation with Haiphong and Kitakyushu as a part of the JCM FS.
- The Plan includes 15 pilot projects, which should be dealt with in advance for achieving the target by 2020, and ensures effectiveness of its performance.
- In the process of developing the Plan, five workshops were held attended by not only officials of the government of Haiphong but also local private companies in Viet Nam as potential local counterparts for the pilot projects and Japanese private companies. Feasibility conditions of the projects were also considered throughout the workshops. In this way, the Plan was developed not only by the government of Haiphong but also through discussions among stakeholders at the workshops.
- The pilot projects have been formulated through utilization of the JCM supporting activities by the government of Japan, such as the JCM FS, and cooperation with Japanese private companies.

challenges by utilizing knowledge accumulated in Kitakyushu.

Necessity of public awareness campaigns for citizens: The success or failure of waste related projects or the resource recycling project in Cat Ba Island depends on how well households understand the importance of waste separation and implement the separation. Therefore, promoting citizens' understanding and running public awareness campaigns are crucial for the success of the projects. Local governments have good knowledge to deal with this challenge; thus, Kitakyushu will support Haiphong in its efforts to diffuse and promote the concept of waste separation.

Important tips to address these challenges

Maintaining good communication with counterparts.

Maintaining good communication with counterparts is an important point for overcoming challenges and carrying out projects. In particular, it is important to have face-to-face conversations with concerned parties. If clear needs and answers are not provided from the counterparts, we show examples and explain concretely by giving examples. Moreover, we believe that opportunities to see and experience actual cases in Kitakyushu through participation in training and seminars held in Japan promote mutual understanding between Kitakyushu and partner cities.

Understanding of capacity building of counterparts.

Development of skilled staff who are capable of understanding, managing and operating the equipment and systems introduced through projects is key to the success of the projects. Hence, it is important to combine capacity building with provision of infrastructure.

Kitakyushu utilizes schemes such as the JICA Partnership Program to support capacity building.

Counterpart city's institutional arrangements for cooperation

In order to promote effective communication, it is important that counterparts establish institutional arrangements for cooperating with Japanese partners. In Haiphong's case, smooth communication has been realized because the foreign affairs division, which is the local counterpart in the government of Haiphong, takes on the role of overall contact point, liaising and coordinating with other divisions in charge of developing city master plans and implementing projects. The division also advises us which divisions we should contact for implementing the projects. Furthermore, the foreign affairs division reports the projects to the People's Committee, a decision-making body that oversees initiatives in the city, which is very helpful for us.



Summary of city-to-city collaboration and the JCM utilization

- In Malaysia, Kitakyushu has implemented a project on composting of raw garbage in Malacca since FY2011 by utilizing the JICA Partnership Program. Kitakyushu has had a cooperative relationship over the years with a public solid waste management corporation (SW Corp) in Malaysia, and many of the company's employees have been invited to attend training programs in Kitakyushu. In FY2015, Kitakyushu concluded a Memorandum of Understanding on cooperation for waste management with the SW Corp.
- Iskandar Area is a major development area in Malaysia, and the City of Pasir Gudang, a principal target of our survey, is a manufacturing and port city that is the most industrialized in Iskandar Area. In 2012, the Iskandar Regional Development Authority (IRDA) developed a "Low Carbon Society Blueprint for Iskandar Malaysia 2025". Kitakyushu is making proposals to Pasir Gudang that are in line with the blueprint.
- In the FY2014 JCM FS on Large-scale Projects for Greenhouse Gas Emission Reduction in Iskandar, Malaysia, Kitakyushu conducted investigations to find potential projects supporting decarbonization of an industrial area in Pasir Gudang. In the FY2015 JCM FS on Foundation Development for Areal Expansion of the Low Carbonization Project in Iskandar Region, Kitakyushu has been investigating potential projects in the energy sector relevant to energy saving in industrial facilities selected through the investigation in FY2014 and those in the waste sector relevant to urban waste to energy and recycling of industrial wastes. It also considers supporting the development of a system for promoting energy saving based on an existing low-carbon society development plan in collaboration with IRDA.



Summary of city-to-city collaboration and the JCM utilization

- Based on a preceding study on general waste management in Bangkok and Chonburi, a study project on the development of an eco-town with Rayong Province (project funded by the Ministry of Economy, Trade and Industry) has been carried out since FY2010. Rayong is a famous industrial zone in Thailand, which includes large-scale industrial parks.
- Thailand has included Ecological Industrial Town in its national policy agenda, with the aim of shifting existing industrial estates to those that are more environmentally-friendly and sensitive to local communities as well as pro industrial development. Kitakyushu has successfully transformed its own industrial parks to ecological-industrial towns. Because of this achievement, the Department of Industrial Works (DIW) and the Industrial Estate Authority of Thailand (IEAT) requested Kitakyushu to support Thailand in transforming its existing industrial parks to ecological-industrial towns. In 2014, Kitakyushu concluded Memorandums of Understanding on cooperation for transformation to ecological-industrial towns with the DIW and the IEAT, respectively.
- Based on this cooperation, Kitakyushu launched a JCM FS in FY2015 targeting the industrial parks of IRPC and Maptaphut located in Rayong Province.
- The JCM FS in FY2015 is investigating three potential projects. The first potential project is on power generation using city garbage, which aims at developing a model to reduce CO₂ emissions and secure profits by energy sales, by taking existing plans construct a waste incinerator and converting them to plans to construct waste-to-energy facilities. The second one is a project for total recycling of industrial waste produced in the industrial parks by applying a low-carbon recycling system. The final one is a project for introducing waste heat recovery, a distributed power supply system, and energy and water saving.

City-to-city
Collaboration
Q&A

Q: What are benefits to utilize the JCM FS through city-to-city collaboration?

A: Kitakyushu supports overseas expansion of private companies as one of its policy measures, and considers utilization of the JCM FS as a business chance of overseas expansion for private companies in Kitakyushu. Moreover, Kitakyushu believes that it can develop win-win relationships with partner cities if it can identify the partner cities' interests and needs properly, and utilize the JCM in a manner that meets their expectations.

Q: What are roles of a local government in implementing the JCM FS under city-to-city collaboration and project formulation?

A: We consider that important roles of a local government through implementation of the JCM FS and project formulation are to proceed the FS effectively and smoothly by utilizing know-how and experiences accumulated in the local government to the maximum, to support private companies' business activities by developing local channels in their own distinctive way different from business-to-business transactions, and to provide necessary arrangements when private companies face problems by monitoring the progress of the FS and projects.

MINAS: MOYAI Initiative for Networking, Assessment and Strengthening

At the Diplomatic Conference of the Minamata Convention on Mercury, Japan expressed its intention to support developing countries and promote voices and messages from Minamata, through the actions titled “MOYAI Initiative.” As part of this initiative, the MOYAI Initiative for Networking, Assessment and Strengthening (MINAS) is being promoted. MINAS is a program of the Ministry of the Environment, Japan (MOEJ) that is designed to support developing countries’ efforts in mercury management by providing measures including the various activities with close cooperation and collaboration with relevant agencies such as the US Environmental Protection Agency (USEPA), United Nations Environment Programme (UNEP) or JICA.

MINAS --- consisting of 3 pillars for supporting developing

Networking

Building networks of mercury-related activities (e.g. monitoring) and information between Japan and partner countries

Establishing a mercury monitoring network in the Asia-Pacific region

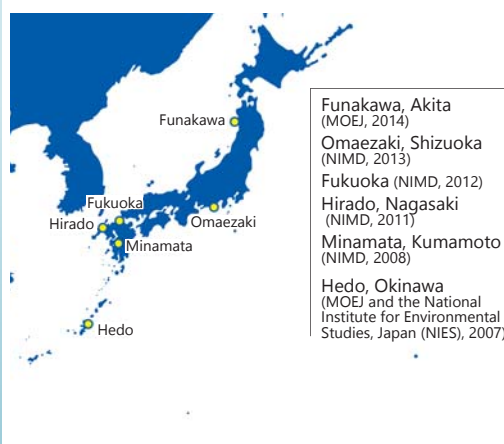
- Establishing multi-media mercury monitoring network (expanding mercury monitoring methodologies developed by the National Institute for Minamata Disease (NIMD), strengthening data center function in the Asia-Pacific region)
=> Exploring opportunity of the GEF resources
- Sharing monitoring result of atmospheric mercury level in Japan
- Establishing mercury monitoring stations in developing countries

The MOEJ and NIMD conduct monitoring of mercury in air, particulate matter and precipitation at six sites in Japan. The results of domestic mercury monitoring provide the basis and backbone of regional network.

The MOEJ and USEPA agreed to establish a multi-media mercury monitoring network in Asia-Pacific with key partner countries in the region. The network will explore opportunity of GEF resources to enhance the impact of the collaboration. The results will contribute the effectiveness evaluation of the Minamata Convention.

Mercury background monitoring sites

*(monitoring organization, year started)



Assessment

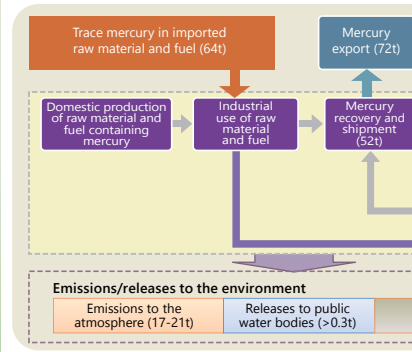
Accelerating developing countries’ mercury situation assessment, taking advantage of

Supporting developing assessment and action

- Situation analysis of mercury (material mercury analysis of human hair, etc.)
- Action plan development (training for research, etc.)
- Survey and activities for awareness on Minamata disease, etc.)

Since 2007, the MOEJ has estimated use in production activities and mercury air, water and soil to grasp the domestic the knowhow obtained through the supporting other countries to prepare

Material flow of mercury in Japan (FY2010)



MOYAI Initiative

MINAS

Supporting developing countries

Voices and messages from Minamata

Supporting developing countries for the implementation of the Convention

*Japanese term 'Moyai' literally means a bowline rope mooring boats together. It also refers to the cooperative works in local communities

Diplomatic Conference of the Minamata Convention

In October 2013, the Diplomatic Conference of the Minamata Convention on Mercury and the relevant meetings were convened in Kumamoto and Minamata for the adoption and signature of the Convention. More than 1,000 delegates including government officials from 139 countries/ regions participated in the conference, and 92 countries (including EU) signed the Convention.

The Convention will enter into force on the 90th day after the date of deposit of 50th instrument of ratification.

Launch of MINAS and US-Japan cooperation

On Prime Minister's state visit to the US in April 2015, both countries agreed to work for contributing to the objective of the Minamata Convention on Mercury by exploring opportunities for cooperation in collaboration with the Global Environment Facility (GEF).

In August 2015, Minister of the Environment Mr. Mochizuki announced the launch of MINAS at the occasion of US-Japan bilateral dialogue with USEPA Administrator.

countries' efforts to implement Minamata Convention on Mercury

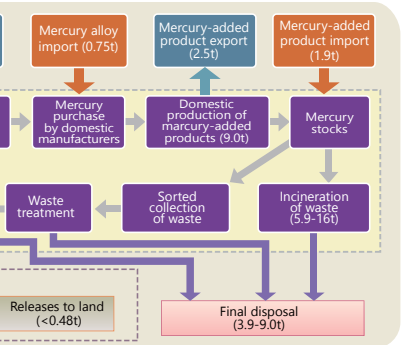
management efforts by supporting their Japan's experience

countries for survey, plan development

flow/ inventory surveys and workshops, mercury management planning, joint mercury issue (disseminating lessons of

mercury material flow such as mercury release to the environment including flow of mercury. The MOEJ will apply development of this flow study in their own domestic flow.

basis: updated in FY2015: simplified version



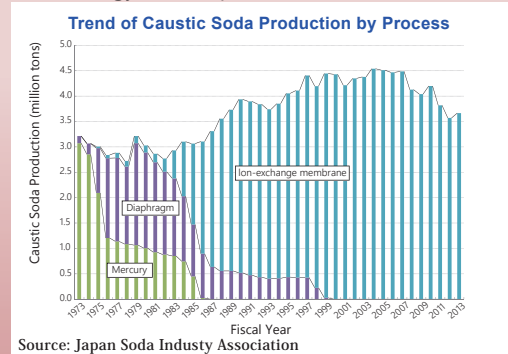
Strengthening

Strengthening developing countries' mercury management by providing Japan's technologies and know-how

Surveying development needs on mercury management and technical cooperation

- Connecting mercury management needs in developing countries and technologies and know-how in Japan => Working collaboratively with relevant agencies and formulating technical cooperation projects by utilizing external funding schemes
- Conducting needs assessment on mercury management of approx. ten countries in three years
- Developing cooperation menus of key sectors by compiling technical seeds in Japan

Mercury is used in various manufacturing process. Japan has converted all of these processes into mercury-free methods. Conversion of domestic chlor-alkali production to mercury-free process was completed in 1986. The newest ion-exchange membrane method has higher product quality and lower energy consumption.



Source: Japan Soda Industry Association

Most of the wastes containing mercury is recycled. Photo shows a recycling activity of waste fluorescent lamps. The recovered mercury is used for necessary purposes.



Introduction of Japanese water-conserving toilets in Vietnam

— Japanese company officially awarded contract with Vietnam National Railways —

Water pollution is becoming serious issue in Asian countries due to urbanization and population increase accompanying rapid economic development in the region. The MOEJ is promoting the “Model Project for Improvement of Water Environment in Asia” aimed for contributing the improvement of Asian water environment and supporting the expansion of Japan’s water environment business by widespread use of Japanese advanced water treatment technologies since 2011.

It is introduced that the water environment improvement project by CHODAI Co., Ltd adopted as the model project in this section.

Project background



Train car with bio-toilet installed

Train lines make up a major form of public transportation in Vietnam, with the amount of raw sewage produced reaching 8.3 tons per day. A worsening water and hygienic environment due to untreated sewage has become a societal problem in recent years. The introduction of water-conserving energy-saving environmentally sound toilets that are easy to maintain would be effective in improving the comfort of railway use, the demand for which is certain to rise in the future, as well as for improving the water and hygienic environment. In particular, Vietnam’s Ministry of Transport has given orders to the state-run Vietnam Railways to carry out improvements in toilet environments on north-south train lines by 2015, and on all train lines by 2020. Based on this background, CHODAI CO., LTD., aiming to introduce the bio-toilet in Vietnam, formed a consortium that includes a bio-toilet manufacturer from Japan, a university research institute and a local company. In fiscal year 2011, this project was selected for the “Model Project for Improvement of Water Environment in Asia” programme implemented by the MOEJ.

Introduction of bio-toilets to the train cars of Vietnam Railways

Within the feasibility study of FY2011 utilizing the “Model Project for Improvement of Water Environment in Asia,” consultations were conducted on assessment of reduction effect on infection risk due to introduction of bio-toilets in Vietnam, examination of secondary usage of raw sewage (e.g. composting), confirmation of local design standards, and creation of partnerships with local relevant institutions and private companies. Further in FY 2012, as a selected proposal in the “Project to Support Global Technical Collaboration” implemented by Japan’s Small and Medium Enterprise Agency, the development of a prototype and verification trials were carried out. In addition, verification trials have continued after FY2013, as improvements and enhancements are made to the product.

As a result of these initiatives, in June 2015 CHODAI CO., LTD., was officially awarded with a contract for a series of projects placed by Vietnam Railways. This package covers trains connecting Hanoi with the tourist locations of Lao Cai Province in the north and Da Nang city in central Vietnam, and involved the installation of environmentally sound toilets including bio-toilets. In total, this project will involve the introduction of 199 toilets in 127 train cars.



Signing ceremony with Vietnam Railways



Bio-toilet installed on train car



Vietnam Railways route map

*Note: The red train lines are those with bio-toilets installed

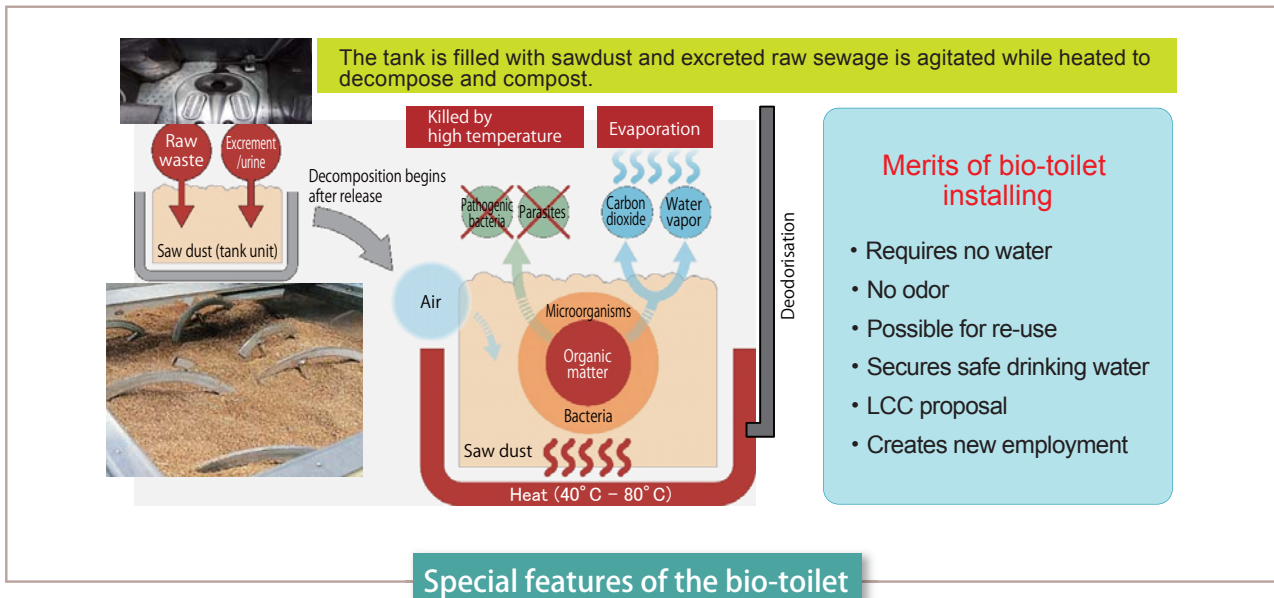


Introduction of the technology

The bio-toilet to be introduced in this project is an apparatus that uses sawdust, which can be easily procured locally. It is heated to treat the excreta by activation of the bacteria contained in raw sewage and microorganisms living in the sawdust.

Flush toilets installed previously in some of Vietnam Railways trains are faced with several problems, including large water usage, limited installation space, complicated operation and maintenance methods. On the other hand, the bio-toilet, that does not require water nor give off an offensive odor, can be installed in a variety of places and thus is an effective means of addressing these issues.

However, the price of bio-toilets sold in Japan is high, making it difficult to merely introduce Japanese products to Vietnam Railways. As such, CHODAI CO., LTD., in cooperation with the local company ENVIRONMENT & EQUIPMENT TECHNICAL CORPORATION, has worked to make improvements to a product suited to local conditions.



Future prospects

By the introduction of the bio-toilet, it is expected to enhance the comfort of railway use and to improve water and sanitary environments in Vietnam. Towards achieving universal access to clean water and sanitation set forth in the SDGs, the MOEJ will continue to promote the "Model Project for Improvement of Water Environment in Asia" to support the overseas expansion of water environment technologies, one of Japan's advantage. Additionally, the MOEJ will support water environment improvements in Asia by creating networks with administration officials in other countries and promoting cooperation in the strengthening of water governance.

The MOEJ informational website (Model Project for Improvement of Water Environment in Asia)

http://www.env.go.jp/water/coop/asia_business/weib.html

Businessperson interview ◆ CHODAI CO., LTD.



Mr. Y. Sawada, Manager,
Business Planning Dept.,

Q. We heard that Vietnam Railways started to approach to you about this project. What were the circumstances?

Our company has a local branch in Hanoi, and has for some time had a relationship with VAST-IET (Vietnam Academy of Science and Technology's Institute of Environmental Technology). The opportunity for this project came about when we heard from VAST-IET that Vietnam Railways intended to introduce bio-toilets from Japan and was considering requesting our cooperation. As the demand from Vietnam Railways with its intent to install bio-toilets was clear, we had no major concerns. If cost cuts based on local manufacture went well, we believed that the business would be sufficiently viable.

Q. What was the reaction of Vietnam Railways when implementation of the feasibility study based on support from the MOEJ was arranged?

They seriously welcomed the support of the Japanese government. It seemed that they technically trust the bio-toilet technology they intend to adopt by Vietnam's Ministry of Natural Resources and Environment's adoption.

Qui Nhon

Nha Trang

Phan Rang
-Thap Cham

International expansion of Japan's decentralized wastewater treatment systems

Introduction

In Asian countries experiencing striking economic growth, urbanization and rising populations have resulted in an increase in domestic wastewater (human excreta and domestic non-fecal wastewater) and the worsening water pollution. Further, as opportunities for improving the water environment and public health have increased along with rising standards of living, calls for raising the standard of wastewater treatment to the level carried out in developed countries have become more pronounced.

Based on the needs of such countries, the MOEJ aims to internationally expand the use of Japan's decentralized domestic wastewater treatment systems, such as *johkasou*, in order to contribute to protection of the region's water environment and to improvement of public health focused on developing countries.

Herein lies a discussion of the current state of domestic wastewater treatment in the Asian region and issues faced, as well as an introduction of the MOEJ initiatives toward promoting widespread appropriate decentralized domestic wastewater treatment systems.

Current state of domestic wastewater treatment in the Asian region

Improving domestic wastewater treatment system is on the major issue of Asian countries due to rising populations alongside economic development. While sewerage systems have been developed in some cities, domestic wastewater especially domestic non-fecal wastewater is discharged into rivers untreated or undergoes soil permeation in many areas. Moreover, even when septic tanks* are installed, in many cases the treatment capacity of the equipment itself is low and appropriate maintenance, such as regular desludging, is not carried out, demonstrating that septic tanks could not perform their function as domestic wastewater treatment facilities.

While some countries have begun setting regulations on

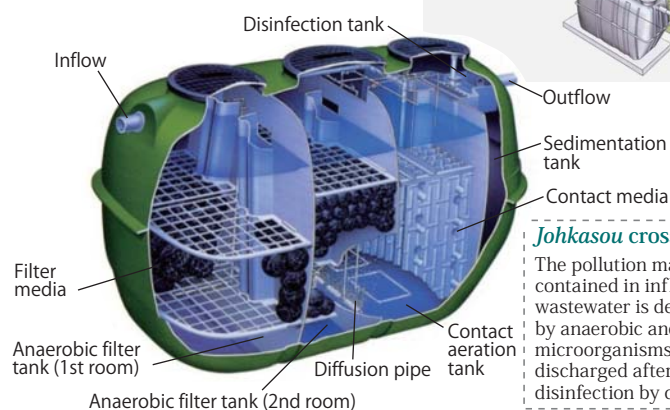
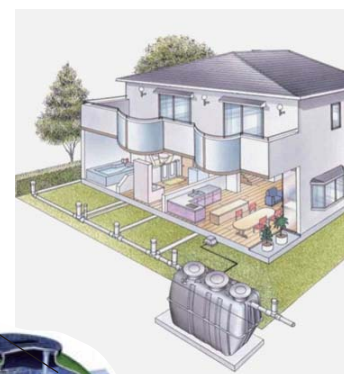
wastewater following the example of developed countries, regulations is meaningless as a result of absence of mechanisms for compliance and gap from the current state to object. Discharge of untreated domestic wastewater not only worsens the water environment, but also has the potential to bring about health damages such as the spread of infectious diseases. As such, this issue must be promptly addressed from the perspective of public health.

*A decentralized domestic wastewater treatment apparatus that decomposes contaminants based on anaerobic microorganisms. Septic tanks are commonly installed in the Asian region.

Japan's decentralized domestic wastewater treatment system and its management scheme

In Japan, implementation of the *johkasou* installation for decentralized domestic wastewater treatment has run parallel to sewerage systems as another type of permanent domestic wastewater treatment facility, and has made considerable contribution to preservation of the water environment and improved public health. *Johkasou* have a treatment performance on the level of sewage treatment plants (under BOD 20mg/L, over 90% BOD removal rate). Appropriate and continued maintenance is indispensable to *johkasou* performance, same as other decentralized domestic wastewater treatment systems. The *Johkasou* Act enacted to clarify regulations and division of roles for concerned parties related to *johkasou* (e.g. administration, managers, contractors) to maintained their performance. Based on the design and operation of this Act, *johkasou* have come to play a part in domestic wastewater treatment in Japan.

In many Asian countries, institutional design to support decentralized domestic wastewater treatment systems has been shown to be lagging. The knowledge and technology of Japan related to the *johkasou* system could be significantly useful in addressing this problem. The MOEJ promotes the international expansion of the *johkasou* system focused to the Asian region. Likewise, it carries out information dissemination on the effectiveness of *johkasou* in addressing domestic wastewater treatment issues and the necessity for institutions to support its use.



Johkasou cross-section
The pollution materials contained in influent wastewater is decomposed by anaerobic and aerobic microorganisms, and discharged after disinfection by chlorine.

Workshops on decentralized domestic wastewater treatment in Asia

The MOEJ, aiming at the widespread appropriate decentralized sewage treatment systems (including domestic wastewater treatment) in the Asian region, has sponsored "Decentralized Domestic Wastewater Treatment in Asia" workshops since 2013. Over 100 administrative officials, experts and manufacturers from six Asian countries have participated in workshops, and active discussions have been carried out on the two topics of "The role of decentralized wastewater treatment in promotion of wastewater management" and "Institutions and standards for decentralized wastewater treatment." Workshops are planned for the future and will continue to build relationships among Asian countries, focusing on discussions related to standardization of decentralized wastewater treatment and in particular the creation of common institutions for performance evaluation in Asian countries.

China: 102 small-sized, 10 medium to large-sized
Attracting attention as a domestic wastewater treatment facility for rural areas
Project underway on creation of wastewater treatment technology system and management scheme (JICA)

Myanmar: 25 small-sized, 17 medium to large-sized

Sri Lanka: 3 small-sized

Singapore: 2 medium to large-sized

Malaysia: 1 small-sized
Project implementation on domestic wastewater treatment based on *johkasou* (The MOEJ, Water Environment Improvement Projects in Asia)

Indonesia: 11 small-sized, 4 medium to large-sized
Project implementation on water quality improvement based on *johkasou* (The MOEJ, Water Environment Improvement Projects in Asia)

Republic of Korea: 1 medium to large-sized

Taiwan: 1 small-sized, 1 medium to large-sized

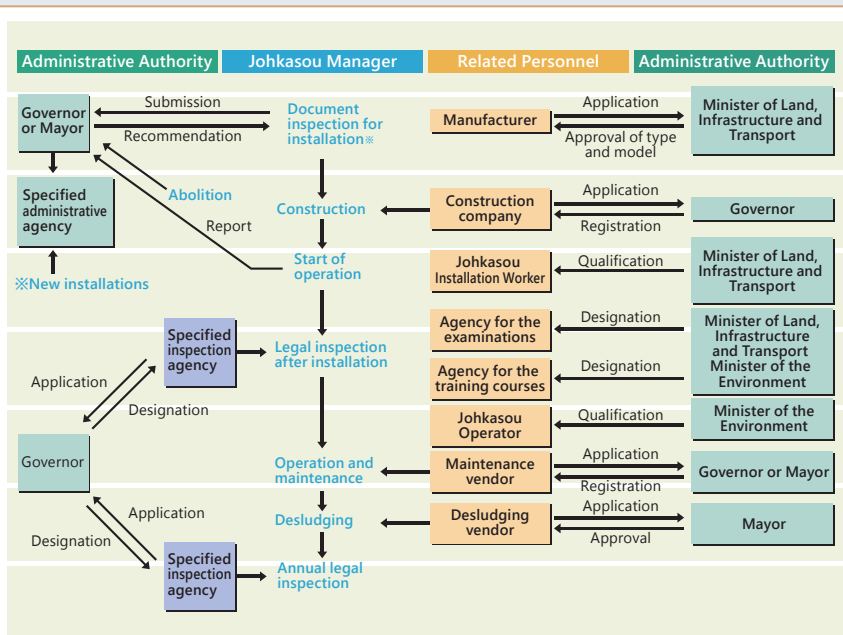
Philippines: 1 medium to large-sized

Vietnam: 591 small-sized, 367 mid-sized
Installation in hospitals and homes based on advancement by *johkasou* manufacturer

Thailand: 1 medium to large-sized

*small-sized *johkasou* ...with capacity under 50 PE
medium to large-sized *johkasou* ...with capacity over 51 PE

Johkasou system spreading in Asia
– Actual installation of *Johkasou* (as of February 2015) –



Legal framework for *johkasou* management.

Legal framework defines the role of concerned parties are essential points for the *johkasou* system management.

Future developments

The usefulness of decentralized domestic wastewater treatment systems, as well as the importance of operation and maintenance, is not yet fully recognized in Asian countries. The MOEJ will continue to provide capacity building programs to support the institutional designs related to decentralized domestic wastewater treatment and improved technologies for their operation and maintenance, including sludge treatment, in its effort to promote widespread use of appropriate decentralized domestic wastewater treatment systems.

Further, initiatives in cooperation with international organizations and aimed at the preservation of the water environment and an improved public health in the Asian region will be continued. These include the implementation of *johkasou* in regions where domestic wastewater treatment is lagging, as well as the development of *johkasou* systems suited to local climates and cultures.



The MOEJ, site on *johkasou*
<http://www.env.go.jp/recycle/jokaso/>

Outcomes of the 17th Tripartite Environment Ministers Meeting (TEMM17)

-Adoption of the Tripartite Joint Action Plan on Environmental Cooperation-



The Ministers at TEMM17 in 2015
 (Left) Minister MOCHIZUKI Yoshio, Ministry of the Environment of Japan
 (Center) Minister CHEN Jining of the Ministry of Environmental Protection of the People's Republic of China
 (Right) Minister YOON Seongkyu of the Ministry of Environment of the Republic of Korea

Along with rapid economic development in North East Asia, one major issue is the realization of a sustainable society to deal with environmental problems.

The three countries of Japan, China and Korea have close geographical and historical connections, and in order to strengthen cooperation for environmental improvement not only in the region, but on a global scale, the Tripartite Environment Ministers Meeting (TEMM*) has been held every year since 1999.

The 17th Tripartite Environment Ministers Meeting (TEMM17) was held on 29-30 April 2015 in Shanghai, China.

At this meeting, the Tripartite Joint Action Plan on Environmental Cooperation for the next five-year period (2015-2019) and the Joint Communiqué, summarising outcomes, were adopted.

*TEMM : Tripartite Environment Ministers Meeting

Outcomes of TEMM17

- 1 Adoption of the Tripartite Joint Action Plan on Environmental Cooperation (2015-2019).
- 2 Confirmation of initiatives to strengthen environmental cooperation in the nine priority areas adopted at TEMM16.
- 3 Declaration of expectation that the UN sustainable development goals will play a pivotal role in the future.
- 4 Welcomed the outcomes of the Youth Forum and the Tripartite Roundtable on Environmental Business.
- 5 Commended the awardees of the TEMM Environment Awards ceremony, Ms. JIAO Zhiyan (Center for Environmental Education and Communication of Ministry of Environmental Protection of the People's Republic of China), Prof. ABE Osamu (Rikkyo University of Japan) and Dr. CHU Jang Min (Korea Environment Institute, Republic of Korea) for their contribution to environmental cooperation among the three countries.



Adoption of the Tripartite Joint Action Plan on Environmental Cooperation (2015-2019)

The three Ministers newly adopted to implement an action plan for the years 2015-2019 to replace the five-year Tripartite Joint Action Plan on Environmental Cooperation (2010-2014).

The TEMM will oversee the general progress and achievements of the activities of this Action Plan and provide guidance.

The three Ministers agreed to play a leading role in the environmental management of Northeast Asia within the framework of TEMM and by cooperatively advancing the activities of the joint action plan.

Official TEMM website:
<http://www.temm.org/>

Explanatory site in Japanese:
http://www.env.go.jp/earth/coop/temm/introduction_j.html

Table 1 Tripartite Joint Action Plan on Environmental Cooperation

Priority areas	Sub-priority areas	Action topics
1. Air Quality Improvement	A. Air Pollution	Tripartite Policy Dialogue on Air Pollution
		Working Group I (Scientific Research on Prevention and Control)
		Working Group II (Technology/Policy on Air Quality Monitoring and Prediction)
	B. DSS	DSS Directors General Meeting
		DSS Steering Committee Meeting
		DSS WGI & WGII and Related Meetings
Tripartite Joint Workshop between WGI and WGII		
2. Biodiversity	A. Biodiversity Conservation	Tripartite Policy Dialogue on Biodiversity
		Tripartite Cooperation on AP-BON, ESABII and Bio-Bridge Initiative
		Information Exchange, Best Practice and Experience Exchange
	B. ABS (Access and Benefit Sharing)	Information Sharing to Prepare for Implementation of the Nagoya Protocol
	3. Chemical Management and Environmental Emergency Response	A. Chemical Management
Tripartite Expert Seminar on Chemical Management		
B. Environmental Emergency Response		Tripartite Joint Research on Risk Assessment of Environmental Disaster (Accident)
4. Circulative Management of Resources/3R/ Transboundary Movement of E-Waste		A. Circulative Management of Resources/3R
	B. Transboundary Movement of E-waste	Tripartite Information Sharing Channel on E-Waste Transboundary Movement Management
		Information Sharing on E-Waste Transboundary Movement Flow among the Three Countries
5. Climate Change Response		Climate Change Mitigation Technology Research and Demonstration Experience Exchange
		Information Sharing on Co-Control Technology
		Climate Change Adaptation Experience Exchange
		Research on Low-Carbon and Environmental-Friendly Cities Construction
6. Conservation of Water and Marine Environment	A. Water Environment	Tripartite Information Sharing on Water Environment Management
		Underground Water Technology Cooperation
	B. Marine Environment	Tripartite Workshop on Marine Litter
		Cooperation under the Framework of NOWPAP
7. Environmental Education, Public Awareness and Corporate Social Responsibility	A. Environmental Education, Public Awareness	Tripartite Environmental Education Network (TEEN)
		Youth Forum
		Environmental Training for Officials
		General Public Awareness Improvement Project
	B. Corporate Social Responsibility	Cooperation on CSR on the Environment for Business Sector
8. Rural Environmental Management		Tripartite Rural Environment Policy Dialogue
9. Transition to Green Economy	A. Green Economy	Information Exchange on Green Development/Economy
		Tripartite Joint Research on Green Economy and Low-Carbon Society
	B. Environmental and Green Industry	Tripartite Roundtable on Environmental Business (TREB)
		Information Exchange on Tripartite Pollution Prevention and Control Technology
	C. Green Supply Chain	Information Exchange on Evaluation, Certification and Verification of Environmental and Green Industry
		Cooperation on Regional Green Supply Chain



Partner countries of the Joint Crediting Mechanism

Japan has held consultations for the JCM with developing countries since 2011. As of January 2016, Japan has established the JCM with sixteen countries (Mongolia, Bangladesh, Ethiopia, Kenya, Maldives, Viet Nam, Lao PDR, Indonesia, Costa Rica, Palau, Cambodia, Mexico, Saudi Arabia, Chile, Myanmar and Thailand).



The JCM Portal Sites

In order to provide support for large-scale JCM projects, the Ministry of the Environment of Japan (MOEJ) has established websites for business and local governments mainly to provide information about partner countries, cities and domestic stakeholders. For more detailed information, please visit the websites listed below.

Ministry of the Environment's Web Portal for Low Carbon Development in Asia

<http://www.env.go.jp/earth/coop/lowcarbon-asia/english/>

Main information

- Trends in international negotiations and related systems
- Governmental agencies in Asian countries
- Low-carbon/environmental policies in Asian countries
- Governmental support systems for overseas business development



Business Collaboration Support Website for Low Carbon Development in Asia

<http://lowcarbon-asia.org/english/>

Main information

- Introducing low-carbon technologies developed by Japanese companies
- Consultation services for overseas expansion
- Consultation information that offers support for the development of eco-businesses overseas



Web Portal for Low Carbon Development in Asia (Information for Local Governments)

<http://www.env.go.jp/earth/coop/lowcarbon-asia/english/localgov/>

Main information

- Support measures for international environmental cooperation
- International networks and collaborative activities of local governments
- Consortium information with businesses
- Information on projects regarding low carbon development in Asia



Clean Asia Initiative Newsletter vol.14, Edited/Published by the Institute for Global Environmental Strategies in January 2016



[Edited/Published]
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