Global Environment Centre Foundation

Annual Report 2017

Foreword

Since its inception, the Global Environment Centre Foundation (GEC) has constantly supported the activities of the UN Environment /UNEP International Environmental Technology Centre (IETC), while actively implementing projects for environmental conservation and to tackle with at global warming in developing countries.

Above all, GEC's activities aim to contribute to the implementation of the Sustainable Development Goals (SDGs), approved and announced at the 70th Session of the UN General Assembly in September 2015, and the reduction of greenhouse gases (GHGs) on a global scale under the Paris Agreement.

In FY2017, GEC supported the activities of the "Global Dialogue on Technology for Resilient Cities (Osaka International Conference)" in coordination with IETC and City of Osaka, and engaged in the planning and operation of international workshops such as the "Seminar on Environment Technologies for Integrated Waste Solution in Thailand". Through the Project to Create and Support Local Core Businesses (commissioned by METI Kansai) GEC has also contributed to the transfer of excellent environmental and energy-saving technologies from Japan to overseas and the improvement of regional environment, utilizing the Kansai-Asia Environmental and Energy-Saving Business Promotion Forum (Team E-Kansai) as a platform.

As regards action against climate change, the 23rd Conference of the Parties to the UN Framework Convention on Climate Change (COP 23) held in Bonn, Germany in November 2017 discussed implementation guidelines for countries around the world to promote measures against climate change under the Paris Agreement, a new international framework for 2020 and beyond. Discussion also made headway on the elements of the guidelines including market mechanisms such as the Joint Crediting Mechanism (JCM), promoted by the Japanese government jointly with other partner countries, mainly in the form of exchanges of views towards agreement at COP 24.

Meanwhile, GEC is assisting corporate initiatives against global warming overseas through the operation and management of programmes sponsored by the Ministry of the Environment, such as the Financing Programme for JCM Model Projects to support projects against global warming in partner countries aiming at project registration and credit issuance under JCM, the REDD+ Model Projects to promote the reduction of GHGs through forest preservation, and the financing programme to promote the renovation of advanced low-carbon technologies in line with the local specific circumstances of each developing country .

Also, GEC has been promoting a wide range of international environmental cooperation including the JICA Partnership Programme in collaboration with City of Kyoto and Vientiane, the capital of Laos through international City-to-City cooperation, and the Water Environment Business Promotion Project in partnership with Ho Chi Minh City, Vietnam jointly with Shiga Prefecture, as well as human resource development by the JICA Group Training Project.

All of these projects are in line with the Sustainable Development Goals (SDGs). We continue to serve as an essential organisation for the Kansai area and Japan as a whole by promoting international environmental cooperation activities for developing countries in collaboration and cooperation with our partners. We remain committed to contributing to the implementation of the SDGs and the Paris Agreement from a global perspective, leveraging our expertise, experience, and domestic and international networks.

We would greatly appreciate your continued understanding and support of our activities.

July 2018

SUZUKI, Naoshi
President
Global Environment Centre Foundation

Global Dialogue on Technology for Resilient Cities

Support for the Activities by the UN Environment International Environmental Technology Centre (IETC) to Promote Environmentally-Sound Technologies

GEC was commissioned by City of Osaka to conduct the FY 2017 Supporting project for the UN Environment/UNEP International Environmental Technology Centre (IETC), commissioned by City of Osaka. GEC implemented projects on the 'planning and organisation of international workshops, etc. to be held in the Osaka city', 'research on the needs in Thailand and Vietnam for the promotion of environmental technology transfer' and 'support for information dissemination of IETC', as well as the "Global Dialogue on Technology for Resilient Cities", a project directly commissioned by IETC.

These projects are related to the "Integrated Waste Management Programme", which IETC has prioritized in recent years, therefore GEC proactively promoted and implemented then as part of support projects to IETC. Supporting IETC's programme is one of GEC's main activities.

Supporting Project for IETC (Commissioned by City of Osaka)

(1) Support for the organisation of the "Global Dialogue on Technology for Resilient Cities"

As a partner organisation, GEC was involved in the operation of, and support for, the Global Dialogue on Technology for Resilient Cities, held on 17–19 October 2017.

At the opening session on Day 1, the keynote speeches by Mr. Keith Alverson, Director of IETC, and Mr Seigo Tanaka, Deputy Mayor of Osaka, were followed by two days of parallel sessions on eight subjects including 'Technology for the Management of Hazardous Waste and Chemicals', 'Technology for Municipal Solid Waste Management and SDGs' and 'Education, Awareness, and Capacity-building for Resilient Cities'.

A total of 147 participants from some 20 countries attended the two-day sessions, including experts and practitioners representing international organisations and governments such as the UN Economic and Social Commission for Asia and the Pacific (ESCAP), the UN International Strategy for Disaster Risk Reduction (UNISDR), the Secretariats for the Basel, Rotterdam and Stockholm Conventions, Global Water Partnership, the United States, India, Egypt, Kenya, Thailand, Nepal, the Philippines, Vietnam and Malaysia. Parallel sessions were animated by numerous lectures and active exchanges of views on how technologies might contribute to

the resilience of cities against various environmental changes and disasters.

On Day 3, participants visited the Biwako Environmental Business Exhibition to learn about Japanese state-of-the-art environmental technologies. Participants from overseas were particularly impressed by this large-scale exhibition showcasing the best of the environmental technologies developed by Japanese companies (wastewater/solid waste management, energy efficiency, recycling, prevention of air and soil pollution, etc.).

Opening session

- Date: 17-19 October 2017
- Contents: Global-level consultation on environmental technologies for resilient cities and field visit to Biwako Environmental Business Exhibition
- Venue: IETC Office, Tsuruminomori Geihinkan, Nagahama Dome
- Organisers: IETC; Co-organisers: City of Osaka; UNITAR CIFAL Jeju
- Partners: GEC, Osaka Water & Environment Solutions Association
- Participants: 147 people (from 20 countries)

Group discussion

Field visit to Biwako Environmental Business Exhibition

(2) Research on environmental needs in Asia

GEC conducted research on environmental needs in Bangkok, Thailand and Hanoi, Vietnam. The activities in the two cities were implemented as a follow-up to the Delivering Integrated Waste Solutions at the National and Local Level project commissioned by IETC in the previous year. Our research activities included events and seminars aimed at identifying environmental needs at the implementation stage of the waste management plans developed by the municipalities, and building partnerships with local government agencies, private businesses and associations.

Hanoi, Vietnam

- Name of event: Hanoi Business Matching Event (water treatment technologies)
- Date: 17 January 2018
- Venue: National University of Civil Engineering
- Participants: About 50 people (from nine Japanese companies and eight Vietnamese companies)
- Contents: In coordination with the METI Kansai project, we participated in a business matching event in Hanoi, and conducted an interview survey on the needs of relevant businesses and associations.

Seminar on Environment Technologies in Bangkok

Bangkok, Thailand

- Name of conference: Seminar on Environment Technologies for Integrated Waste Solution: For Building B-to-B Partnerships
- Date: 27–28 February 2018
- Organisers: IETC and GEC
- Co-organisers: Thai Ministry of Natural Resources and Environment; Department of Industrial Works, Thai Ministry of Industry; Federation of Thai Industries; Bangkok Metropolitan Administration
- Partners: METI Kansai, City of Osaka and Team E-Kansai
- Support: Embassy of Japan in Thailand
- Venue: Amari Watergate Hotel, Bangkok
- Participants: 80 people
- Contents: Under the theme of domestic and industrial waste management in Thailand, the Seminar featured the sharing of information among Japanese and Thai government officials, businesses and associations, the provision of information from the UN and international organisations, and the introduction of technologies and business matching between Japanese and Thai companies, as well as a side event on "Mercury Waste Management", which was one of the priority programmes of IETC.

(3) Information Dissemination on IETC activities

As a public information event for IETC, we introduced and provided information on IETC projects through the following environmental events, using waste management posters, official publications and project reports of IETC:

- Eco Ennichi 2017 (19 November 2017 at Osaka Hanahaku Memorial Hall, etc.)
- One World Festival (3-4 February 2018 at Osaka Kita Ward Citizen Centre, etc.)

One World Festival

Integrated Waste Solutions at the National and Local Levels (IETC-commissioned Project)

As part of the IETC programme 'Delivering Integrated Waste Solutions at the National and Local Levels', GEC conducted the "Global Dialogue on Technology for Resilient Cities" and supported the outreach activities of IETC.

- Period: June - December 2017
- Contents:
  1) Global Dialogue on Technology for Resilient Cities (17-19 October 2017)
  2) Participation in EcoPro 2017: International Exhibition on Environment and Energy (7-9 December 2017)
  3) Preparation of outreach promotion tools for IETC (awareness-raising goods made from waste plastic materials, etc.)
  4) Production of videos introducing the activities of IETC

Project to Create and Support Core Local Businesses

Since May 2013, GEC has been serving as secretariat to the Kansai-Asia Environmental and Energy-Saving Business Promotion Forum (Team E-Kansai), in cooperation with METI Kansai.

Building on the Team E-Kansai initiatives thus far, METI Kansai commissioned us to undertake the Project to Create and Support Local Core Businesses in FY2017. Within the framework of this project, we improved the business environments in Asian countries by enhancing the functions of existing overseas business support platforms including Team E-Kansai, and promoted the onsite technological verification of environment- and energy-related equipment and services in the key areas of China and ASEAN in close cooperation with local governments and relevant business entities to disseminate and extend the market for the products and technologies throughout the key areas.

(1) Activities in key areas

For this project, we designated China (Guangdong and Liaoning Provinces), Vietnam, Thailand and Indonesia as key areas, and developed frameworks for cooperation with their local governments and business associations. By strengthening the bilateral public-private partnerships, GEC also pursued business matching, coordinator-driven follow-ups and other support initiatives for individual businesses.

List of activities in FY2017

Japan	• Participation in a side event to AEM-METI	8 Apr 2017	Osaka City
	• Seminar: Introduction to Financing from International Organisations	13 Jun 2017	Osaka City
	• Networking Café: Thailand & Vietnam	21 Sep 2017	Osaka City
	• Business meeting with Environmental Protection Industrial Association of Liaoning Province, China	23-24 Oct 2017	Osaka City, Shiga Pref.
	• Business meeting with corporate mission from Guangdong Province, China	30 Oct – 2 Nov 2017	Osaka City, Shiga Pref.
	• Business meeting with Longjiang Environmental Protection Group Co., Ltd., etc.	7–14 Nov 2017	Osaka Pref., Shiga Pref.
	• Seminar: Entry into the Water and Environment Business in Indonesia	19 Dec 2017	Osaka City
	• Participation in the 11th Japan-China Energy Efficiency and Environment Forum	23–24 Dec 2017	Tokyo Metropolis
	• 5th Study Session on Domestic Wastewater	12 Jan 2018	Osaka City
	• Participation in the Kawasaki International Eco-Tech Fair and the 14th Asia-Pacific Eco-Business Forum	1–2 Feb 2018	Kawasaki City
China	• Participation in FBC Guangdong 2017 (Manufacturers' Business Negotiation) in Nan Hai	15–16 Nov 2017	Foshan, Guangdong Province
	• 2nd Session of Strategic Expert Commission to Promote the Guangdong-Kansai Joint Project	8 Dec 2017	Dongguan, Guangdong Province

China	• Participation in China (Dongguan) International Science and Technology Exchange and Cooperation Week and Japan-China Environmental Protection Science and Technology Forum	8–10 Dec 2017	Dongguan, Guangdong Province
Vietnam	• Wastewater treatment and energy saving related technology seminar with VBA in Vietnam	6 and 8 Sep 2017	Hanoi/Ho Chi Minh
	• Participation in VIETWATER 2017 and organisation of Networking Café in Ho Chi Minh	8–10 Nov 2017	Ho Chi Minh
	• Business matching event with water treatment operators and interview with state-owned Vietnamese corporate groups, etc.	16–18 Jan 2018	Hanoi
Thailand	• Business matching event with the Association of Energy Service Companies (ESCO) of Thailand and Networking Café	7 Dec 2017	Bangkok
	• Seminar on Environment Technologies for Integrated Waste Solution: For Building B-to-B Partnerships	27–28 Feb 2018	Bangkok
Indonesia	• Water and Environmental Technology Business Matching Seminar and Networking Café in Jakarta, and visit to a water treatment plant and exchange of information in Tangerang Province	12–14 Jul 2017	Jakarta
	• Onsite inspection in Indonesia	29 Jan – 3 Feb 2018	Jakarta
Other	• Participation in Penang Green Carnival (Malaysia)	9–10 Sep 2017	Penang

Japan-China Energy-Saving Cooperation Pavilion at China (Dongguan) International Science and Technology Exchange and Cooperation Week


Scene from the seminar (Ho Chi Minh)


Water and Environmental Technology Business Matching Seminar (Jakarta)

(2) Information dissemination through the Team E-Kansai platform

Utilising the public information tools of Team E-Kansai, GEC published various kinds of information to the public through e-mail magazines and websites, including notices about the dispatch of business missions, hosting seminars, workshops and other events, notices of activities organised by affiliate institutions, survey reports and needs information on environmental and energy-saving issues, and public calls for support projects provided by public institutions.

Promotion of Water Environment Business

The Shiga prefectural government established the 'Shiga Water Environment Business Promotion Forum (Team Water Shiga)' in March 2013 to facilitate development of the water environment business by taking advantage of the cumulative results of water environment-related industries and research institutions as well as activities of water environment conservation of Lake Biwa. The prefectural government not only provides information about recent trends in the water environment business, efforts being made by pioneering companies, and various support measures, but also operates Team Water Shiga as a forum for matching and team building to form actual business projects, joint development, and so on.

Commissioned to conduct 'Research & Coordination Work for Water Environment Business Promotion' by the Shiga prefectural government, we carried out projects related to: (1) Provision of support for hosting/offering seminars and section meetings in Shiga prefecture, (2) Study on identifying water environment-related challenges in the Asian region, and (3) Implementation of seminars, technical exchange meetings, business matching, and so on.

(1) Support for seminars and sessions held in Shiga Prefecture

GEC organised two Shiga Water Environment Business Seminars, at the Nagahama Institute of Bio-Science and Technology in October 2017 and at Collabo Shiga 21 in March 2018, to provide updates on actual cases of business operation in Asia, measures to support the water environment business, and water environment needs in Asia.

GEC also held three Asia Regional Sessions at Collabo Shiga 21 in October 2017, November 2017 and March 2018 to share information with Forum members regarding the operational policy of the Forum, progress of research, and planned seminars and other events.

(2) Fact-finding survey concerning water environment-related challenges in the Asian region

In consideration of the needs from members of Team Water Shiga, we selected Vietnam, Taiwan, and Indonesia as priority countries targeted for study, visited organisations such as local administrative agencies and business groups related to the water environment and Japan-related organisations in those countries, and carried out a survey through interviews and the like to identify the challenges concerning the water environment as follows:

Period	Country/region	Main destinations	Objective
November 2017	Vietnam	Ho Chi Minh City Department of Natural Resources and Environment (DONRE); Ho Chi Minh City Department of Industry and Trade (DOIT); Ho Chi Minh City Centre of Supporting Industry Development; Saigon High-Tech Park	• Research on the current status of environmental problems including water pollution and global warming, and actions and measures in response thereto • Confirmation of lecture at a business exchange seminar
December 2017	Taiwan	Taiwan Industrial Technology Research Institute (ITRI); Association for Taiwan-Japan Cooperation on Industrial Technology	• Research on technological needs, study subjects, future perspectives, etc. related to water environment
January 2018	Vietnam	Institute of Environmental Technology, Vietnam Academy of Science and Technology (VAST-IET); JICA Vietnam Office; Centre for Environmental Monitoring, Ministry of Natural Resources and Environment	• Research on technological needs, study subjects, future perspectives, etc. related to water environment
January-February 2018	Indonesia	Indonesian Food & Beverage Association (GAPMMI); JETRO Jakarta Office; Centre for Environmental Technology, Agency for Assessment and Application of Technology (BPPT)	• Research on technological needs, study subjects, future perspectives, etc. related to water environment

(3) Implementation of seminars, technical exchange meetings, and business matching

GEC held water environment-related seminars, technical exchange meetings, and business matching, etc. as shown below. During these seminars, etc., we shared the challenges and characteristics of the water environment, and so while the Shiga prefectural government presented its efforts so far to conserve the water environment of Lake Biwa and activities of the 'Shiga Water Environment Business Promotion Forum', a public-private platform, the local government agencies and research institutes presented their recent situations and measures concerning the water environment. In addition, we also gave a presentation on products and technologies, etc. owned by Japanese companies (member companies of Team Water Shiga). Finally, we set up a table for each company where the member companies of Team Water Shiga and local stakeholders engaged in individual consultations and business matching.

List of water environment business exchange seminars

City	Period	Local partners
Gaoxiong, Taiwan	September 2017	• Japan-Taiwan Exchange Association • Water Resources Agency, Ministry of Economic Affairs • Association for Taiwan-Japan Cooperation on Industrial Technology
Ho Chi Minh City, Vietnam	November 2017	• Saigon High-Tech Park • VCCI Ho Chi Minh Office • JETRO Ho Chi Minh Office

Support for Tripartite Environment Ministers Meeting among China, Japan and Korea (TEMM) (Project Commissioned by OECC)

The Tripartite Environment Ministers Meeting among China, Japan and Korea (TEMM) has been held annually since 1999, culminating in the implementation of cooperation projects under the Tripartite Joint Action Plan (TJAP, 2015–2019). As part of the project commissioned by the Overseas Environmental Cooperation Centre, Japan (OECC), GEC conducted several activities including: support and assistance for the ministerial meeting (19th TEMM, held on 24–25 August 2017 in Suwon, Korea) (including related sessions such as the Working-Level Meeting) and its side events; support for establishing a web-platform of the Tripartite Cooperation Network for Environmental Pollution Prevention and Control Technologies, one of the cooperation projects under TJAP; support for the first Korea-China-Japan Environmental Industry and Technology Joint Exhibition at the ENVEX2017 (the 39th International Exhibition on Environmental Technology and Green Energy, held on 7–9 June 2017 in Seoul, Korea); support for preparations for the second joint exhibition on environmental technologyies at the next exposition to be held on 7–9 June 2018 in China; and support for the implementation of the second Tripartite Rural Environment Policy Dialogue, held on 27 December 2017 in Tokyo.

Project to Support JICA Private-sector Technology Dissemination Programme: Promotion of Mercury-containing Waste Disposal Technology

In close cooperation with the Penang state government and local stakeholders in Malaysia, we visited Penang on 10–12 April 2017 to conduct the final survey on the project in coordination with the Japanese team (executing agency: Nomura Kohsan Co., Ltd.).

A public-private taskforce, composed of the Penang Island and Seberang Perai Municipal Councils and a local metal recycling company, confirmed the plan to build a system to collect used fluorescent bulbs from domestic waste, produce collection boxes, and consider disposal costs, at the initiative of the state government.

At present, Malaysia is considering how to manage and dispose of mercury-containing waste at the national level in preparation for the ratification of the Minamata Convention. The state of Penang is expected to develop policies including on collection sites and disposal methods to leverage the relevant technologies to promote mercury management. Since mercury waste management is one of the priority programmes of IETC, GEC will continue to monitor local and global trends, and provide support to encourage the proper disposal of mercury-containing waste.

Final meeting in Penang

Prototype of waste fluorescent tube collection box, Penang

JICA Partnership Programme

Pilot Project for Separate Waste Collection in Vientiane, Laos Project for Assistance to Develop an Effective Waste Utilization System with Citizen Cooperation in Vientiane Capital, Lao PDR

Vientiane Capital, the capital of Laos (approximate population: 800,000 as of 2015), is estimated to produce 350–650 tonnes of waste every day. Most of the waste collected in Vientiane is disposed of at a landfill site on the outskirts of the city, but the composition of the waste is becoming increasingly diverse in line with the rising living standards and changing lifestyles of the citizens. Thus, the waste now contains more materials that do not easily degrade in a landfill, including plastic containers such as PET bottles. With the growth of such non-degradable waste components, citizens are increasingly expected to participate in recycling through the 3Rs (reduce, reuse and recycle) and separate waste collection.

3Rs
Short for 'Reduce, Reuse and Recycle' waste

Commissioned by JICA since 2015, GEC has teamed up with the City of Kyoto, an environmentally advanced city with leading cases of waste management, to implement a project to develop in Vientiane Capital the participative separate waste collection system that proved successful in Kyoto.

(1) Launch of a Kyoto Model for participative separate collection

In FY2017, the final year of the project, we sought to continue and improve the pilot waste separation project launched in November 2016 in model villages, and conducted environmental education activities to disseminate the practice and raise awareness of waste separation.

First, we evaluated the results of the three separation methods introduced in the model villages: (1) separate collection by the local government, (2) drop-off collection at designated public sites , and (3) group collection at the initiative of local residents. From among the three options, we decided to adopt the 'group collection at the initiative of local residents' in all of the four model villages as the method best suited for the present context. We also set up a Council for the Promotion of Separate Collection to encourage civic collaboration for waste separation. The tripartite Council, made up of citizens, government officials and private operators, met regularly to exchange views freely. The activity was considered crucial for continued implementation and improvement of collective waste collection. Those efforts culminated in the introduction in the four villages of a group collection practice modelled on Community Collection, a participative separate collection system adopted in Kyoto. Every month, each of the model villages designates a Sunday as the group collection day, when residents bring valuable wastes such as PET bottles and aluminium cans to a school or other specified site in the village. The sales proceeds of the wastes thus collected are distributed among the residents.

Group collection
A method of community-led waste separation. In Japan, residents' associations are taking the lead in collecting aluminium cans and cardboard boxes, among other materials.

Kyoto Model for participative separate waste collection launched in four model villages

(2) Environmental education for waste separation

In order to secure the understanding and cooperation of citizens for waste separation, we launched a full-scale environmental education programme for children from a long-term perspective. Last year, we sought to revise and enhance the programme by localising its content, building on the side reader on the environment (a picture book) and the demonstration class on environmental education introduced in the four model schools. As a result, the picture book now contains easier-to-understand words and expressions for local children. New teaching aids for teachers, including Teaching Guidelines, were also prepared to

ensure effective use of the picture book in the environmental education class. We also filmed the demonstration class to produce a DVD for teacher training. We plan to distribute the teaching aids for environmental education to 100 public primary schools in Vientiane.

Environmental education class using a 'picture book' to raise awareness of the necessity for waste separation

(3) Training in Japan, etc.

In October 2017, we organised a training course in Kyoto. Seven trainees, including teachers of model primary schools and officials in charge of education and awareness-raising, were invited from Vientiane to receive lessons in environmental education and awareness-raising of citizens. They visited the Kyoto Municipal Syoran Elementary School to learn about environmental education in a Japanese primary school and share information on activities and environmental learning at school in Vientiane. Information was also provided on waste separation activities after school meals and typical 'dietary education' in Japan. The environmental side reader (a picture book) was also finalised in Japan, building on this field experience.

In addition, we conducted third-country training in Thailand, a neighbouring country of Laos. Residents of model villages and waste collection private operators had an excellent opportunity to learn about best practices on community-based group collection.

(4) Future expectations

At the final wrap-up meeting held in January 2018, Vientiane Capital announced its plan for continuing and expanding the waste separation pilot project. Flags depicting the mascot for the project will be distributed to the village offices and primary/secondary schools in the villages adopting the Kyoto Model of participative separate waste collection. It is hoped that one day, the mascot flags will be raised in all parts of the capital city.

Project outline

- Name: JICA Partnership Program (special project for local revitalisation) Project for Assistance to Develop an Effective Waste Utilization System with Citizen Cooperation in Vientiane Capital, Lao PDR
- Period: November 2015 to March 2018
- Executing agencies in Laos: Vientiane City Office for Management and Service (VCOMS), Department of Natural Resources and Environment, Vientiane Capital (DONRE), Department of Education and Sports, Vientiane Capital (DOES)
- Executing organisations in Japan: Global Environment Centre Foundation (GEC), City of Kyoto
- Objective: The effective waste utilization system is established with citizen cooperation by appropriate understanding for waste management in urbanized area of Vientiane Capital.

The Paris Agreement was adopted at the 21st Conference of the Parties (COP 21) of the UNFCCC in December 2015. To achieve the goals set under the Paris Agreement, it is essential to reduce greenhouse gas (GHG) emissions globally through international cooperation. Given this global landscape, GEC is keen to contribute to reducing emissions through supporting the transfer of advanced low-carbon technologies. GEC has been supporting the introduction of advanced low-carbon technologies in developing countries through various means including the Financing Programme for Joint Crediting Mechanism (JCM) Model Projects and the Financing programme to demonstrate advanced low-carbon technology innovation for further deployment in developing countries. GEC has also started supporting the development of project proposals and capacity-building for accessing international mechanisms including the Green Climate Fund (GCF) and the Climate Technology Centre and Network (CTCN) in FY2017, and will continue to provide such support in the future.

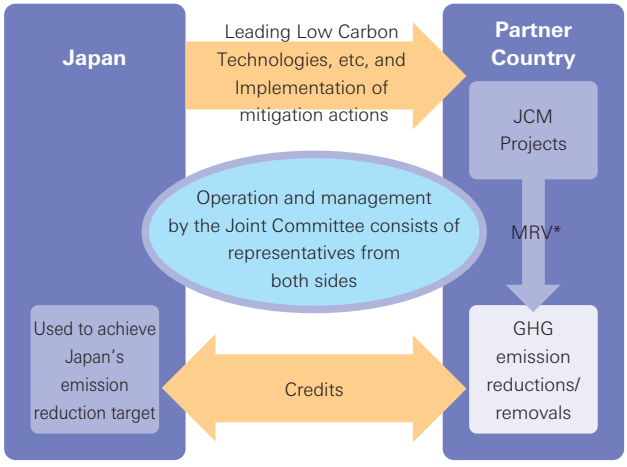
Technology Transfer for Developing Countries through the Joint Crediting Mechanism

What is the Joint Crediting Mechanism (JCM)?

The JCM is a mechanism based on bilateral agreements between Japan and developing countries. It facilitates the diffusion of leading low-carbon technologies, products, systems, services, and infrastructure as well as the implementation of mitigation actions, and contributes to sustainable development in developing countries. It appropriately evaluates contributions to GHG emission reductions or removals from Japan in a quantitative manner and uses them to achieve Japan's emission reduction target.

The JCM contributes to the ultimate objective of the UNFCCC by facilitating global actions for GHG emission reduction or removals. To date, the following 17 countries have signed bilateral documents for introducing the JCM: Mongolia, Bangladesh, Ethiopia, Kenya, the Maldives, Vietnam, Lao PDR, Indonesia, Costa Rica, Palau, Cambodia, Mexico, Saudi Arabia, Chile, Myanmar, Thailand and the Philippines.

JCM scheme between Japan and partner country



*measurement, reporting and verification

Programmes and Activities Supported by the Ministry of the Environment, Japan

The Ministry of the Environment, Japan (MOEJ) provides financial support for several programmes and activities including Financing Programmes for JCM Model Projects and REDD+ Model Projects, to facilitate the development of JCM projects. GEC is commissioned by the MOEJ to serve as an implementing organisation or secretariat to manage these programmes and activities.

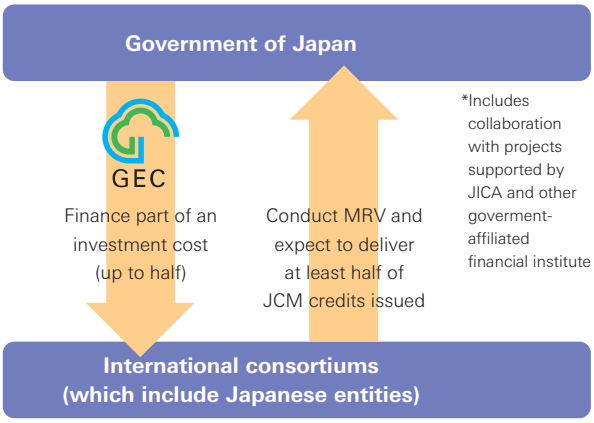
Financing Programme for JCM Model Projects

GEC has been supporting the MOEJ to implement the Financing Programme for JCM Model Projects. Since 2014, officially assigned by the MOEJ, GEC has been an implementing organisation of the Financing Programme for JCM Model Projects.

The purpose of this programme is to financially support the implementation of projects that reduce GHG emissions by utilising leading low-carbon technologies in developing countries, and in return, to seek to acquire JCM credits toward achieving Japan's GHG emission reduction target.

Each year GEC calls for, reviews and selects project proposals for the financing programme, and manages the selected projects. In FY2017, GEC held two open calls for proposals in April and September and selected 20 projects in total in consultation with the MOEJ (see Table below).

JCM Model Projects by MOE



- Scope of the financing : facilities, equipment, vehicles, etc. which reduce CO_2 from fossil fuel combustion as well as construction cost for installing those facilities, etc.
- Eligible Projects : starting installation after the adoption of the financing and finishing installation within three years.

JCM Model Projects Selected in FY2017

No.	Partner Country	Representative Participant	Title
1	Mongolia	Sharp Corporation	Introduction of 15MW Solar Power System near New Airport
2	Vietnam	Yuko Keiso Co. Ltd.	Introduction of Amorphous High Efficiency Transformers in Southern and Central Power Grids II
3	Vietnam	YUASA TRADING CO.,LTD.	Introduction of High Efficiency Centrifugal Chiller to Rubber Products Factory
4	Vietnam	Sapporo International Inc.	Introduction of Energy Saving Equipment to Brewery
5	Lao PDR	TSB Co., Ltd.	Introduction of 14MW floating solar power system in Vientiane
6	Lao PDR	Yuko Keiso Co. Ltd.	Introduction of Amorphous High Efficiency Transformers in Power Grid
7	Indonesia	AEON Mall co., Ltd.	Introduction of Gas Co-generation System and Absorption Chiller to Large Shopping Mall
8	Mexico	Kyuden International Corporation	Los Altos II Wind Farm Project
9	Mexico	Sharp Corporation	Introduction of 20MW Solar Power System in San Luis Potosí
10	Thailand	Fuji-Foods Corporation	Introduction of Biomass Co-Generation System to Food Factory
11	Thailand	Yokohama Port Corporation	Introduction of Energy Efficient Equipment to Bangkok Port
12	Philippines	Toyota Tsusho Corporation	15MW Mini Hydro Power Plant Project in Siguil River in Mindanao
13	Philippines	CHODAI CO., LTD.	4MW Mini Hydro Power Plant Project in Taguibo River in Mindanao
14	Philippines	Tokyo Century Corporation	Introduction of 1.53MW Rooftop Solar Power System in Auto Parts Factories
15	Philippines	Toyota Motor Corporation	Introduction of 1MW Rooftop Solar Power System in Vehicle Assembly Factory
16	Indonesia	DENSO CORPORATION	Introduction of Gas Co-generation System and Absorption Chiller to Motor Parts Factory
17	Indonesia	Tokyo Century Corporation	Introduction of Absorption Chiller to Chemical Factory
18	Mongolia	Sharp Corporation	Introduction of 20MW Solar Power System in Darkhan City
19	Indonesia	CHODAI CO., LTD.	10MW Mini Hydro Power Plant Project in Lae Ordi River in North Sumatra
20	Philippines	Tokyo Century Corporation	Installation of 1.2MW Rooftop Solar Power System in Refrigerating Warehouse

For Further informaton on JCM :
JCM Official Website
https://www.jcm.go.jp/
GEC JCM Website
https://gec.jp/jcm/

As of March 2018, GEC has managed more than 100 Model Projects and about half of the projects have completed the installation of facilities. These projects have been, or are expected to be, registered as JCM Projects, and the GHG emission reductions will be appropriately calculated for issuing JCM credits through a robust process.

Partner Country
- Representative Participant
- Project Participant
- Title

Photos and Lists from Model Projects that completed installation in FY2017

Maldives
- Pacific Consultants Co., Ltd.
- Villa Educational Services Private Limited
- School Building Rooftop Solar Power Plant Project

Indonesia
- Itochu Corporation
- PT. Aeon Mall Indonesia
- Installation of Solar Power System and Storage Battery to Commercial Facility

Vietnam
- Yuko-Keiso Co., Ltd.
- EVN SPC, EVN HCMC, EVN CPC, EVN Danang
- Introduction of Amorphous High Efficiency Transformers in Southern and Central Power Grids

Bangladesh
- Ebara Refrigeration Equipment & Systems Co., Ltd.
- NEXT ACCESSORIES Ltd., EBARA THERMAL SYSTEMS (Thailand) Co., Ltd.
- Installation of High Efficiency Centrifugal Chiller for Air Conditioning System in Clothing Tag Factory

Indonesia
- Sharp Corporation
- Persahaan Daerah Pertambangan Dan Energi (PDPDE)
- 1.6MW Solar PV Power Plant Project in Jakabaring Sport City

Indonesia
- Toyota Tsusho Corporation
- Toyota Motor Manufacturing Indonesia (TMMIN)
- Installation of Gas Co-generation System for Automobile Manufacturing Plant

Myanmar
- JFE Engineering Corporation
- Yangon City Development Committee
- Introduction of Waste to Energy Plant in Yangon City

Thailand
- FamilyMart Co., Ltd.
- Central FamilyMart Co., Ltd.
- Energy Saving at Convenience Stores with High Efficiency Air-Conditioning and Refrigerated Showcase

Thailand
- YUASA TRADING Co., Ltd.
- Nidec Component Technology (Thailand) Co., Ltd., Nidec Copal (Thailand) Co.,Ltd., Nidec Precision (Thailand) Co.,Ltd., Panasonic Automotive Systems Asia Pacific Co., Ltd.
- Energy Saving by Air-Conditioning Control System in Precision Parts Factories

Thailand
- CPF JAPAN Co., Ltd.
- CPF (Thailand) Public Company Limited
- Introduction of Heat Recovery Heat Pumps to Food Processing Factory

Mexico
- Suntory Spirits Limited
- Tequila Sauza S. de R.L. de C.V.
- Introduction of Once-through Boiler and Fuel Switching to Tequila Plant

Thailand
- KANEMATSU CORPORATON
- Better Foods Co., Ltd.
- Introduction of Energy Efficient Refrigeration System in Industrial Cold Storage

Vietnam
- Yuko Keiso Co., Ltd.
- EVN SPC, EVN HANOI, KHANH HOA PC, DON NAI PC
- Introduction of Amorphous High Efficiency Transformers in Northern, Central and Southern Power Grids

Cost Rica
- NTT Data Institute of Management Consulting, Inc
- MGM Sustainable Energy Limitada
- Introduction of the High Efficiency Chiller and the Exhaust Heat Recovery System

Indonesia
- Environmental Management and Technology Center (EMATEC)
- P.T. Aneka Bumi Pratama
- Energy Saving in Industrial Wastewater Treatment System for Rubber Industry

Mongolia
- Farmdo Co., Ltd.
- Everyday Farm LLC, Bridge LLC
- Installation of 2.1MW Solar Power Plant for Power Supply in Ulaanbaatar Suburb

Vietnam
- Yuko-Keiso Co., Ltd.
- Nidec Vietnam Co., Nidec SERVO Co., Nidec TOSOK Co., Nidec COPAL Co., Nidec SANKYO Co., Nidec SEIMITSU Co.
- Energy Saving in Factories with Air-Conditioning Control System

Thailand
- Inabata & Co., Ltd.
- Bridgestone Tire Manufacturing (Thailand) Co., Ltd.
- Energy Saving for Air-Conditioning in Tire Manufacturing Factory with High Efficiency Centrifugal Chiller

Vietnam
- Hitachi Chemical Company, Ltd.
- Hitachi Chemical Energy Technology (Vietnam) Co., Ltd.
- Energy Saving in Acid Lead Battery Factory with Container Formation Facility

Thailand
- Toray Industries, Inc.
- Toray International, Inc., Luckytex (Thailand) Public Company Limited
- Reducing GHG emission at Textile Factory by Upgrading to Air-saving Loom (Samutprakarn)

Vietnam
- Ricoh Company, Ltd.
- RICOH IMAGING PRODUCTS (Vietnam) Co., Ltd.
- Introduction of Energy-Efficient Air Conditioners in a Lens Factory

Thailand
- Bando Chemical Industries, Ltd.
- Bando Manufacturing (Thailand) Ltd.
- Introduction of High-efficiency Boiler System to Rubber Belt Plant

Thailand
- Sharp Corporation
- Impact Electrons Siam Co., Ltd./ Impact Solar Limited
- Introduction of 27MW Rooftop Solar Power System to Large Supermarkets

Thailand
- NTT Data Institute of Management Consulting, Inc
- Siam City Power Company Limited
- Introduction of 12MW Power Generation System by Waste Heat Recovery for Cement Plant

Thailand
- TEPIA Corporation Japan Co.,Ltd.
- CP-Meiji Co., Ltd.
- Introduction of High Efficiency Chilled Water Supply System in Milk Factory

Vietnam
- Sapporo International Inc.
- Sapporo Vietnam Limited.
- Introduction of Energy Saving Equipment to Brewery

Financing Programme for JCM REDD+ Model Projects

GEC, commissioned by the MOEJ, served as the secretariat of the Financing Programme for JCM REDD+ Model Projects. This scheme was launched in 2015, and its purpose is to implement activities for REDD+ and use the resulting emission reductions to help achieve Japan's emission reduction target through the JCM. At least half of JCM credits issued are expected to be delivered to the government of Japan except for the amount that is allocated to the partner country based on its legislation.

REDD+ stands for 'Reducing Emission from Deforestation and forest Degradation, plus the sustainable management of forests, and the conservation and enhancement of forest carbon stock'. The REDD+ machanism was developed by Parties to the UNFCCC. It creates financial value for the carbon stored in forests by offering incentives to developing countries to reduce emissions from forested lands and invest in low-carbon paths to sustainable development.

GEC's Activities

GEC called for proposals for the Programme and selected the following project from four proposals in consultation with the Ministry of the Environment, Japan:

Country	Project Participan	Project
Lao PDR	Waseda University	REDD+ project in Luang Prabang Province through controlling slash-and-burn

The project aimed at controlling slash-and-burn activities, which have been identified as a driver of deforestation, by introducing alternative livelihoods for farmers in Phonxay District, Luang Prabang Province. For further information on this project, please see GEC's JCM website: http://gec.jp/jcm/projects/16redd_lao_01/

GEC managed the progress of this project through monthly written reports submitted by Waseda University, meetings and a site visit. GEC also provided recommendations to increase the positive impacts and sustainability of the project.

Promotion Activities of the Joint Crediting Mechanism

GEC carried out various activities to promote the JCM scheme as outlined below.

Seminar on JCM Project Implementation in Bogor, Indonesia

By far the largest JCM-related gathering outside Japan, more than 130 people participated in the seminar from both the public and private sectors in Indonesia and Japan.

The Ministry of the Environment, Japan (MOEJ) and GEC, in collaboration with the Coordinating Ministry of Economic Affairs and the JCM secretariat of Indonesia, jointly organised a 'Seminar on the Joint Crediting Mechanism (JCM) Project Implementation in Indonesia' on 12 July 2017 in Bogor, Indonesia.

In this seminar, various stakeholders presented the progress of respective JCM schemes, including by GEC, the MOEJ, New Energy and Industrial Technology Development Organization (NEDO), the Asian Development Bank (ADB) and the JCM secretariat of Indonesia. Furthermore, the project participants of 12 JCM Model Projects supported by the MOEJ and three Demonstration Projects supported by NEDO presented the progress and experiences of their projects and exchanged information on JCM implementation.

Presentation materials can be downloaded from our website:
http://gec.jp/jcm/news/seminar2017bogor/

'Symposium for Climate Change 2017 – New Horizon for JCM Projects –' on 19 September 2017 in Tokyo, Japan

This symposium was attended by approximately 200 participants from a wide range of industries. Four JCM Model Project participants presented their experiences and lessons learned, and discussed how to enhance business investment with the support of the JCM.

Presentation materials can be downloaded from our website (Japanese only):
http://gec.jp/jcm/jp/news/gwsympo2017f/

Osaka JCM Network Project

In order to encourage companies operating in Osaka to engage and take the initiative in JCM projects, GEC now serves as the secretariat for the Osaka JCM Network, Osaka JCM Network promotes the communications among private sectors to develop and implement environmental projects and/or energy saving businesses, in particular through the JCM.

Activities in FY2017

- Holding the Osaka Carbon Conference 2017 (COP 23 reporting session).
- Providing the Study Session on ESG Investment and SDGs.
- Offering information through the website.

Osaka Carbon Conference 2017 (presentation by MOEJ)

Renovation and Demonstration of Advanced Low-Carbon Technologies to Adapt to Developing Countries' Needs

Financing Programme to Demonstrate Advanced Low-Carbon Technology Innovation for Further Deployment in Developing Countries

On behalf of the MOEJ, GEC has been implementing a financing programme to demonstrate advanced low-carbon technology innovation for further deployment in developing countries since 2015.

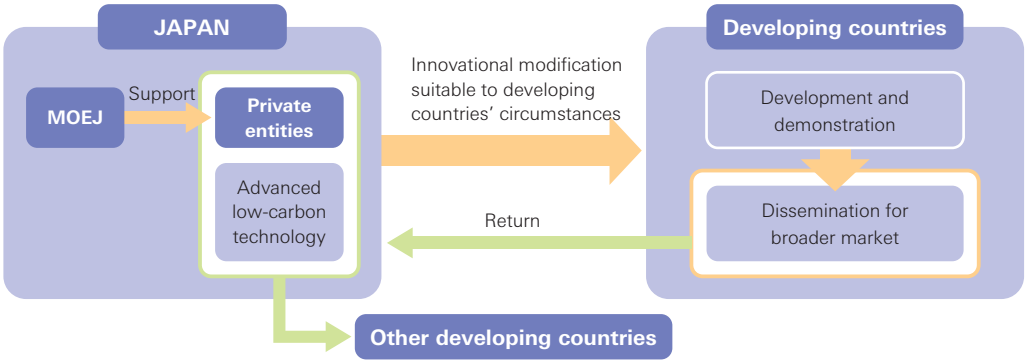
The MOEJ has been promoting this financing programme since FY2014, with the aim of contributing to global environmental conservation by promoting the renovation and demonstration of advanced low-carbon technologies in line with the local specific circumstances of each developing country such as environmental regulations, culture and customs, resource restrictions and climate. Financial support is provided to cover part of the expenses (on an annual basis, for up to three fiscal years) for development and demonstration projects which contribute to reducing the CO_2 emissions derived from energy consumption.

Examples of low-carbon technologies

Social Infrastructure
- Low-carbon public transportation system
- Optimized OM system of water facilities
- Waste management technology
- District cooling system

Energy saving devices
- High-efficiency motor with inverter control
- High-efficiency air conditioners and chillers
- High-efficiency air compressor system

Renewable energy & distributed energy
- Electric power generation, heat generation, and/or cogeneration with the use of renewable resources
- Self-reliant or distributed low-carbon energy system
- Heat pump system



GEC's Activities in FY2017

- Calls for proposals: GEC called for new project proposals three times, and 13 projects in total were selected. The selection process was carried out through document reviews by GEC and interviews with proponents by an independent committee of experts.
- Continued support for the projects selected in the previous years: GEC also continued to provide support for six projects carried forward from FY2015 and FY2016.
- Progress management: GEC oversaw the progress of 19 projects in FY2017 through monthly reports, meetings, and site inspections, and provided suggestions for improvement when needed.
- Evaluation: All the projects were evaluated by the independent committee based on an interim progress report by each project participant. The evaluation examined the performance, and the committee decided whether each project could be continued to the next fiscal year.
- Seven projects were completed by the end of FY2017, and the other 12 projects will be continued. Once a project is completed, the recipient of the financial support is required to measure and report the CO_2 emission reductions of the project to the MOEJ for three years.

No.17-1
Biodiesel Production System

No.17-4
Vertical loading Double Rotary Drum Cassette type Carbonizing Furnace

No.17-5
Squeeze Separator for RPF

No.17-8
Continuous dipping equipment

New projects selected in FY2017 (13 projects)

No.	Country	Project Participants	Title
17-1	Indonesia	Daiki Axis Co., Ltd.	Commercial Development of High Efficiency Biodiesel Fuel Production Process Utilizing Various Low-Quality Fat and Oil
17-2	Thailand	HANSHIN ENGINEERING CO., LTD.	Development of Energy-saving Submerged Mechanical Aerator/ Agitator for Wastewater Treatment System in ASEAN
17-3	Philippines	KOMAIHALTEC Inc.	Development and Demonstration Project of absorbing surplus energy from wind turbine generators with typhoon resistant system by mobile power pack in small scale islands of the Philippines.
17-4	Indonesia	GIKO Corporation	Energy saving through the modification of carbonize process of high calorific value biomass waste such as Palm Empty Fruit Bunch
17-5	Vietnam	ICHIKAWA KANKYO ENGINEERING CO.,LTD.	Intermediate treatment system renovation for RPF production in Vietnam
17-6	Thailand	JC Service Co., LTD	Technology development for manufacturing of torrefied pellet from old rubber wood without using fossil fuel
17-7	Sri Lanka, Maldives	E&T Research Institute, Inc.	Installation and demonstration test project for battery-combined roof-top solar power generation system in South Asia
17-8	Malaysia etc.	IHI Enviro Corporation	The development for the efficient capturing methane gas technology of renewable energy process in palm oil industry
17-9	Vietnam	MILAI Corporation	Innovative experiment of high efficiency waste-to-energy and low-carbon transport technologies creating zero-emissions infrastructure in Vietnam
17-10	Malaysia etc.	Vioce Co., Ltd.	Development of the high drainage processing technology by methane-gas power generation system using feces and urine, and membrane treatment at pig farms in Southeast Asian countries
17-11	Saudi Arabia	KANEKA CORPORATION	The verification test of CO_2 emissions control technology by the high performance solar power generation system adopted to dessert conditions.
17-12	Tanzania	WASSHA Inc.	Development and demonstration of an environmental value visualization platform for the expansion of CO_2 reduction through the charging service using solar energy generation
17-13	Indonesia	GIKO Corporation	Development of continuous compaction and carbonization process for low density waste and exhaust heat utilization system

Projects carried forward from FY2016 (3 projects)

No.	Country	Project Participants	Title
16-1	Thailand	TOYOBO ENGINNERING CO., LTD.	Developing and demonstration of small-scale Seawater desalination system operated by photovoltaic power
16-2	Indonesia	Kyudenko Corporation	Development of an energy management system (EMS) supplying renewable energy steadily
16-3	Myanmar	TAKINO Industry Co., Ltd.	Development of low-cost, small-scale power generation and power system by improvement of Stirling Engine using biomass as fuel.

Projects carried forward from FY2015 (3 projects)

No.	Country	Project Participants	Title
15-3	Philippines	NIPPON STEEL & SUMIKIN ENGINEERING CO., LTD	Establishment of bioethanol production system by utilizing unused biomass
15-6	Philippines	GUUN CO., LTD	Waste plastics recycling project in Cebu to produce fluff fuel (alternative to fossil fuel such as coal) consumed by cement manufacturers
15-9	Myanmar	YANMAR CO., LTD.	Development of rice husk gasification CHP system

No.16-1
Small-Scale Seawater Desalination System operated by photovoltaic power

No.16-2
Energy Management System or Renewable Energy

No.16-3
Stirling Engine System

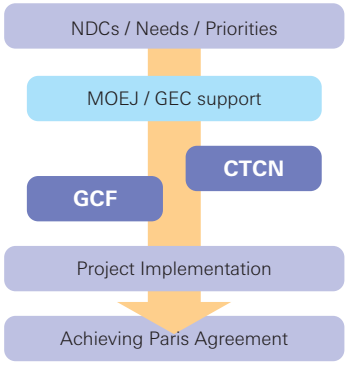
No.15-6
Fluff Fuel Production System

Capacity-Building Support for Developing Countries to Access the Green Climate Fund (GCF) and Climate Technology Centre and Network (CTCN)

GEC, commissioned by the MOEJ, conducted a capacity-building programme for developing countries accessing the Green Climate Fund (GCF) and the Climate Technology Centre and Network (CTCN).

Background

- Each country has developed its Nationally Determined Contribution (NDC) to achieve the goals set in the Paris Agreement, and now is the time for implementation.
- UNFCCC has established the Technology Mechanism (including CTCN) as well as the Financial Mechanism (including GCF) at the COP 16, and these mechanisms are also to serve the Paris Agreement.
- Although these support mechanisms are in place, there are still some challenges in developing countries to develop projects to be implemented.
- The Ministry of the Environment, Japan (MOEJ) has launched a support programme to build the capacity of developing countries' partners in the Asia-Pacific region to enhance access to those mechanisms.



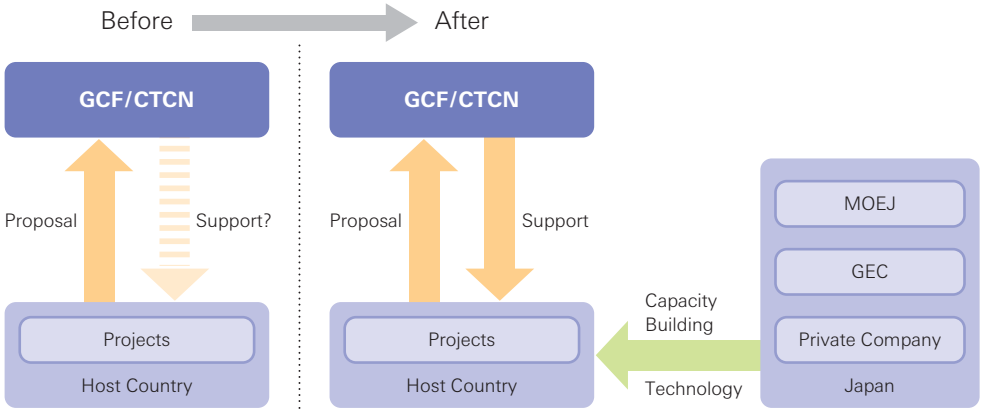
Green Climate Fund (GCF)

- GCF is a new global fund created to support the efforts of developing countries to respond to the challenge of climate change. GCF helps developing countries limit or reduce their greenhouse gas (GHG) emissions and adapt to climate change.
- GCF seeks to promote a paradigm shift to low-emission and climate-resilient development, taking into account the needs of nations that are particularly vulnerable to the impacts of climate change.
- GCF launched its initial resource mobilisation in 2014, and rapidly gathered pledges worth USD 10.3 billion. These funds come mainly from developed countries (including USD 1.5 billion from Japan).

Climate Technology Centre and Network (CTCN)

- CTCN promotes the accelerated transfer of environmentally sound technologies for low-carbon and climate-resilient development at the request of developing countries. It provides technology solutions, capacity-building and advice on policy, legal and regulatory frameworks tailored to the needs of individual countries.
- CTCN is composed of its Centre, the 13 consortium partners (including UNEP and UNIDO), network members (more than 400 organisations are registered globally), and the Advisory Board.
- GEC was registered as the first network member from Japan in July 2014.

Conceptual diagram of the Programme



GEC's Activities

Under the programme, GEC conducted various activities to strengthen the capacity of developing countries by involving them in the process of proposal development for GCF and CTCN. The activities include the following.

(1) Identification and matching of needs and seeds

GEC conducted desk-based reviews of 18 countries in the Asia-Pacific region by analysing the NDCs, Technology Needs Assessments (TNAs) and other policy documents to identify the needs of the countries. GEC also conducted interviews with more than 30 private companies to identify the seeds (project ideas or advanced technologies to be deployed). Based on the results, six countries were selected for further research: Indonesia, Myanmar, the Philippines, Sri Lanka, Thailand and Viet Nam.

For the selected six countries, GEC conducted consultations with government organisations, including National Designated Authorities (NDA, a focal point for GCF) and National Designated Entities (NDE, a focal point for CTCN). GEC also conducted interviews with Accredited Entities (AEs) of GCF to understand their priorities for accessing GCF.

(2) Preparation of projects in consultation with key stakeholders

Based on close consultation among the above stakeholders, GEC identified three GCF and one CTCN potential projects.

GEC prepared draft proposals for each potential project and involved NDAs and NDEs in the iterative process of elaborating the project ideas by discussing whether the ideas could contribute to the NDC of each country. GEC believes that such close involvement of the NDAs and NDEs has contributed to strengthening their capacity by sharing 1) technological knowledge to meet local needs, 2) robust methodologies to calculate GHG emission reductions, and 3) ideas for addressing identified challenges in realising the projects. GEC also consulted the GCF secretariat to clearly understand its policy and procedures on project development.

Country	Project
Myanmar (GCF)	Waste to Energy
Thailand (GCF)	Mineral carbon capture and utilisation (MCC&U) for the cement sector
Sri Lanka (GCF)	Green City
Viet Nam (CTCN)	Institutional strengthening of the waste sector

(3) Help desk support

GEC set up a help desk to guide the private sector on how to access GCF and CTCN. GEC prepared presentation materials to introduce GCF and CTCN as well as a webpage of the MOEJ website, which was dedicated to explaining the schemes of GCF and CTCN.

(4) Workshop

GEC co-organised a workshop 'Understanding Paradigm Shifts: Japan's efforts to accelerate access to GCF' with the MOEJ, the Office of Natural Resources and Environmental Policy and Planning of Thailand (ONEP), the Asian Institute of Technology (AIT) and the Overseas Environmental Cooperation Centre (OECC) on 13 February 2018 in Bangkok, Thailand. The workshop was attended by 70 participants from various entities including governments from the Asia-Pacific region, Thai and Japanese private companies, research institutions and international organisations. In its panel discussion, panellists presented their motivation and challenges to accessing GCF, and discussed differences among each AE's supporting scheme.

International Training

Improvement of Solid Waste Management Technologies (Basic, Techniques) (A)

Practice for planning the final disposal site on the topographic map.

Control of Air Pollution from Motor Vehicles

Simple chemical method for measuring NO2 concentration in the ambient air.

Improvement of Solid Waste Management Technologies (Basic, Techniques) (B)

Visit to a waste collection and transportation site

Country Report
Report prepared by a participant on the environmental administration system and the environmental issues of the country concerned. The reporting session held at the beginning of the training course is intended to minimise the perception gap between the participants and the instructors concerned.

Action Plan
Plan prepared by a participant at the end of the training course on how to improve the environment of his/her country, building on the insight gained in the training period. The final presentation session is intended to improve the feasibility of the Action Plan through advice provided by the audience (mainly lecturers).

Japan International Cooperation Agency (JICA) Group Training Project

Commissioned by JICA, GEC has carried out three training courses that are designed for engineering or administrative government officials in developing countries. These courses were entitled 'Improvement of Solid Waste Management Technologies (Basic, Techniques) (A) / (B)', and 'Control of Air Pollution from Motor Vehicles'.

At the beginning of each course, the participants from each country presented their own 'country report'* in order to share the challenges that their country faces. They worked on developing 'action plans'* through participating in the course and shared amongst themselves how the knowledge and expertise gained during the programme could be applied to their country's policy-making.

Training courses which are popular in developing countries will continue to be provided, based on coordination with the relevant organisations, in order to meet the diverse range of individual needs. We will also remain vigilant regarding any emerging demand for training in new areas of interest and will bolster the cooperation with research institutions and other relevant organisations.

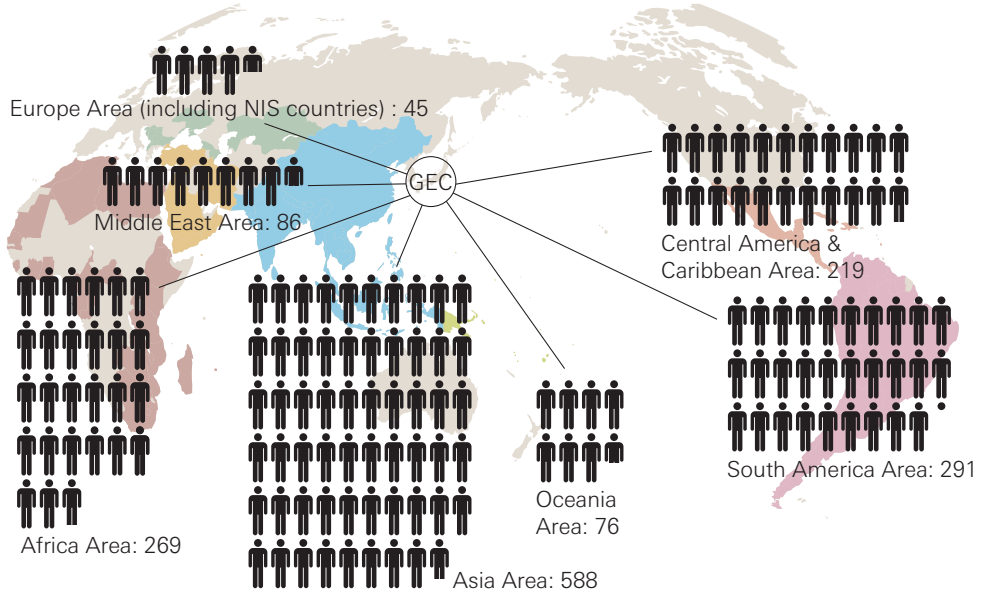
Dates/Participants	Programme
Improvement of Solid Waste Management Technologies (Basic, Techniques) (A)	
2017 27 April – 20 June 11 participants: Bangladesh (1) Cambodia (2) Myanmar (1) Laos (2) Pakistan (1) Papua New Guinea (1) Philippines (1) Timor-Leste (1) Vietnam (1)	Objective To develop leaders and core people who will play a major role in the planning and execution of waste treatment projects in their own countries. Collaborators UNEP-IETC, Osaka City Environment Bureau, Kobe City, Fukuoka City, Kitakyushu City, Fukuoka University, Toyo University, Osaka City University, Osaka City University Hospital, Nantan City Yagi Bioecology Centre, EX Research Institute Ltd., Kokusai Kogyo Co., Ltd., Takakura Environment Research Institute, Kansai Recycling Systems Co., Ltd., Daiwa Itagami Co., Ltd., Kawase Co., Ltd., Sunny Metal Corporation, Daiei Kankyo, Kyoei Mesona Inc., Senri Recycle Plaza, Campo Recycle Plaza, Nantan Clean Centre, etc. Lectures Introduction to Waste Treatment; Introduction to Intermediate Treatment Facilities; Introduction to Sanitary Landfill Technology; Introduction to Hazardous Waste Treatment Technology, etc. Site Visits Waste Collection and Transportation Work, Waste Incineration Plant, Plastic Containers Recycling Facility, Composting Facility, Medical Waste Treatment Facility, Sanitary Landfill Disposal Site, etc.

Dates/Participants	Programme
Control of Air Pollution from Motor Vehicles	
2017 24 July – 8 September 11 participants: China (1) Egypt (1) Fiji (1) Iran (1) Mexico (2) Sri Lanka (3) Thailand (2)	Objective To develop a concrete action plan for automobile pollution countermeasures in each participating organisation. Lectures Countermeasures Against Automobile Air Pollution; Physico-chemical Characteristics of Particulate Matter (PM2.5), etc. Site Visits and Workshops Atmospheric Continuous Monitoring Station, Automobile Inspection Centre, Emission Test on Chassis Dynamometer, Simplified Passive Sampling Measurement; Atmospheric Dispersion Simulation, etc.
Improvement of Solid Waste Management Technologies (Basic, Techniques) (B)	
2018 1 February – 6 March 8 participants: Afghanistan (8)	Objective To develop leaders and core people who will play a major role in the planning and execution of waste treatment projects in their own countries. Lectures Introduction to Waste Treatment; Introduction to Intermediate Treatment Facilities; Introduction to Sanitary Landfill Technology; Introduction to Hazardous Waste Treatment Technology, etc. Site Visits Waste Collection and Transportation Work, Waste Incineration Plant, Plastic Containers Recycling Facility, Composting Facility, Sanitary Landfill Disposal Site, etc.

GEC Networking Project for Former Training Course Participants

Since 1998, GEC has established a network consisting of overseas participants in JICA training programmes, in order to provide follow-up and to more accurately understand the current needs in developing countries. We have strengthened this network by exchanging information through our website (which was renamed the 'JICA-GEC Network' in 2005).

GEC will continue to contribute to the growth of developing countries through the network, by providing support to previous training participants and by helping them with their activities in their respective countries.



Establishment of Global Environment Centre Foundation (GEC)

Establishment of UN Environment International Environmental Technology Centre (IETC)

August 1989	In the lead-up to the International Garden and Greenery Exposition, the Municipality of Osaka announced the invitation of international organisations active in the field of global environmental conservation, in line with the spirit of the exposition and in order to share the experience of Osaka in environmental conservation.
April 1990	The International Garden and Greenery Exposition was held under the theme of 'Symbiosis between Nature and Humans.'
July 1990	At the Houston Summit, held in the US, Prime Minister Kaifu announced an initiative to establish a presence of the UN Environment Programme (UNEP) in Japan.
August 1990	At the second special session of the UNEP Governing Council, Naohiro Kumagai, Japanese Ambassador to Kenya, proposed the establishment of the International Environmental Technology Centre (UNEP).
May 1991	In its 16th session, the UNEP Governing Council unanimously adopted the establishment of IETC, to promote the application, implementation and adaptation of environmentally sound technologies in the developing world.
October 1992	Mostafa K. Tolba, Executive Director of UNEP, and Koji Kakizawa, Parliamentary Vice-Minister for Foreign Affairs, signed an agreement to set up IETC in Osaka.
April 1994	IETC officially started operation.

Establishment of GEC

July 1991	The Municipality of Osaka established a Preparatory Office for Establishment of UNEP International Environmental Technology Centre (IETC) Osaka.
January 1992	Global Environment Centre Foundation (GEC) was launched as a juridical body in support of UNEP, with basic funds provided by the Prefecture and Municipality of Osaka.
October 2009	An application was submitted to change GEC to a public interest incorporated foundation following the promulgation of the Three Acts for Public Interest Foundation Reform.
March 2010	GEC was certified by the Prime Minister as a public interest incorporated foundation.
April 2010	GEC was re-established as a public interest incorporated foundation.
April 2014	GEC opened its Tokyo Office.

Outline

Name	Global Environment Centre Foundation (GEC)
Date of Establishment	28 January 1992
Office Location	[Headquarter] 2-110 Ryokuchi-koen, Tsurumi-ku, Osaka 538-0036 Japan Telephone: +81-6-6915-4121 Facsimile: +81-6-6915-0181 [Tokyo Office] Hongo Ozeki Bldg., 3-19-4, Hongo Bunkyo-ku, Tokyo 113-0033, Japan Telephone: +81-3-6801-8860 Facsimile: +81-3-6801-8861
Endowments	1,754,160,000 yen
Activities	(1) Projects in support of IETC stated aims of technical transfers and spreading information on environmentally sound technologies (ESTs) to promote environmental conservation in major urban areas of developing nations. (2) Collection, dissemination, surveying & research of information on environmental conservation in developing nations & the world as well as global warming countermeasures to promote technical cooperation and foster human resources in developing nations. (3) Other projects required to achieve GEC's stated aims.
Number of Staff	47
Organization Chart	

(as of 1 July 2018)

Board Members of the GEC

Councilors	FUJITSUKA, Tetsuro	Executive Managing Director, Overseas Environmental Cooperation Centre, Japan
	KATAOKA, Shigehiro	Attorney
	KAWAKAMI, Yutaka	General Manager, The Kansai Electric Power Co., Inc.
	KITATSUJI, Takuya	Director General, Environment Bureau, Osaka City Government
	MIZUNO, Minoru	Professor Emeritus, Osaka University
	MORIOKA, Tohru	Professor Emeritus, Osaka University Professor Emeritus, Kansai University
	NAKAMURA, Daisuke	Senior Executive Director - Environmental Management, Department of Environment, Agriculture, Forestry and Fisheries, Osaka Prefectural Government
	NISHINO, Yasuko	Director General, Kansai Centre of the Japan International Cooperation Agency
	SUZUKI, Yutaka	Director, Institute for Global Environmental Strategies, Kansai Research Centre
	TANIGUCHI, Yasuhiko	Head Director, Environmental Management and Technology Centre
	TSUDA, Megumu	General Manager, CSR and Environment Department, Osaka Gas Co., Ltd.
President	SUZUKI, Naoshi	
Executive Director	OISHI, Kazuhiro	
Executive Director, Tokyo Office	KIMURA, Yuji	
Directors	FUKUOKA, Masako	Associate Professor, Department of Environmental Engineering, Osaka Institute of Technology
	ICHINOKI, Manatsu	General Manager, Economic Research Department, Kansai Economic Federation
	MAKIYAMA, Ako	Director, Economy and Industry Division, Osaka Chamber of Commerce and Industry
	NISHIMURA, Nobuya	Professor, Graduate School of Engineering, Osaka City University
	OTSUKI, Yoshinobu	Former General Manager, Environmental Management Office, Department of Environment, Agriculture, Forestry and Fisheries, Osaka Prefectural Government
Auditors	TAKI, Hideo	Director, Osaka Gas Foundation of International Cultural Exchange
	MIYAMOTO, Hiroshi	Former Manager of Community Welfare and Services Division, Chuo Ward Public Health and Welfare Center, Osaka City Government

(as of 1 July 2018, honorific omitted; name in alphabetical order <Surname>)

Overview of the IETC

Name	UN Environment/UNEP Economy Division International Environmental Technology Centre (IETC)
Agreement	The agreement between Japanese Government and UNEP was signed on 30 October 1992.
Mandate	Transfer of environmentally sound technologies to developing countries and countries with economy in transition with a focus on waste management.
Contacts	Office: 2-110 Ryokuchi-koen, Tsurumi-ku, Osaka 538-0036 Japan Telephone: +81-6-6915-4581 Facsimile: +81-6-6915-0304 Email: ietc@un.org IETC homepage: https://www.unenvironment.org/ietc/

Global Environment Centre Foundation
Annual Report 2017

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