

Global Environment Centre Foundation

Annual Report 2016



1 Foreword

International Cooperation: Technical Support for Developing Countries

- 2 Support for the Activities of the International Environmental Technology Centre to Promote Environmentally-Sound Technologies
- Support for organizing IETC International Workshop and Study Waste Management
 - Information Dissemination on IETC Activities
 - IETC Project on “Delivering Integrated Waste Solutions at the National and Local Level”
 - “Regional Training & Workshop on Waste Management for Climate Change - Penang’s Best Practices for Waste Management”
- 4 Regional Core Business Creation and Support Project
- 5 Promotion of Water Environment Business
- 7 Project on Transferring Environmentally-sound Technologies to Penang, Malaysia
- Project on Climate and Clean Air Coalition (CCAC) to Reduce Short-Lived Climate Pollutants(SLCPs) - Stage 3 Project in Penang
- 7 Project to Support JICA’s Promotion of Civilian Technology Project: Promotion of Mercury-containing Waste Disposal Technology
- 8 JICA Partnership Program

Low Carbon Technology Transfer to Developing Countries for Combating Climate Change

- 9 Support Programme for the First Year of the JCM Financing Programme in FY2016
- 11 Support Programme Enabling “Leapfrog” Development in FY2015
- Financing Programme for JCM Model Projects
- 13 Operation of the Financing Programme for JCM Model Projects in FY2014
- 14 Monitoring Support and Information Dissemination for JCM Model Projects and Management of REDD+ Model Projects
- 15 Promotion of Participation in Lease Projects with JCM Financial Support
- 16 Financing Programme to Demonstrate Advanced Low-Carbon Technology Innovation for Further Deployment in Developing Countries
- 18 Feasibility Studies for “MOEJ’s Financing Programme to Demonstrate Advanced Low-carbon Technology Innovation for Further Deployment in Developing Countries” in Asian Region
- 19 Osaka JCM Network Project

Human Resource Developments in Developing Countries

- 20 Japan International Cooperation Agency (JICA) Group Training Project
- 21 GEC Networking Project for Former Training Course Participants

Overview of the Global Environment Centre Foundation

- 22 Background of the Establishment
- 23 Outline

References

- 24 Board Members of the GEC
- Overview of the IETC

Foreword

The 22nd Session of the Conference of the Parties (COP22) to the United Nations Framework Convention on Climate Change (UNFCCC) was held in Marrakech, Morocco, from 7 to 18 November 2016. Just before COP22, the Paris Agreement, a new framework on the global warming initiatives for the years following 2020, came into force on 4 November. This signifies that working on the issues related to global warming is unanimously recognized as one of the most urgent challenges for humanity in the 21st century. During the conference, detailed rules for the Paris Agreement to be put into effect were discussed and the working schedule was agreed on.

The Government of Japan has submitted its target for 2020 and the years thereafter to the Secretariat of UNFCCC, in which it has pledged to achieve by FY2030 a reduction of greenhouse gas (GHG) emissions by 26% over those in FY2013 and has established this target, together with the measures necessary to achieve it, in the Plan for Global Warming Countermeasures. Thus, the Joint Crediting Mechanism (JCM) which the country is strongly pursuing, is clearly intended to be applied to serve as a means to achieve its target. Meanwhile, the Paris Agreement includes the use of market mechanisms, such as the JCM.

As the JCM is developed and implemented in order to make a significant contribution to the mitigation of global warming through the introduction of advanced low-carbon technologies in developing countries, we, the Global Environment Centre Foundation (GEC), should strengthen our efforts in this area.

GEC is supporting companies' efforts to promote global warming countermeasures in developing countries through its endeavors in operating and managing a diverse range of programmes sponsored by the Ministry of the Environment of Japan (MOEJ). Our support that comes under these programmes includes the Financing Programme for JCM Model Projects for supporting projects in developing countries which promote the registration of projects under JCM, the JCM Financing Programme for REDD+ Model Projects for pursuing GHG emissions reductions through forest protection activities and the Financing Programme to Demonstrate Advanced Low-Carbon Technology Innovation for Further Deployment in Developing Countries for modifying Japanese low-carbon technologies in order for them to be adopted in developing countries. In addition, GEC has been pursuing research and feasibility studies on the exportation of Japanese low-carbon technologies through inter-city collaborations with Ho Chi Ming City in Vietnam and the Laotian capital of Vientiane City, working with the municipalities of Osaka and Kyoto as well as with other local authorities and businesses.

GEC has also been proactively engaged in many other projects in the 25 years since its establishment on January 1992, such as: planning and organizing international workshops on waste management for 'Support Projects to the UN Environment/UNEP International Environmental Technology Centre (IETC)'; providing training for 'Capacity Building Projects in Developing Countries' concerning waste management and air pollution control; and organizing networking and coordination for businesses as part of the 'Promotion Projects for Encouraging Local Innovation' commissioned by Osaka City Government, JICA, and the Kansai Bureau of Economy, Trade and Industry (METI Kansai), respectively. One of GEC's major objectives is to earn and develop the long-lasting trust of local communities through providing these support activities for developing countries.

GEC will continue its efforts for international environmental cooperation with developing countries and strives to be an indispensable player in the Kansai region. By broadening our perspectives both within Japan and worldwide, we aim to promote worthwhile global warming countermeasures, drawing on our expertise and experience as well as our national/international networks.

Your continued understanding and support of GEC activities is much appreciated.



July 2017

SUZUKI, Naoshi
President
Global Environment Centre Foundation

Support for the Activities of the International Environmental Technology Centre to Promote Environmentally-Sound Technologies

GEC was commissioned by the Osaka City Government to conduct the FY2016 Supporting Project for UN Environment/UNEP International Environmental Technology Centre (IETC)". GEC conducted the planning and implementation of international workshop in Osaka City, and supported the planning/operation of cooperation projects including public relation's activities between the Osaka City government and IETC. In addition, GEC implemented two projects commissioned by IETC, "Project on Integrated Waste Solutions at the National and Local Level (Bangkok, Thailand and Hanoi, Vietnam)" and "Regional Training and Workshop on Waste Management for Climate Change - Penang's Best Practices for Waste Management".

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

Support for organizing IETC International Workshop and Study Waste Management

• Hosting "Mainstreaming Disaster Waste Management Symposium and Scoping Workshop" (a project commissioned by Osaka City)

From 13 to 15 February 2017, GEC supported to organize the "Mainstreaming Disaster Waste Management Symposium and Scoping Workshop" jointly hosted by IETC and Osaka City.

In the public symposium on the first day, after the opening address by Mr. Tanaka, the Deputy Mayor of Osaka City, and Dr. Alverson, the Director of IETC, lectures on activities related to disaster waste management were given by UN-related international organizations and other academic institutions. After that, presentations on disaster waste management experience and programmes at both the national and local level were made by those government officials who are in charge of disaster waste management in 12 countries including Jordan, Malaysia, Maldives, Mongolia, Myanmar, Nepal, Philippines, Thailand, Vietnam, and Japan.

In the workshop on the second day, group sessions were held to discuss how to plan, manage, and treat disaster waste as a part of urban waste management. At the venue, businesses and institutions introduced their environmental activities and technologies, as some space had been set aside to introduce these environmental technologies and programmes to the participants.

On the third and last day, participants visited the "Disaster Reduction and Human Renovation Institution" in Kobe and learned about disaster risk reduction as well as the knowledge required to realize a disaster-resilient society based on the experience of the Great Hanshin-Awaji Earthquake in 1995.

- Date: 13-15 February 2017
- Title: "Mainstreaming Disaster Waste Management Symposium and Scoping Workshop"
- Venue: Congrès Convention Centre, Grand Front Osaka, and IETC office
- Organizer : UN Environment/UNEP IETC
- Co-organizer: Osaka City
- Supporters: GEC and Urban Infrastructure Technology Center Foundation
- Participants: 84 people (from 12 countries)



Welcome remarks by IETC director at the Symposium



Group photo



Group discussion



Disaster Reduction and Human Renovation Institution

Information Dissemination on IETC Activities

GEC implemented the following public relations activities for IETC.

- “Environment Seminar” at Osaka ATC Green Eco Plaza in Osaka, 4 June 2016
- “Eco-Ennichi 2016” at Osaka Flower Expo Memorial Hall in Osaka, 19 September 2016
- “Workshop on Construction and Demolition Waste” in Bangkok, Thailand, 16 December 2016
- “One World Festival” at Kita-Kumin Hall in Osaka, 6-7 February 2017

IETC Project on “Delivering Integrated Waste Solutions at the National and Local Level”

Commissioned by IETC to engage in the project “Delivering Integrated Waste Solutions at the National and Local Level”, GEC carried out the following activities in Bangkok, Thailand and Hanoi, Vietnam.

- Project period: June to September 2016
- Targeted countries and cities: Bangkok, Thailand and Hanoi, Vietnam
- Activities
 - (1) Study and research: Collection of basic data for integrated waste solutions at the national and local level; formulation of a waste plan and an implementation plan
 - (2) Organizing workshops and training: Four sessions were held in two cities (relevant government organizations of the country/city participated)
 - 10-11 August: The 1st Stakeholder Consultation Workshop “Delivering Integrated Waste Solutions for Vietnam and Hanoi” with 21 participants
 - 17-18 August: The Preliminary Meeting and the 1st Stakeholder Consultation Meeting and Workshop “Delivering Integrated Waste Solutions for Thailand and Bangkok” with 82 participants
 - 19-20 September: The 2nd Stakeholder Consultation Workshop “Delivering Integrated Waste Solutions for Thailand and Bangkok” with 87 participants
 - 21-23 September: The 2nd Stakeholder Consultation Workshop “Delivering Integrated Waste Solutions for Vietnam and Hanoi” with 27 participants

“Regional Training & Workshop on Waste Management for Climate Change - Penang’s Best Practices for Waste Management”

From 25 to 28 October 2016, GEC provided support to organize the “Regional Training & Workshop on Waste Management for Climate Change - Penang’s Best Practices for Waste Management” as a IETC commissioned project and as part of the collaborative project between Osaka City and IETC.

- Date: 25-28 October 2016
- Venue: Cititel Penang, Penang, Malaysia
- Organizers: IETC, Penang State Government
- Supporters: GEC and Osaka City
- Participants: Approximately 120 people

This workshop was participated by more than 120 participants in total including government officers in charge of waste management in seven countries in Asia including Malaysia, Thailand, Vietnam, Myanmar, the Philippines, Maldives, Cambodia, and Korea, also various organizations such as international organizations, government organizations, academic organizations, NGOs, and private companies. They participated in a study tour on the first and second day where about 30 people from overseas cities in Asia visited nine places and learned good waste management practices in Penang.

On the third and fourth day, after opening addresses from the Chief Minister of Penang State and UN Environment/UNEP Regional Office for Asia-Pacific (ROAP), lectures were delivered by



“Eco-Ennichi”



The 2nd Stakeholder Consultation Workshop “Delivering Integrated Waste Solutions for Thailand and Bangkok”



The 2nd Stakeholder Consultation Workshop “Delivering Integrated Waste Solutions for Vietnam and Hanoi”



Opening address by the Chief Minister of Penang State



Group discussion

UN Environment/UNEP IETC, Osaka City, and the Mayor of Seberang Perai Council.

In addition, group discussions were held where participants actively discussed on how they should tackle the problems in their own countries and cities on the basis of what they had learned from Penang's best practices, leading to the successful conclusion of the workshop.

Regional Core Business Creation and Support Project

Since May 2013, GEC has acted jointly with the Kansai Bureau of Economy, Trade and Industry, as the secretariat of the Kansai-Asia Environmental and Energy Saving Business Promotion Forum (Team E-Kansai)

In FY2016, based on activities carried out up to that point by Team E-Kansai, GEC not only supported those Japanese companies that have advanced environmental and energy-saving technologies by creating pioneering projects in Asia, but also promoted local demonstrations and strengthened the international network base for the transfer of environmental technologies to developing countries as part of our engagement in the commissioned project "FY2016 Regional Core Business Creation and Support Project" of the Kansai Bureau of Economy, Trade and Industry. One project is to improve the sophistication of the support network for regional core businesses to create overseas distribution channels in the environment and energy-saving field, another project is to support the promotion of local demonstrations by environmental and energy-saving equipment/services and the creation of overseas distribution channels aiming to acquire the Chinese & ASEAN markets.

(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.

Activities in FY2016

Japan	<ul style="list-style-type: none"> • Held the '2nd Workshop on Domestic Wastewater Treatment in Vietnam' (20 May 2016, Osaka) • Organized the 'Seminar on Environmental and Energy-Saving Business in Indonesia' (23 June 2016, Osaka) • Held individual consultations with the coordinators for Guangdong Province, China (5 July 2016, Osaka) • Held individual consultations with the coordinators for Thailand and Vietnam (27 September 2016, Osaka) • Organized a seminar at the Biwako Environmental Business Exhibition 2016 (21 October 2016, Shiga Prefecture) • Held the '3rd Workshop on Domestic Wastewater Treatment in Vietnam' (16 November 2016, Osaka) • Held individual consultations with the coordinators for Indonesia (2 February 2017, Osaka) • Held the 'Seminar to Report on OJT Training for Vietnam Beer and Alcohol Beverage Association (VBA)' and Business Matching with VBA and Japanese companies (21-24 February 2017, Osaka and Tokyo) • Held individual consultations with the coordinators for Thailand and Vietnam (28 February 2017, Osaka) • Held the '4th Workshop on Domestic Wastewater Treatment in Vietnam' (24 March 2017, Osaka)
China	<ul style="list-style-type: none"> • Preliminary meetings for the 'Japan-China Cooperation Project with Guangdong Science and Technology Cooperation Agency' (3 June 2016, Guangzhou) • Started public offerings for 'Projects with Finance for Special Development of Guangdong Science and Technology' (30 September 2016, Guangzhou) • Held the 1st Advisory Board for promoting the Guangdong- Kansai cooperation project (3 November 2016, Guangzhou) <ul style="list-style-type: none"> • Exhibited at the Northeast Asia (Shenyang) International Environmental Protection Fair, holding technology exchange meetings and a networking café, paid courtesy calls to the Vice-Head of Liaoning Province and the Mayor of Shenyang City. (20-21 September 2016)



Seminar on Environmental and Energy-Saving Business in Indonesia



Seminar to report on OJT training in Vietnam



Courtesy calls to the Vice-Head of Liaoning Province and the Mayor of Shenyang City by the Chairperson of Team E-Kansai



Signing ceremony at the 10th Japan-China Energy Saving and Environment Comprehensive Forum



At the Team E-Kansai booth during 'China (Dongguan) International Science and Technology Cooperation Week'

	<ul style="list-style-type: none"> Supported the 'Osaka-Shanghai Environment and Energy-Saving Technology Forum' and organized a 'Networking Café in Shanghai' (23-24 November 2016, Shanghai) Participated in the 10th Japan-China Energy Conservation and Environment Forum (25-26 November 2016, Beijing) Exhibited at 'China (Dongguan) International Science and Technology Cooperation Week' and participated in 'Forum for Japan-China Science Technology for Environmental Protection' (9-11 December 2016, Guangdong)
Vietnam	<ul style="list-style-type: none"> Conducted the 'Training Programme for Environmental Management with OJT in Vietnam' (25-27 October 2016, Hanoi and Ho Chi Minh) Exhibited at 'VIETWATER 2016' and held technical presentations at the exhibition venue (9-11 November 2016, Ho Chi Minh) Held a 'Networking Café' (9 November 2016, Ho Chi Minh City) Conducted a survey for wastewater treatment needs in Vietnam (16-18 March 2017, Hanoi)
Thailand	<ul style="list-style-type: none"> Held a business matching event with Thai ESCO Association (26 July 2016, Bangkok) Conducted a local needs survey in Thailand (12-16 March 2017, Bangkok)
Indonesia	<ul style="list-style-type: none"> Held an 'Environmental Technology Workshop' and a 'Networking Café' in Surabaya (22-23 July 2016, Surabaya) Implemented a local investigative expedition in Indonesia (1-3 March 2017, Jakarta)

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

Utilizing the public information tools of Team E-Kansai, GEC published various different 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 organized by affiliate institutions, survey reports and needs information on environmental and energy-saving issues, and public calls for support projects provided by public institutions.



Training programme for environmental management with OJT in Vietnam (Hanoi)



The Team E-Kansai booth at VIETWATER 2016



Environmental Technology Workshop in Surabaya



Site visit of water purification plant in Surabaya

Promotion of Water Environment Business

Having established "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 accumulated results of water environment-related industries and research institutions as well as activities of conserving the water environment of Lake Biwa, Shiga 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 in such a way that it has become a forum for matching and team building to form concrete business projects, joint development, and so on.

Commissioned for "FY2016 Research & Coordination Work for Water Environment Business Promotion" by the Shiga prefectural government, we carried out projects which are related to (1) Provision of support for hosting/offering seminars and section meetings in Shiga prefecture, (2) Identification study concerning water environment-related challenges in the Asian region, and (3) Implementation of seminars, technical exchange meetings, business matching, and so on.

(1) Provision of support for hosting/offering seminars and section meetings in Shiga prefecture

"Shiga Water Environment Business Seminar" was held twice, once at the Nagahama Institute of Bio-Science and Technology in October 2016 and the other at Collabo Shiga in 21 March 2017, presenting example of company activities that were operating in the Asian region, business support measures in the water environment area, and those business projects that take advantage of such support measures.

"Asia Section Meeting" was held twice, once at the Piazza Omi Community Centre in

August 2016 and the other at the Omi Environment Plaza in December 2016, where we presented the Forum's activity policies, a progress study report, schedule for technical exchanges meetings/seminars, etc. to the member companies/groups of the Forum.

(2) Identification study concerning water environment-related challenges in the Asian region

In consideration of the needs from members of Team Water Shiga, we selected Vietnam, Taiwan, Thailand, and Indonesia as priority countries targeted for study during FY2016, visited organisations such as local administrative agencies/business groups related to water environment and Japan-related organisations in those countries, and carried out a study, by way of interviews, for example, to identify the challenges concerning the water environment as follows:

Period	Country	Main places visited	Summary
August 2016	Vietnam	Vietnam Academy of Science and Technology (Hanoi), Ho Chi Minh City Department of Natural Resources and Environment (DONRE), Ho Chi Minh City Department of Industry and Trade (DOIT), and Japan Business Association in Vietnam Ho Chi Minh Office	<ul style="list-style-type: none"> Carried out studies on such matters as the current status of water environment issues, policies & measures, research themes, future vision Agreement on having technical exchange meetings, etc.
September 2016	Thailand	Ministry of Natural Resources and Environment (MONRE) Pollution Control Department (PCD), National Science Technology and Innovation Policy Office, etc.	<ul style="list-style-type: none"> Carried out studies on such matters as the current status of water environment issues, policies & measures, research themes, future vision We were recommended to provide information to the Ministry of Industry and the Federation of Thai Industries
October 2016	Taiwan	Taiwan Industrial Technology Research Institute, Association for Taiwan-Japan Cooperation on Industrial Technology, Japan-Taiwan Exchange Association, Japanese Chamber of Commerce and Industry, Taipei	<ul style="list-style-type: none"> Carried out studies on such matters as the current status of water environment issues, policies & measures, research themes, future vision Agreement on having technical exchange meetings, etc.
November 2016	Vietnam	Vietnam Academy of Science and Technology (Hanoi), Ho Chi Minh City Department of Natural Resources and Environment (DONRE), Saigon Hi-Tech Park, etc.	<ul style="list-style-type: none"> Held technical exchange meetings, etc. where the Vietnam Academy of Science and Technology, and the Ho Chi Minh City Department of Natural Resources and Environment made presentations about recent trends Tour of Saigon Hi-Tech Park
November 2016	Thailand	Thai Ministry of Industry, Federation of Thai Industries	<ul style="list-style-type: none"> Discussions on future technical exchange meetings
January 2017	Taiwan	Ministry of Economic Affairs (MOEA) Water Resources Agency, Taiwan Industrial Technology Research Institute	<ul style="list-style-type: none"> Held technical exchange meetings, etc. where the Water Resources Agency, MOEA, and Taiwan Industrial Technology Research Institute made presentations about recent trends Courtesy visit to see Mr Lai, the Head of the Agency
February 2017	Indonesia	Indonesia Technology Assessment and Application Agency, JICA Indonesia Office, etc.	<ul style="list-style-type: none"> Carried out studies on such matters as the current status of water environment issues, policies & measures, research themes, future vision Discussion on future technical exchange meetings

(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, on the other hand, the local government agencies/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); and 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.

Water environment-related seminars, technical exchange meetings, business matching, etc. held so far

City	Timing	Local host institution
Ho Chi Minh City Vietnam	November 2016	Saigon Hi-Tech Park, Ho Chi Minh City Rubber & Polymer Association, Ho Chi Minh City Department of Industry and Trade (DOIT), Ho Chi Minh City Department of Natural Resources and Environment (DONRE), Japan Business Association in Vietnam Ho Chi Minh Office (sponsoring body), Japan External Trade Organization (JETRO) Ho Chi Minh Office, etc.
Hanoi City Vietnam	November 2016	Vietnam Academy of Science and Technology
Taipei City Taiwan	January 2017	Ministry of Economic Affairs Water Resources Agency, Water Industry Development and Promotion Association, Association for Taiwan-Japan Cooperation on Industrial Technology, (sponsoring body) Japan-Taiwan Exchange Association
Hsinchu City Taiwan	January 2017	Taiwan Industrial Technology Research Institute

In Vietnam and Taiwan, we exchanged opinions regarding ongoing cooperation in the future. In addition, in Indonesia and Thailand, we also had discussions with the relevant local authorities regarding the promotion of a collaborative relationship in/after FY2017 and the implementation of seminars, etc.



Ho Chi Minh City, Vietnam



Hanoi City, Vietnam



Taipei City, Taiwan



Hsinchu City, Taiwan

**Project on Transferring Environmentally-sound Technologies to Penang, Malaysia
Project on Climate and Clean Air Coalition (CCAC) to Reduce Short-Lived Climate
Pollutants(SLCPs) - Stage 3 Project in Penang**

Under the support from CCAC Municipal Solid Waste Initiatives (MSWI), GEC implemented the Stage 3 Project in Penang, Malaysia for the purpose of reducing the amount of methane as SLCPs by converting organic waste from the landfill GEC has been supporting the CCAC project for Penang in collaboration with UNEP IETC since FY2013. In June 2016, GEC launched the project as one of CCAC MSWI implementer. The main activities implemented are the following;

- Study on improvement of material recovery facility at the landfill
- Feasibility study on the introduction of bio-digester technology
- Waste composition study
- Training in Japan on urban waste management technologies
- Pilot project on reducing t food waste at source to be sent to the landfill



Waste composition study at the landfill in Penang



Nantan Clean Centre
(Training in Japan)

**Project to Support JICA's Promotion of Civilian Technology Project:
Promotion of Mercury-containing Waste Disposal Technology**

GEC engaged in coordination work between the Penang State Government and the Japanese implementer (business operator: Nomura Kohsan Co., Ltd.). GEC developed and planned and carried out a training course in Japan from 11 to 15 July 2016. The government officials and employees of private companies (14 in total) participated in the training course in Japan including lectures on appropriate methods of disposal of mercury-containing waste including discarded fluorescent lights and batteries, as well as policy formulation and a tour of the relevant facilities. On the last day of the training, a discussion meeting was organized and they developed an action plan. In Penang, the law of waste segregation starts in June 2016 and E-Waste and a hazardous waste collection system including waste fluorescent lights, will be established in line with the law.

JICA Partnership Program

Implementation period

From November 2015 to
March 2018

Method of separated
collection in the model areas

**1) Separate collection by
the government (Anou,
Kaoyord)**

The residents separate
recyclable waste from
general waste and put them
out for collection in rubbish
bags, etc., and the collector
(the government or a private
sub-contractor) then collects
them separately.

**2) Drop-off collection at a
designated collection point
such as a primary school
(Arkard)**

A box, etc. for recyclable
waste collection is installed
at a certain location in the
area for residents to put out
such waste whenever they
want. Collection is done
by the government at a
designated date and time.

**3) Group collection
organized by local residents
(Thatluang Kang)**

Local residents bring in
their recyclable waste to the
designated locations at the
designated date and time,
and the collection business
operator buys them on the
spot.



Waste amount and
composition survey



Group collection commenced
at a model village as a pilot
project

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

At the moment, most of the waste in Vientiane is brought to the final disposal site, located in a suburb of the city, for landfill. However, the different types of waste being generated have become more and more diverse as a result of improvements in the living standards of Vientiane residents and changes in their lifestyles, meaning there are now an increasing number of different types of waste which do not degrade naturally and require methods of disposal other than landfill, including plastic containers and products such as PET bottles, metal cans and other products. As it is expected that such types of waste will continue to increase further in the future, more and more residents want to promote 3R activities and recycling through separated waste collection.

Commissioned by JICA, GEC has been jointly engaged in this project since 2015 with Kyoto City which has been active in a variety of initiatives related to waste issues. In Vientiane Capital, in order to establish a separated collection framework through residents' collaboration as practised in Kyoto City, we engage in various activities including the improvement of waste collection and transportation, promotion and awareness-raising activities among residents, and the implementation of environmental education at schools.

In FY2016, as a pilot project, we engaged in activities with a view to beginning separated collection in a few model areas in Vientiane Capital. We selected four villages (Anou village, Arkard village, Kaoyord village, and Thatluang Kang village) as model areas and as targets for our separated collection of "recyclable waste" we decided to just collect PET bottles and aluminium cans only. For the method of separated collection to be implemented in the four model areas, we, the Japanese side, proposed three types of methods*. With regard to the waste generated by households in the model areas, we also studied the percentage of PET bottles and aluminium cans. In the future, by promoting separated collection by residents, it is expected that the percentage of PET bottles and aluminium cans in the household waste will be reduced.

With respect to the residents of the model areas, we also carried out some activities to raise awareness concerning waste separation and recycling. We held the residents meetings at the respective model villages, prepared brochures which explained about separated collection, and distributed them to all households in the targeted areas. In addition, with a view to implementing environmental education, we introduced a picture book as supplementary reading material for environmental education for primary school students in 4 model schools. Furthermore, we also held a contest for primary school students in the model areas to come up with a separated collection mascot. On 2 November 2016, we held a promotion event for the commencement of the pilot project where we held the presentation of the winner of the mascot contest and implemented an environmental education demonstration class. The winning entry will be used as the symbol for separated collection promotion campaigns in the project.

In addition to the above, we invited local counterparts to Kyoto City in September 2016 to introduce the outline of Kyoto City's waste management programme, including campaigns for residents. At the wrap-up meeting, the Mayor of Kyoto delivered a speech expressing his expectations for this project, providing further encouragement for the commencement of the pilot project on-site.

We were able to commence the pilot project, on a trial basis, on 28 November 2016 as a new programme for Vientiane. We are scheduled to be engaged in this project until March 2018. In the future, we are scheduled to support the establishment of an efficient separated waste collection framework all over the city including consideration of more appropriate methods of collection and extension of the model areas.

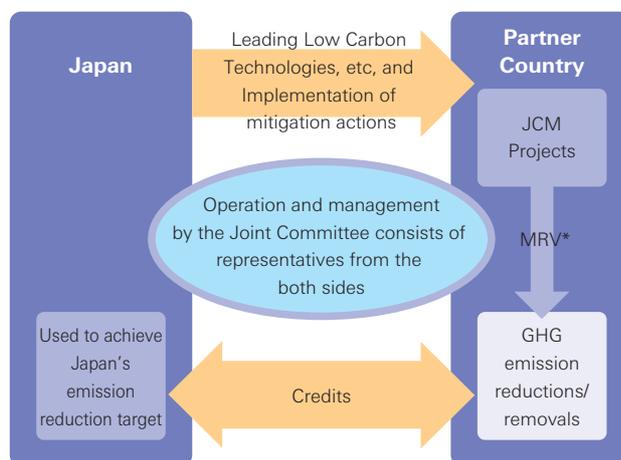
Joint Crediting Mechanism (JCM)

GEC implements various activities to support JCM promoted by the Government of Japan. JCM is a mechanism based on bilateral agreements between Japan and developing countries to disseminate GHG mitigation technologies, products, systems, services and infrastructures, then the amount of GHG emissions reduction and removal is subsequently evaluated quantitatively as Japan's contributions, and also incorporated into Japan's target for GHG emissions reduction. At present, the following 17 countries have officially adopted JCM: Mongolia, Bangladesh, Ethiopia, Kenya, the Maldives, Vietnam, Lao PDR, Indonesia, Costa Rica, Palau, Cambodia, Mexico, Saudi Arabia, Chile, Myanmar, Thailand and the Philippines.

MOEJ implements several programmes including financing programmes, in order to support various JCM projects, as well as promotion and formulation of such projects. GEC is commissioned by MOEJ to serve as an agency or secretariat to manage the above mentioned MOEJ programmes.

Basic concepts of the Joint Crediting Mechanism (JCM)

- Facilitating diffusion of leading low carbon technologies, products, systems, services and infrastructure as well as implementation of mitigation actions, and contributing to sustainable development of developing countries;
- Appropriately evaluating contributions from Japan to GHG emission reductions or removals in a quantitative manner, and use them to achieve Japan's emission reduction target;
- Contributing to the ultimate objective of the UNFCCC by facilitating global actions for GHG emission reductions or removals.



*measurement, reporting and verification

Support Programme for the First Year of the JCM Financing Programme in FY2016

Financing Programme for JCM Model Projects

GEC has been assigned by MOEJ as an implementation agency of the Financing Programme for JCM Model Projects. GEC has been conducting the Financing Programme from FY2016 to FY2018. With this Financing Programme, GEC subsidizes projects for installing necessary facilities under the JCM, after confirming the completion of facility installation and settling the relevant expenses. The projects will then be registered as JCM projects which operate the installed facilities to reduce GHG emissions and the amount of reductions are then supposed to be converted into JCM credits.

GEC held public calls for JCM Model Project proposals twice in FY2016. The applications were reviewed by GEC through document assessments and interviews with each applicant, followed by consultations between MOEJ and GEC to finalize the selection process. GEC was engaged to manage the progress of the selected projects after financial contracts had been made between GEC and the selected applicants, execute the delivery of the subsidies, and administrate the subsidies for the first year of the three (3) year programme.

The lists of projects adopted for the financing programme in FY2016 are as follows.

List of projects selected from the first public call FY2016

No.	Partner Country	Representative Participant	Project Period	Project Title
1	Mongolia	Farmdo Co., Ltd.	3 years	Installation of 8.3MW Solar Power Plant in Ulaanbaatar suburb Farm
2	Bangladesh	EBARA REFRIGERANT EQUIPMENT & SYSTEMS Co., Ltd.	2 years (1 year)	Energy Saving of Air-Conditioning System by Recovering Waste Heat from Engine in Textile Factory
3	Vietnam	NTT DATA INSTITUTE OF MANAGEMENT CONSULTING, Inc	3 years	Introduction of 4.75MW Power Generation System by Waste Heat Recovery for Cement Plant
4	Vietnam	Yokohama Water Co., Ltd.	2 years	Introduction of High Efficiency Water Pumps in Da Nang City
5	Vietnam	HOYA CORPORATION	3 years	Installation of Energy Saving Equipment in Lens Factory
6	Indonesia	Toyo Energy Farm Co., Ltd.	3 years	10MW Mini Hydro Power Plant Project in North Sumatra
7	Indonesia	FAST RETAILING CO., LTD.	3 years	Introduction of LED Lighting to Sales Stores
8	Indonesia	Nisshinbo Textile Inc.	3 years	Introduction of High Efficiency Looms in Weaving Mill
9	Indonesia	iFORCOM Tokyo Co., Ltd.	2 years	Energy Saving for Air-Conditioning Utility System in the Airport Terminal by High-efficiency Operating System
10	Indonesia	Environmental Management & Teechnology Center	2 years	Energy Saving in Industrial Wastewater Treatment System for Rubber Industry
11	Costa Rica	NTT DATA INSTITUTE OF MANAGEMENT CONSULTING, Inc	3 years	5MW Solar Power Project in Belen
12	Costa Rica	NTT DATA INSTITUTE OF MANAGEMENT CONSULTING, Inc	2 years	Introduction of the High Efficiency Chiller and the Exhaust Heat Recovery System
13	Cambodia	AEON MALL Co., Ltd.	3 years	Introduction of 1MW Solar Power System and High Efficiency Centrifugal Chiller in Large Shopping Mall
14	Cambodia	Asian Gateway Corporation	2 years (1 year)	Introduction of 0.8MW Solar Power Generation in International School
15	Mexico	NTT DATA INSTITUTE OF MANAGEMENT CONSULTING, Inc	3 years	Introduction of 4.8MW Power Generation with Methane Gas Recovery System
16	Myanmar	Kirin Holdings Company, Limited	3 years	Introduction of Energy Saving Brewing Systems to Beer Factory
17	Myanmar	ACECOOK CO., LTD.	1 year	Introduction of High-efficiency Once-through Boiler in Instant Noodle Factory
18	Thailand	Asahi Glass Co., Ltd.	3 years	Introduction of High Efficiency Ion Exchange Membrane Electrolyzer in Caustic Soda Production Plant
19	Thailand	FAST RETAILING CO., LTD.	3 years	Introduction of LED Lighting to Sales Stores
20	Thailand	TEPIA Corporation Japan Co., Ltd.	2 years (1 year)	Introduction of High Efficiency Chilled Water Supply System in Milk Factory
21	Vietnam	YUKO KEISO, CO., Ltd	2 years	Introduction of Amorphous High Efficiency Transformer in Northern, Central and Southern Power Grids
22	Vietnam	YAZAKI PARTS CO., LTD	2 years	Introduction of Energy Saving Equipment to Automotive Wire Production Factory
23	Thailand	NTT DATA INSTITUTE OF MANAGEMENT CONSULTING, Inc	2 years	Introduction of 12MW Power Generation System by Waste Heat Recovery for Cement Plant
24	Thailand	DENSO CORPORATION	2 years	Introduction of Co-generation System to Motor Parts Factory
25	Thailand	KYOWA HAKKO BIO CO. LTD.	3 years	Introduction of Energy Saving Refrigerator and Evaporator with Mechanical Vapor Recompression in Amino Acid Producing Plant
26	Thailand	Sharp Corporation	1 year	Introduction of 3.4MW Rooftop Solar Power System to Air-conditioning Parts Factories
27	Thailand	FINETECH CO., Ltd.	2 years	Introduction of 1.5MW Rooftop Solar Power System and Advanced EMS for Power Supply in Paint Factory
28	Thailand	KANEMATSU CORPORATION	2 years (1 year)	Introduction of Energy Efficient Refrigeration System in Industrial Cold Storage



No. 17: Introduction of High-efficiency Once-through Boiler in Instant Noodle Factory (installed boilers)



No.17: Same as above (external appearances)

The projects listed as No. 17 and 26 above have completed installation and have already started operation. The representative participants of the projects listed as No. 3 and 9 have withdrawn their applications before conclusion of the financial contracts.

List of projects selected from the second public call FY2016

No.	Partner Country	Representative Participant	Project Period	Project Title
1	Myanmar	Fujita Corporation	3 years	Rice Husk Power Generation in Rice Mill Factory in Ayeyarwady
2	Mexico	Suntory Spirits Limited	2 years	Introduction of Once-through Boiler and Fuel Switching to Tequila Plant
3	Thailand	CPF JAPAN CO.,LTD.	2 years	Introduction of Heat Recovery Heat Pumps to Food Processing Factory
4	Indonesia	NextEnergy & Resources CO.,Ltd	2 years	Introduction of 0.5MW Solar Power System to Aroma and Food Ingredients Factory
5	Thailand	TSB Co., Ltd.	2 years	Introduction of 5MW Floating Solar Power System on Industrial Water Reservoir
6	Cambodia	METAWATER CO.,Ltd.	3 years	Energy Saving by Inverters for Distribution Pumps in Water Treatment Plant
7	Chile	Waseda Environmental Institute Co., Ltd.	2 years	Introduction of 1MW Rooftop Solar Power System to University
8	Myanmar	RYOBI HOLDINGS Co., Ltd.	3 years	Introduction of Energy Efficient Refrigeration System in Logistics Center
9	Thailand	Sharp Corporation	3 years	Introduction of 27MW Rooftop Solar Power System to Large Supermarkets
10	Thailand	BANDO CHEMICAL INDUSTRIES,LTD.	2 years	Introduction of High-efficiency Boiler System to Rubber Belt Plant
11	Thailand	YUASA TRADING CO.,Ltd.	2 years	Energy Saving by Air-Conditioning Control System in Precision Parts Factories

GEC has made financial contracts with the relevant representative participants. After which, each participant has commenced their projects. GEC is monitoring and managing the progress of these projects through periodical meetings and on-site inspections.

Support Programme Enabling “Leapfrog” Development in FY2015 Financing Programme for JCM Model Projects

GEC has been assigned by MOEJ as an agency to implement its Support Programme Enabling “Leapfrog” Development. GEC has been conducting this programme from FY2015 to FY2017.

With the Financing Programme, GEC subsidizes projects for installing necessary facilities under the JCM, after confirming the completion of facility installation and settling the relevant expenses.

In FY2016, GEC managed the progress of the projects selected in FY2015 through monthly progress reports and regular meetings with the representatives of the projects, and executed the delivery of subsidies after confirming on-site the progress or completion of the projects and the examination of relevant documents. In case the projects did not proceed as scheduled, GEC requested the representative participants of the projects to submit delay reports and carried forward the subsidies to the next fiscal year after gaining the approval of MOEJ.

List of projects selected from the public call FY2015

No.	Partner Country	Representative Participant	Project Period*	Project Title
1	Mongolia	Farmdo Co., Ltd	3 years (2 years)	Installation of 2.1 MW Solar Power Supply in Ulaanbaatar Suburb



No.2



No.3



No.4



No.9



No.14



No.15



No.18



No.19

No.	Partner Country	Representative Participant	Project Period*	Project Title
2	Mongolia	Sharp Corporation	2 years <Completed>	10MW Solar Power Project in Darkhan City
3	Bangladesh	Toyota Tsusho Corporation	2 years <Completed>	Installation High Efficiency Loom at Weaving Factory
4	Bangladesh	YKK Corporation	2 years <Completed>	Introduction of PV-Diesel Hybrid System at Fastening Manufacturing Plant
5	Bangladesh	PACIFIC CONSULTANTS CO., LTD.	3 years	50MW Solar PV Power Plant Project
6	Bangladesh	EBARA REFRIGRATION EQUIPMENT & SYSTEMS CO., LTD.	3 years (2 years)	Installation of High Efficiency Centrifugal Chiller for Air Conditioning System in Clothing Tag Factory
7	Ethiopia	PACIFIC CONSULTANTS CO., LTD.	3 years	Introduction of Biomass CHP Plant in Flooring Factory
8	Kenya	PACIFIC CONSULTANTS CO., LTD.	3 years (2 years)	6MW Small Hydropower Generation Project in Rupingazi
9	Kenya	PACIFIC CONSULTANTS CO., LTD.	2 years <Completed>	Introduction of Solar PV System at a Salt Factory
10	Viet Nam	NTT DATA INSTITUTE OF MANAGEMENT CONSULTING, Inc.	1 year <Completed>	Introduction of High Efficiency Air-Conditioning in Hotel
11	Viet Nam	Ricoh Company, Ltd.	3 years	Energy Saving in Lens Factory with Energy Efficient Air-Conditioning
12	Viet Nam	Hitachi Chemical Company, Ltd.	3 years (2 years)	Energy Saving in Acid Lead Battery Factory with Container Formation Facility
13	Viet Nam	NTT DATA INSTITUTE OF MANAGEMENT CONSULTING, Inc.	Abolished	Introduction of High Efficiency Electric Furnace at Foundries
14	Viet Nam	AEON RETAIL Co., Ltd.	2 years <Completed>	Introduction of Solar PV System at Shopping mall in Ho Chi Minh City
15	Viet Nam	Yuko Keiso Co., Ltd.	3 years (2 years)	Introduction of Amorphous High Efficiency Transformers in Southern and Central Power Grid
16	Viet Nam	Yuko Keiso Co., Ltd.	3 years (2 years)	Energy Saving in Factories with Air-Conditioning Control System
17	Viet Nam	TOTO LTD.	3 years	Installation of High Efficiency Kiln in Sanitary Ware Manufacturing Factory
18	Indonesia	NTT FACILITIES, INC.	2 years	Energy Saving for Air-Conditioning at Shopping Mall with High Efficiency Centrifugal Chiller
19	Indonesia	NTT FACILITIES, INC.	2 years	Energy Saving for Industrial Park with Smart LED Street Lighting System
20	Indonesia	Mitsubishi Chemical Corporation	2 years <Completed>	Introduction of High Efficiency Once-through Boiler System in Film Factory
21	Indonesia	Toyota Tsusho Corporation	3 years (2 years)	Installation of Gas Co-Generation System for Automobile Manufacturing Plant
22	Indonesia	Sumitomo Rubber Industries, Ltd.	2 years <Completed>	Introduction of High Efficiency Once-through Boiler in Golf Ball Factory
23	Indonesia	Sharp Corporation	3 years (2 years)	1.6MW Solar PV Power Plant Project in Jakabaring Sport City
24	Cambodia	MinebeaMitsumi Inc.	3 years	Introduction of High Efficiency LED Lighting Utilizing Wireless Network
25	Cambodia	Asia Gateway Corporation	2 years <Completed>	Introduction of Ultra-lightweight Solar Panels for Power Generation at International School
26	Saudi Arabia	KANEMATSU CORPORATION	3 years	Introduction of High Efficiency Electrolyzer Chlorine Production Plant
27	Myanmar	JFE Engineering Corporation	3 years	Introduction of Waste to Energy Plant in Yangon City
28	Thailand	FamilyMart Co., Ltd.	3 years	Energy Saving at Convenience Stores with High Efficiency Air-Conditioning and Refrigerated Showcase
29	Thailand	PACIFIC CONSULTANTS CO., LTD.	2 years <Completed>	Introduction of Solar PV System on Factory Rooftop

No.	Partner Country	Representative Participant	Project Period*	Project Title
30	Thailand	Toray Industries, Inc.	3 years	Reducing GHG Emission at Textile Factory by Upgrading to Air-saving Loom (Samutprakarn)
31	Thailand	Sony Semiconductor Manufacturing Corporation	1 year <Completed>	Energy Saving for Semiconductor Factory with High Efficiency Centrifugal Chiller and Compressor
32	Thailand	NIPPON STEEL & SUMIKIN ENGINEERING CO., LTD.	3 years	Installation of Co-Generation Plant for On-Site Energy Supply in Motorcycle Factory
33	Thailand	Inabata & Co., Ltd	3 years	Energy Saving for Air-Conditioning in Tire Manufacturing Factory with High Efficiency Centrifugal Chiller
34	Thailand	Sony Semiconductor Manufacturing Corporation	2 years <Completed>	Installation of High Efficiency Air Conditioning System and Chillers in Semiconductor Factory

*The upper figures indicate the modified project periods and the lower figures in brackets indicate the initially determined project period. Those projects which were completed are so indicated.

Regarding projects No. 11, 12, 15, 16, 24, 28 and 33 above, GEC conducted interim on-site inspections to verify the progress. No. 2, 9, 14, 15, 18, 19, 20, 22, 25, 26 and 34 above were completed and inspected through on-site inspections and documentation review.

No. 3 and 4 were completed and inspected only by documentation review including photos due to local security concerns.

The execution periods of the projects listed as No. 1, 6, 8, 12, 15, 16, 21 and 23 were extended to 3 years from 2 years and the subsidies were carried forward to FY2017. The project listed as No. 30 was abolished due to the impact of the yen's rapid appreciation.

For other projects with an execution period of 3 years, GEC delivered part of the allocated subsidies and carried forward the rest of the subsidies to FY2017.



No.20



No.25



No.26



No.29



No.34

Operation of the Financing Programme for JCM Model Projects in FY2014

GEC has been assigned by MOEJ as an agency to implement the Financing Programme for JCM Model Projects from FY2014 to FY2016.

This entails the responsibility to subsidize those projects operating within the JCM framework for necessary facility installations, confirming the completion of the work and settling the relevant expenses.

Projects adopted for the financing programme in FY2014

No.	Host Country	Representative Participant	Project Period*	Project Title
1	Bangladesh	Ebara Refrigeration Equipment & Systems Co., Ltd	2 years <Completed>	Energy saving for air conditioning & facility cooling by high-efficiency centrifugal chiller (Suburbs of Dhaka)
2	Indonesia	Ebara Refrigeration Equipment & Systems Co., Ltd	1 year <Completed>	Energy Saving for Textile Factory Facility Cooling by High Efficiency Centrifugal Chiller
3	Indonesia	ITOCHU Corporation	4 years <3 years>	Solar Power Hybrid System Installation to Existing Base Transceiver Stations in Off-grid Area
4	Indonesia	JFE Engineering Corporation	4 years <3 years>	Power Generation by Waste Heat Recovery in Cement Industry
5	Indonesia	KANEMATSU CORPORATON	3 years <Completed>	Introduction of high efficient Old Corrugated Cartons Process at Paper Factory
6	Indonesia	Toray Industries, Inc.	3 years <Completed>	Reducing GHG emission at textile factories by upgrading to air-saving loom
7	Indonesia	TOYOTSU MACHINERY CORPORATION	2 years <Completed>	Energy Saving through Introduction of Regenerative Burners to the Aluminium Holding Furnace of the Automotive Components Manufacturer

No.	Host Country	Representative Participant	Project Period*	Project Title
8	Kenya	Ingerosec Corporation	3 years <Abolished>	Solar Diesel Abatement Project
9	Malaysia	NTT DATA INSTITUTE OF MANAGEMENT CONSULTING, Inc.	3 years <Completed>	PV power generation system for the office building
10	Maldives	PACIFIC CONSULTANTS CO., LTD.	4 years <2 years>	Solar Power on Rooftop of School Building Project
11	Palau	PACIFIC CONSULTANTS CO., LTD.	2 years <Completed>	Small-Scale Solar Power Plants for Commercial Facilities Project II
12	Palau	PACIFIC CONSULTANTS CO., LTD.	2 years <Completed>	Solar PV System for Schools Project
13	Vietnam	Hitachi Zosen Corporation	3 years <Abolished>	Anaerobic Digestion of Organic Waste for Biogas Utilization at Market
14	Vietnam	NIPPON EXPRESS	2 years <Completed>	Eco-driving by Utilizing Digital Tachograph System
15	Vietnam	Yuko Keiso Co., Ltd.	2 years <Completed>	Introduction of Amorphous high efficiency transformers in power distribution systems

*Project Period column: Upper number: Period after the change; Lower number in brackets: Adopted Period

We have paid out a portion of the allocated subsidies to the completed projects and have carried forward the funding from FY2016 to the FY2017 budget for the delayed projects according to the project progress.

Monitoring Support and Information Dissemination for JCM Model Projects and Management of REDD+ Model Projects

In FY2016, GEC was commissioned by MOEJ to conduct a support programme for monitoring JCM projects by each representative participant and other related works. In this regard, GEC supported 1) project monitoring by each representative participant, 2) dissemination of information on JCM model projects through websites and 3) served as the secretariat in selecting REDD+ model projects and managing their progress.

(1) Support programme for monitoring of JCM projects

GEC selected three representatives of the JCM model project as follows; Kanematsu Corporation implementing in Saudi Arabia, NTT DATA Institute of Management Consulting, Inc. implementing in Costa Rica and MinebeaMitsumi Inc. implementing in Cambodia. GEC engaged these representatives to explain the summary of each JCM model project including monitoring scheme to the government of JCM partner countries. These explanations could help JCM partner countries to understand summary and progress of JCM model project implementing in their own countries.

(2) Dissemination of information on climate change countermeasures

GEC put its website to good use for the purpose of disseminating information on the JCM and JCM model projects to a wider audience. GEC also held symposia in Japan.

• Information dissemination through the GEC website

In FY2014, GEC created a dedicated website for JCM projects (in Japanese and English) as part of the main GEC website and still maintains it. On the site, GEC created special pages for each of the 37 projects that were adopted and/or executed during FY2016, with descriptions of their operators, project overviews, project sites and the expected volume of GHG emissions reductions. Some additions were also made to the website, such as a map-



GEC website on JCM
(<http://gec.jp/jcm/>)

based search engine that covers the projects/studies from FY2013 and a sorting feature on the Projects/Studies page that enables visitors to filter and rearrange the list by country or by year that the project was conducted or by sector.

• **Hosting the Global Warming Countermeasures Symposium 2017**

On 23 January 2017, GEC and MOEJ co-hosted the ‘Global Warming Countermeasures Symposium 2017: further expansion of JCM projects’ aimed at presenting the latest developments in JCM and reporting on the outcomes of JCM model projects. MOEJ delivered lectures to provide updates on JCM initiatives and financing programmes, followed by a presentation by GEC regarding the further expansion of JCM projects. The operators of four JCM model projects adopted in FY2016 also provided reports on their respective projects, describing each project’s background, plans and future challenges. A panel discussion followed a presentation on the further expansion of investment through JCM which concluded the symposium and provided useful information to private firms which are interested in the JCM financing programme.



Panel Discussion at the Global Warming Countermeasures Symposium 2017

(3) Administration work for management of REDD+ model projects

• **Adoption of projects**

GEC issued a public call for REDD+ model project proposals targeting private firms in Japan. Through evaluation by an advisory board of experts, a total of two projects were adopted as listed below out of three proposals.

REDD+ projects

Partner Country	Business Entity	Title
Indonesia	Kanematsu Corporation	REDD+ project in Boalemo District
Lao PDR	Waseda University	REDD+ project in Luang Prabang Province through controlling slash-and-burn

• **Progress management of the adopted projects**

GEC managed the progress of the adopted projects through monthly reports submitted by the business operators, as well as by conducting face-to-face meetings with them. In addition, GEC once accompanied a site investigation during the field activities of both projects and inspected their progress.



REDD+ model project in Lao PDR
Interviewing farmers participating in livelihood improvement activities

Promotion of Participation in Lease Projects with JCM Financial Support

GEC were commissioned by MOEJ to undertake 1) promotion of participation in lease projects through the JCM financing programme as well as 2) a boosting approach to increase the number of private operators participating in the JCM.

(1) Promoting applications for lease projects

GEC conducted hearings from six major lease companies in Japan in order to understand their domestic and international lease business, and reviewed potential utilization of the JCM financing programme. GEC also conducted interviews with three implementing agencies of the domestic financing programme in order to learn about their financing programme, especially the management methods of projects which were utilizing a lease scheme.

Based on the interview results, GEC analyzed the challenges involved in realizing those JCM

model projects which utilized a lease scheme and proposed ways to improve the Financing Programme for JCM Model Projects to the MOEJ.

(2) Boosting approach to increase the number of JCM private operators

GEC nominated 112 potential projects (33 private firms) from all those who had ever transacted with GEC and conducted inquiries regarding the possibility of them participating in the Financing Programme for JCM Model Projects. GEC also conducted individual interviews with project participants and provided them with the necessary support to apply for the Financing Programme for JCM Model Projects.

GEC has published a JCM booklet in order to raise awareness of the JCM financing scheme among Japanese companies. This booklet provides information on the JCM scheme, the JCM financing scheme and examples of JCM Model Projects.

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

GEC has been assigned by MOEJ as an agency to implement the MOEJ's Financing Programme to Demonstrate Advanced Low-Carbon Technology Innovation for Further Deployment in Developing Countries since FY2015.

MOEJ has been managing this programme since FY2014, with the aim of promoting the development of low-carbon technologies considering the prospect of their diffusion in developing countries, by means of which a contribution can be made towards global environmental conservation. Through these projects, therefore, financial support is provided to cover part of the expenses (on an annual basis up to three fiscal years) for the development and demonstration of advanced low-carbon technologies. These projects must contribute to reducing the CO₂ emissions derived from energy consumption through fundamentally renovating advanced low-carbon technologies in order to adapt them to the local specific circumstances of each target country such as environmental regulations, culture and customs, resource restrictions and climate.

In FY2016, GEC held a public call for new project proposals from private enterprises, followed by a selection, then conducted progress management for all projects including those carried forward from FY2014 and FY2015, and then administrated the work required for the issuance of subsidies for each project.

Performance in FY2016

- GEC formulated the subsidy grant regulations and the application guidelines approved by MOEJ, and determined the criteria for selecting new projects based on the deliberations of the advisory board of experts at the beginning of April 2016.
- A public call for new projects was conducted for about one month from the middle of April 2016 and briefing sessions for applicants were held in both Tokyo and Osaka.
- Through screening of the submitted documents and interviews with applicants by the advisory board of experts and also through consultation with MOEJ based on these evaluations, a total of three projects were adopted. After the selection, grant notifications of the subsidy were issued for these projects based on careful inspection of the details included in necessary documents for the grant application submitted by the applicants.
- Grant notifications were made for all of the 14 projects carried forward from FY2014 and FY2015 following a screening of the application documents as these projects were approved to be continuously implemented through FY2016 by the advisory board in the previous year.

New projects adopted in FY2016 (3 projects)

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

Projects carried forward from FY2014 (5 projects)

No.	Representative Participants	Country	Project Title (main subject)
14-3	Hitachi Industrial Equipment Systems Co., Ltd.	Thailand Indonesia, etc.	Contribution to low carbon society by renovation to the newly developing countries by high-performance motors, inverters and others that are essential for maintenance and build up the social/ industrial infrastructure.
14-4	Mitsubishi Heavy Industries, Ltd.	Malaysia, etc.	Development of Optimum Control System for District Cooling Plant in South East Asia Aiming CO ₂ Reduction
14-5	GEOCRAFT CO., Ltd.	Cambodia	The introduction of the water facilities management system for the leakage reduction using GIS technology for the purpose of low-carbon society
14-6	Prozza Corporation	Lao PDR	Reducing GHG emissions through improvement and diffusion of the E-tuktuk "Pecolo"
14-7	AXIOHELIX Co. Ltd.	Vietnam	Promotion of Energy Conservation through Development and Introduction of Cost-effective Industrial LED Lighting Equipment to Meet the Needs for Developing Countries.

Projects carried forward from FY2015 (9 projects)

No.	Representative Participants	Country	Project Title (main subject)
15-1	SINFONIA TECHNOLOGY CO., LTD.	Indonesia	Low-Head Micro Hydro-Turbine Power Generation System for Indonesia Cellular Base Transceiver Stations
15-2	TOYOBO ENGINEERING CO., LTD.	Thailand	Energy conservation of Seawater desalination system with hollow fibre Reverse Osmosis membrane
15-3	NIPPON STEEL & SUMIKIN ENGINEERING CO., LTD	Philippines	Establishment of bioethanol production system by utilizing unused biomass
15-4	Digital Grid Inc.	Kenya Tanzania	Electricity Retail Service at Kiosk in Off-grid Area
15-5	GIKO Corporation	Indonesia	Energy saving for the de-greasing process of aluminium chips by utilization of superheated steam
15-6	Mansei Recycle Systems Co., Ltd.	Philippines	Waste plastics recycling project in Cebu to produce fluff fuel (alternative to fossil fuel such as coal) consumed by cement manufacturers
15-7	DATA TEC CO., LTD.	Vietnam Thailand	Promotion of eco-driving by the renovation of communication type Safety Recorder System
15-8	Soft Energy Controls Inc.	Vietnam	Development of Zero emission Electrical Bus for Cat ba island in Viet Nam
15-9	YANMAR CO., LTD.	Myanmar	Development of rice husk gasification CHP system

- Progress management: Through the submission of monthly reports from the participants, contacting the representatives and the implementation of site inspections, GEC obtained the relevant information to confirm the progress of each project and provided advice for each participant.

In January 2017, all of the participants were required to prepare and submit an interim project report. Based on these reports, the advisory board evaluated each project in terms of its performance and the possibility of continuing the project the following fiscal year.

- Assessment of the final project reports and the grant of subsidies: All 17 projects were assessed on the basis of their project reports (with a report review and an on-site inspection, where required). The granting of a subsidy was subsequently determined in terms of the amounts for each project and was issued before the end of FY2016.
- Completed projects: All of the projects carried forward from FY2014 (five projects) and



No. 16-1
Small-scale seawater desalination system



No. 14-6
E-tuktuk "Pecolo"



No. 15-3
Plant for bioethanol production



No. 15-7
Communication type safety recorder



No. 15-8
EV Bus



No. 15-9
Rice husk gasification CHP system

six projects that had continued from FY2015 were completed by the end of FY2016 and the respective project reports covering the period up to March 2017 were received. The underlying scheme of this programme mandates each participant to report an annual and cumulative amount of CO₂ emissions reduction using introduced technologies through a project to MOEJ for three years followed by the completion of each project.

Feasibility Studies for “MOEJ’s Financing Programme to Demonstrate Advanced Low-carbon Technology Innovation for Further Deployment in Developing Countries” in Asian Region

The Feasibility Studies (FS) were aimed at developing projects for the Financing Programme to Demonstrate Advanced Low-carbon Technology Innovation for Further Deployment in Developing Countries (hereinafter “Low-carbon Technology Innovation”) of the Ministry of the Environment, Japan (MOEJ). The FS were also aimed at identifying the components/elements of the technology that required modification in order to suit the local conditions and specific circumstances in the developing countries, which were then to be demonstrated as part of the future “Low-carbon Technology Innovation” projects and then deployed in the developing countries.

(1) Feasibility Studies for “Low-carbon Technology Innovation” projects

Nine FS were undertaken by Japanese private entities who owned the low-carbon technologies, which were to be introduced to developing countries in Asia, through GEC commissions. The FS entities were selected through GEC’s existing network as well as through introduction by Japanese local governments.

FS entity	Proposed technology/project	Country
Hitachi Zosen Corporation	Methanation by combining CO ₂ captured from the cement production process and hydrogen produced through electrolysis	Lao PDR
Komaihaltec Inc.	Wind power generation for operation of electric vehicles on remote islands	Philippines
Taiyo Nippon Sanso Corporation	High yield of bio-methane and bio-CO ₂ from biogas	Philippines
New Energy Development Co., Ltd.	Biomass fuel production from coconut husks	Philippines
Hanshin Engineering Co., Ltd.	High efficiency wastewater treatment system with underwater aeration stirring devices	Thailand
Asahi Kako Co., Ltd.	S-pipe exhaust waste heat recovery facility	Thailand
Ichikawa Kankyo Engineering Co., Ltd.	Intermediate treatment system renovation for RPF production	Vietnam
Aiken Kakoki K. K.	Organic wastewater treatment system to generate biogas to be utilized for energy fuel, with high efficiency	Indonesia
IHI Enviro Corporation	Methane recovery from pelleting process of Oil Palm Trunk (OPT)	Malaysia

GEC supervised and provided advice for these FS and GEC itself carried out surveys on the applicability of these low-carbon technologies to the local conditions, in particular, surveys on the local needs and technological matching with such needs including local regulations. GEC also supported the FS entities to identify local counterparts who could cooperatively undertake the technology demonstrations at their own premises. GEC and the FS entities jointly introduced the Japanese advanced low-carbon technologies and the effects they had on satisfying local needs, on creating a cleaner environment, as well as the effects on energy cost reduction. The problem of expensively high initial costs for advanced technology installation was identified, but GEC explained MOEJ’s financing programme and the advantages of utilizing the programme (financial support) to reduce the initial costs.

GEC also invited governmental officials to Japan from the developing countries (Indonesia and Lao PDR), to raise their awareness and for them to acknowledge the importance of advanced low-carbon technologies, by seeing the real application and operation of such

technologies in Japan. These officials are expected to provide their support for the Low-carbon Technology Innovation projects in the near future. Indonesian invitees observed the operation of organic wastewater treatment facilities installed in food factories and Lao invitees observed the operation of a methanation facility, an organic waste composting facility, a bio-ethanol production facility and a waste incinerator to generate electric power.

(2) Regional Workshop for Low-carbon Technology Development and Transfer

The FS mentioned in (1) above were implemented taking into account that the proposed technologies should be demonstrated and then installed, deployed and disseminated, leading to social and industrial reconstruction in developing countries. The international negotiations around global climate change have recognized that such low-carbon technology development and transfer is important. Hence GEC, with the cooperation of the MOEJ, the Asian Development Bank (ADB) and the Department of Environment and Natural Resources of the Philippines (DENR), co-organized the Regional Workshop for Low-carbon Technology Development and Transfer, to report the results of the FS and related surveys and also to show a clear path to developing and transferring the low-carbon technology on the ground.

The workshop was held jointly by the MOEJ, the ADB, the DENR and GEC, at the ADB Headquarters located in Metro Manila, the Philippines. The government officials from nine Asian countries, experts from international cooperation organizations, academic/research institutes and private entities from Japan and the Philippines (around 60 participants) participated in the workshop. The participants discussed the challenges in realizing and accelerating the low-carbon/climate technology transfer to developing countries and the possible options to access and/or create synergies between the support programmes of the financial, capacity building and technology development aspects. Active discussions were held during the workshop between the private entities who own concrete applicable climate technologies, the governments making the policies relating to climate technology deployment and dissemination in their own countries, and experts from the relevant international organizations and research institutes.



Meeting with government officials in a developing country



Lao government officials field tour in Japan



Participants of the Regional Workshop held in Manila, the Philippines (at the premises of the ADB Headquarters)

Osaka JCM Network Project

GEC has assumed the role of representative secretariat for the Osaka CDM Network, which was founded in February 2004 in cooperation with OISCA Kansai and the Osaka Urban Industry Promotion Centre. This network was renamed the "Osaka JCM Network" in FY2015 and began disseminating JCM-related information throughout the Kansai region, in order to stimulate the businesses and activities related to the subject of energy-conservation.

Activities in FY2016

- Holding the general meeting and providing opportunities for information exchange
 - It was decided to renew the website and the network's annual activity programme.
 - GEC also provided some opportunities for the members to participate in information exchanges on the subject of financing programmes for JCM projects.
- Osaka Carbon Conference 2016

As part of the efforts to disseminate the latest developments in international debate on climate change, GEC published a report on the Government of Japan's conclusions on UNFCCC COP22, future developments and climate change negotiations, including JCM. GEC also provided utilization result reports for the JCM model projects and Sharp Corporation provided a lecture based on their example.



Osaka Carbon Conference 2016 (presentation by MOEJ)

Japan International Cooperation Agency (JICA) Group Training Project

Country Report

A report prepared by each participant describing the environmental administration system, environmental situation and other related issues in his/her country. These Country Reports are presented at the start of the training course to minimise the gap in issue awareness between participants and instructors.

Action Plan

A plan prepared by each of the participants to improve the environment in their own country based on knowledge acquired during the training. Participants present their Action Plan and receive advice from the audience (mainly from course instructors and advisers) on how to improve its feasibility.

As commissioned by JICA, GEC has carried out two 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)' 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 faced. They worked on developing 'action plans'* through their participation 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 organizations, 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 organizations.

Training Dates/Participants	Programme
<p>Improvement of Solid Waste Management Technologies (Basic, Techniques)</p>	
<p>2016 13 May – 1 July</p> <p>[11 participants] Egypt (2) Lao PDR (2) Nigeria (2) Pakistan (1) Sri Lanka (1) Timor-Leste (2) Uganda (1)</p>	<p><u>Objective</u> 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.</p> <p><u>Collaborators</u> Osaka City Environment Bureau, Fukuoka City, Kitakyushu City, Fukuoka University, Toyo University, Osaka City University, Osaka City University Hospital, Nantan City Yagi Bioecology Center, EX Research Institute Ltd., Kokusai Kogyo Co. Ltd., Takakura Environment Research Institute, Kansai Recycling Systems Co. Ltd., Kawase Co. Ltd., Sunny Metal Corporation, Daiei Kankyo, Kyoei Mesona Inc., etc.</p> <p><u>Lectures</u> Introduction to Waste Treatment; Introduction to Intermediate Treatment Facilities; Introduction to Sanitary Landfill Technology; Introduction to Hazardous Waste Treatment Technology, etc.</p> <p><u>Site visits and workshops</u> Waste Collection and Transportation Work, Waste Incineration Plant, Plastic Containers Recycling Facility, Composting Facility, Sanitary Landfill Disposal Plant, etc.</p>
<p>Control of Air Pollution from Motor Vehicles</p>	
<p>2016 4 October – 18 November</p> <p>[10 participants] China (1) Egypt (1) Ethiopia (1) Fiji (1) Mexico (1) Mongolia (1) Sri Lanka (2) Thailand (2)</p>	<p><u>Objective</u> To develop a concrete action plan for automobile pollution countermeasures in each of participating organizations.</p> <p><u>Collaborators</u> Osaka City University, Osaka City Environment Bureau, Osaka Municipal Transportation Bureau, City of Kyoto, Tokyo Metropolitan Research Institute for Environmental Protection, Kinki District Transport Bureau, Kinki Regional Development Bureau, Osaka Police, Plaintiff's Group in Amagasaki Air Pollution Suit, Japan Automobile Federation (JAF), OSAKA TOYOPET Corporation, Hino Motors, Ltd., Suuri-Keikaku Co. Ltd., Climate Consulting, LLC, Kimoto Electric Co. Ltd., Osaka Environmental Technology and Research Co. Ltd., Japan Meteorological Corporation, NITTSU Research Institute and Consulting, etc.</p> <p><u>Lectures</u> Countermeasures Against Automobile Pollution; Physico-chemical Characteristics of Particulate Matter (PM2.5, etc.); Urban Traffic and the Environment; etc..</p> <p><u>Site visits and workshops</u> Atmospheric Continuous Monitoring Station, Automobile Inspection Centre, Chassis Dynamometer, Traffic Control Centre, Simplified Passive Sampling Measurement; Atmospheric Dispersion Simulation, etc.</p>



Final Disposal Site



Car Maintenance Shop

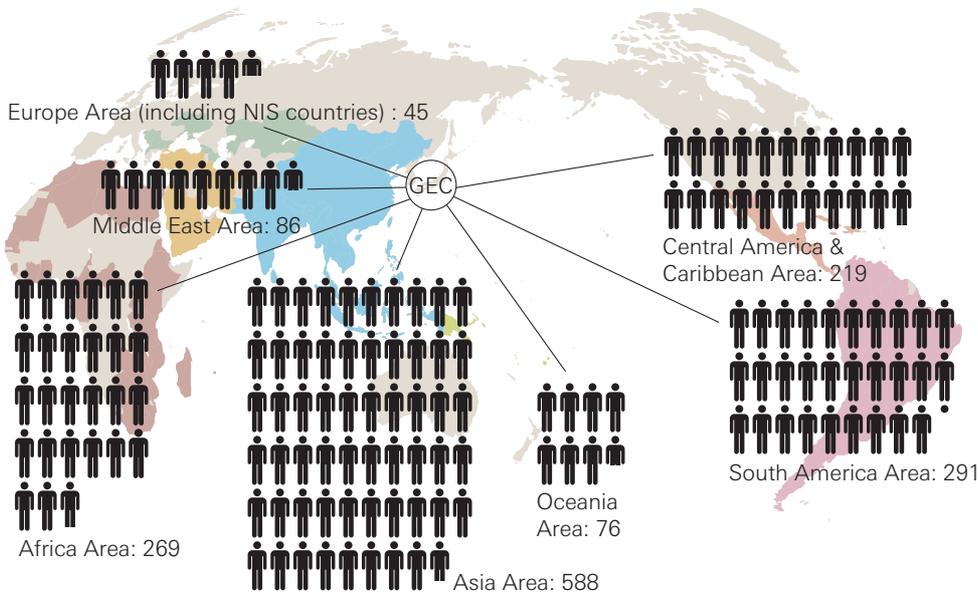
GEC Networking Project for Former Training Course Participants

Since 1998, GEC has established a network consisting of overseas participants in JICA training programmes, in order to provide follow-ups 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) and the email newsletter 'Connect the World', which is delivered to our members (individuals who have completed our training courses). We also hold local follow-up seminars as part of this networking initiative.

In FY2016, 21 participants from 2 training courses joined the network and the total number of members reached 1,574 (in 120 countries).

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.

Network Member Distribution Diagram (As of March 2017)



Background of the Establishment

Establishment of the International Environmental Technology Centre

Beginning in the 1960s, Osaka City experienced a series of acute socio-environmental issues on the back of rapid industrialization, such as air, noise and water pollution and land subsidence. The city succeeded in substantially mitigating these problems, however, through the combined efforts of government and industry. Seeking to leverage these experiences for the benefit of others, the Osaka City Government actively cooperated with developing nations to help resolve their environmental problems, such as the formulation of a master plan to address air pollution in Shanghai, China.

In 1990, the International Garden and Greenery Exposition was held in Osaka based on the theme of 'harmonious coexistence between nature and mankind'. In anticipation of this event, Osaka City announced its intention in August of 1989 to invite an international environmental organization to the city as a way of carrying on the spirit of the exposition and taking advantage of Osaka's experience in environmental conservation. The announcement was followed by moves to attract relevant organizations, including an official invitation from Osaka Mayor Masaya Nishio handed to the Executive Director of the United Nations Environment Programme (UNEP) Dr. Mostafa K. Tolba during his visit to Japan.

These efforts culminated in July 1990 with a proposal by Japan's then Prime Minister Toshiki Kaifu at the G7 Summit in Houston to establish a UNEP facility in Japan. In August of the same year, Japan's Ambassador to Kenya Mr. Naohiro Kumagai made a proposal to the 2nd Special Session of the UNEP Governing Council to set up the International Environmental Technology Centre (IETC). In May of the following year, a resolution to establish IETC with the mandate of promoting the adoption, application and operation of Environmentally Sound Technologies (ESTs) in developing countries and countries with economies in transition was unanimously approved at the 16th Session of the UNEP Governing Council. In October 1992, UNEP Executive Director Tolba and Parliamentary Vice-Minister for Foreign Affairs Mr. Koji Kakizawa signed an agreement in Osaka on the founding of IETC in Osaka, which officially commenced operations in April 1994. Since April 2011, IETC operates in Osaka after its two offices were merged into one office.

Note: official positions listed above were current at the dates listed.

Establishment of the Global Environment Centre Foundation

Following the UNEP Governing Council's official decision to establish IETC in Japan, the Osaka City Government set up the UNEP IETC Osaka Planning Office on 3 July 1991 to investigate IETC's operations and to facilitate the establishment of a support foundation to be launched at the start of 1992.

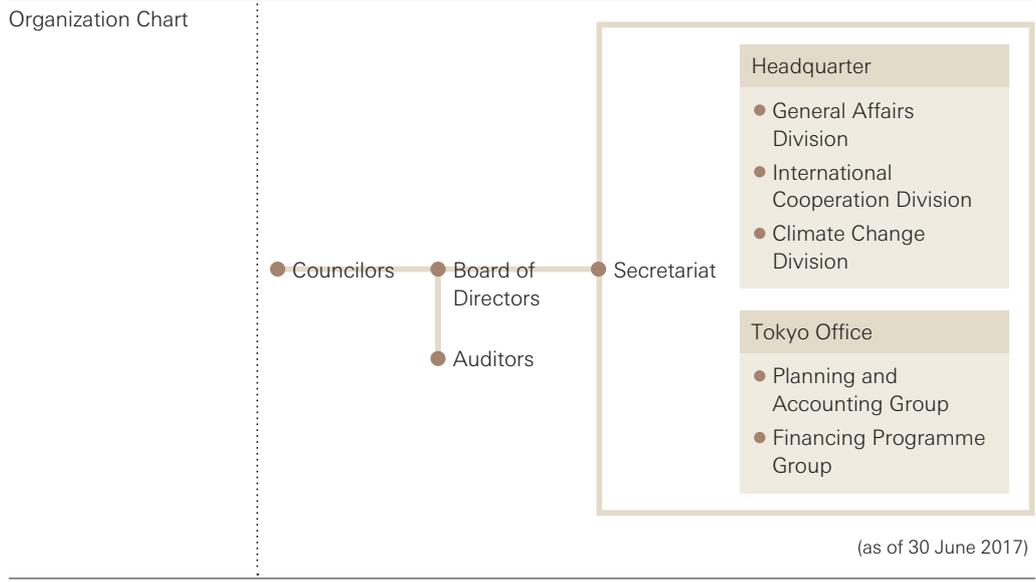
Following initial preparations by the Planning Office, the Global Environment Centre Foundation (GEC) was launched as a UNEP support entity on 28 January 1992 with a capital endowment from the Osaka prefectural and city governments.

In 2008, GEC subsequently filed an application for change of legal entity from an incorporated foundation to a public interest incorporated foundation on 27 October 2009 in response to the 2008 enforcement of the three laws relating to reform of the public interest corporation system. After receiving the approval of the Prime Minister, GEC made a new start as a public interest incorporated foundation on 1 April 2010.

GEC was founded with the aim of contributing to the conservation of the environment in developing nations and around the world by leveraging Japan's wealth of conservation knowledge and experience in support of UNEP's urban environment conservation activities in developing nations, and undertaking activities to promote international cooperation to protect the global environment.

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	51



Board Members of the GEC

Councilors	KANATA, Toru	Senior Executive Director - Environmental Management, Department of Environment, Agriculture, Forestry and Fisheries, Osaka Prefectural Government
	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
	OTA, Susumu	Executive Managing Director, Overseas Environmental Cooperation Center, Japan
	SHISHIDO, Kenichi	Director General, Kansai International 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 Center
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
	KUSUMOTO, Hiroshi	General Manager, Economy and Industry Division, The Osaka Chamber of Commerce and Industry
	OTSUKI, Yoshinobu	Former General Manager, Environmental Management Office, Department of Environment, Agriculture, Forestry and Fisheries, Osaka Prefectural Government
	SOURI, Norio	President, Society for the Consumers of Kansai
Auditors	KAGATSUME, Toshiaki	Technical Adviser, International Lake Environment Committee Foundation
	MIYAMOTO, Hiroshi	Former Manager of Community Welfare and Services Division, Chuo Ward Public Health and Welfare Center, Osaka City Government

(as of 30 June 2017, 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 economic 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@unep.org IETC homepage: http://www.unep.org/ietc

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Annual Report 2016**

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