

FY2021

City-to-City Collaboration for Zero-Carbon Society



City-to-City Collaboration for Zero-Carbon Society

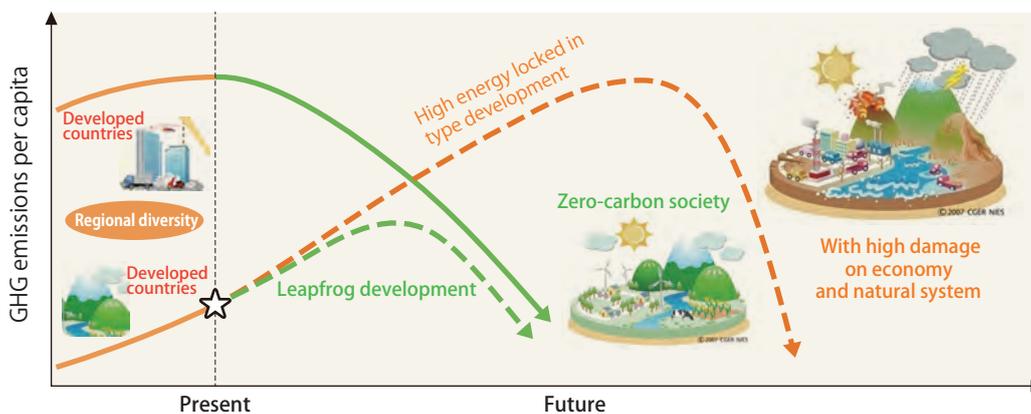
Programme Background

Nations around the world collectively agreed to uphold the agreement to limit the rise in global temperatures to 1.5 degrees Celsius from preindustrial levels with the outcome document of the 26th Conference of the Parties (COP26) of the United Nations Framework Convention on Climate Change (UNFCCC) held in November 2021. To achieve this ambitious target, actions must be accelerated at the provincial, city, and district levels in each country. Cities are capable of bringing various stakeholders and sectors together under one umbrella, engaging them in processes ranging from planning to implementing measures in line with local characteristics.

The national and local governments in Japan have banded together to innovate and expand forward-thinking measures around the country under the

Regional Decarbonization Roadmap formulated in June 2021, bringing the concept of zero-carbon cities to life. Expanding this circle of actions, or “decarbonization domino effect”, to other countries will also serve to inspire the creation of zero-carbon cities around the world.

The Ministry of the Environment of Japan put the wheels of the City-to-City Collaboration for Zero-Carbon Society programme into motion in fiscal 2013. The programme aims to encourage leapfrog development in cities in developing countries that are on the path towards becoming zero-carbon cities by packaging together and deploying the experiences and expertise of local governments in Japan and the decarbonization technologies of Japanese companies.



Conceptual diagram of leapfrog development

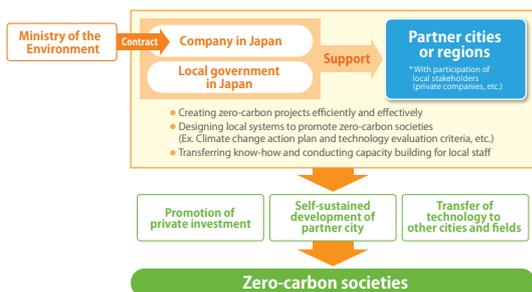
Note: The figure was created based on a figure from the National Institute for Environmental Studies (<https://2050.nies.go.jp/index.html>)

Programme Overview

Under this programme’s framework of collaboration between local governments in Japan and cities in developing countries (partner cities), Japanese companies and municipalities work together with local partners to identify and conduct feasibility studies on zero-carbon projects in partner cities, provide assistance in establishing systems, train human resources, and raise awareness to promote zero-carbon development in local areas. This programme has led to the development of action plans for decarbonisation in cities overseas, transfer of systems

related to green building and other environmentally-friendly infrastructure, and the introduction of decarbonised infrastructure, such as the installation of waste-to-energy facilities and energy-efficient equipment in public infrastructure.

This programme is expected to lead to the introduction of equipment and facilities, as well as the development of commercial operations using financial mechanisms (Box 2) under the Joint Crediting Mechanism (Box 1) scheme promoted by the Japanese government.



Conceptual diagram of the city-to-city collaboration programme

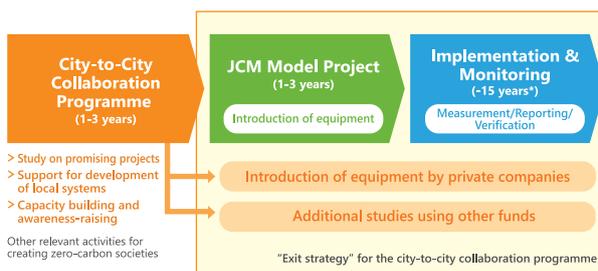


Image of activities under the city-to-city collaboration programme and exit strategies

Benefits for participating stakeholders

Stakeholders participating in this programme can expect to receive a variety of benefits and effects, such as the development and expansion of networks both domestically and internationally, more visible profiles, and opportunities

to develop global-minded human resources. Below are additional advantages stakeholders may gain from taking part in this programme.

Benefits for cities overseas	<ul style="list-style-type: none"> ● Opportunity to establish a foundation for a zero-carbon society to lead to zero-carbon development at an earlier stage ● Realisation of co-benefits, such as improvements of the urban environment, and contributions to domestic policies and international agendas ● Creation of business opportunities by encouraging the participation of local companies ● Improved and enhanced urban environment to increase the appeal of the city and promote the development of industrial clusters and investment ● Opportunities to foster civic pride in residents as they learn about the efforts and actions of local governments and companies
Benefits for companies overseas	<ul style="list-style-type: none"> ● Use of the JCM to enable the introduction of superior zero- and low-carbon technologies at low costs, and as a result, lower electric power and running costs. Companies will also be able to gain management know-how for the technologies introduced. ● Improved corporate brand power as a result of being viewed as a company that is proactive on environmental measures ● Potential to acquire new sales channels
Benefits for cities in Japan	<ul style="list-style-type: none"> ● Use of their own knowledge to contribute to environmental improvement and development of the domestic policies and international agendas of partner cities ● Use of the programme as a menu of support to promote the overseas expansion of local companies ● Chances to help revitalise the local economy with an increase in the amount of sales by local companies and number of visitors from Japan and abroad ● Opportunities to learn about the efforts and actions of local governments and companies to foster a sense of civic pride in residents
Benefits for companies in Japan	<ul style="list-style-type: none"> ● Use of the JCM to facilitate overseas expansion and increase sales of company products ● Easy conduct of research with a variety of support from local governments and consultants ● Improved access to information on local policy trends and market trends, etc. ● Opportunities to consider mid- to long-term sales strategies with an understanding of the company's position in light of global trends ● Potential to acquire new sales channels

Box 1 : What is the Joint Crediting Mechanism (JCM)?

Japan, aiming to facilitate global GHG emission reduction and removal, implements the Joint Crediting Mechanism (JCM) as a scheme for decarbonising technology diffusion and implementation measures to respond to challenges in partner countries in a flexible and swift manner. The use of carbon market mechanisms, including the JCM, is articulated under Article 6 of the Paris Agreement, an international framework for reducing greenhouse gas emissions after 2020. The market mechanism under Article

6, including the JCM, is not only for GHG emission reduction, but also for the sustainable development of the partner countries. Japan has signed bilateral documents on the JCM with 17 countries* to date, and is taking advantage of a variety of opportunities to promote discussions with other developing countries and regions.

* Mongolia, Bangladesh, Ethiopia, Kenya, Maldives, Viet Nam, Laos, Indonesia, Costa Rica, Palau, Cambodia, Mexico, Saudi Arabia, Chile, Myanmar, Thailand, and the Philippines.



JCM outline figure

Source: Global Environment Centre Foundation "Introduction of the Joint Crediting Mechanism (JCM) & Financing Programme for JCM Model Projects" (Oct. 2021) https://gec.jp/jcm/jp/publication/JCM2021Oct_En_Web.pdf

Box 2 : JCM financial mechanisms: What is the JCM Model Project?

This programme aims to implement projects to reduce greenhouse gas emissions in developing countries with the use of superior decarbonisation technologies, while also acquiring credits through the JCM for use in achieving Japan's reduction targets. Subsidies are available to assist with covering costs related to the improvement of facilities and equipment

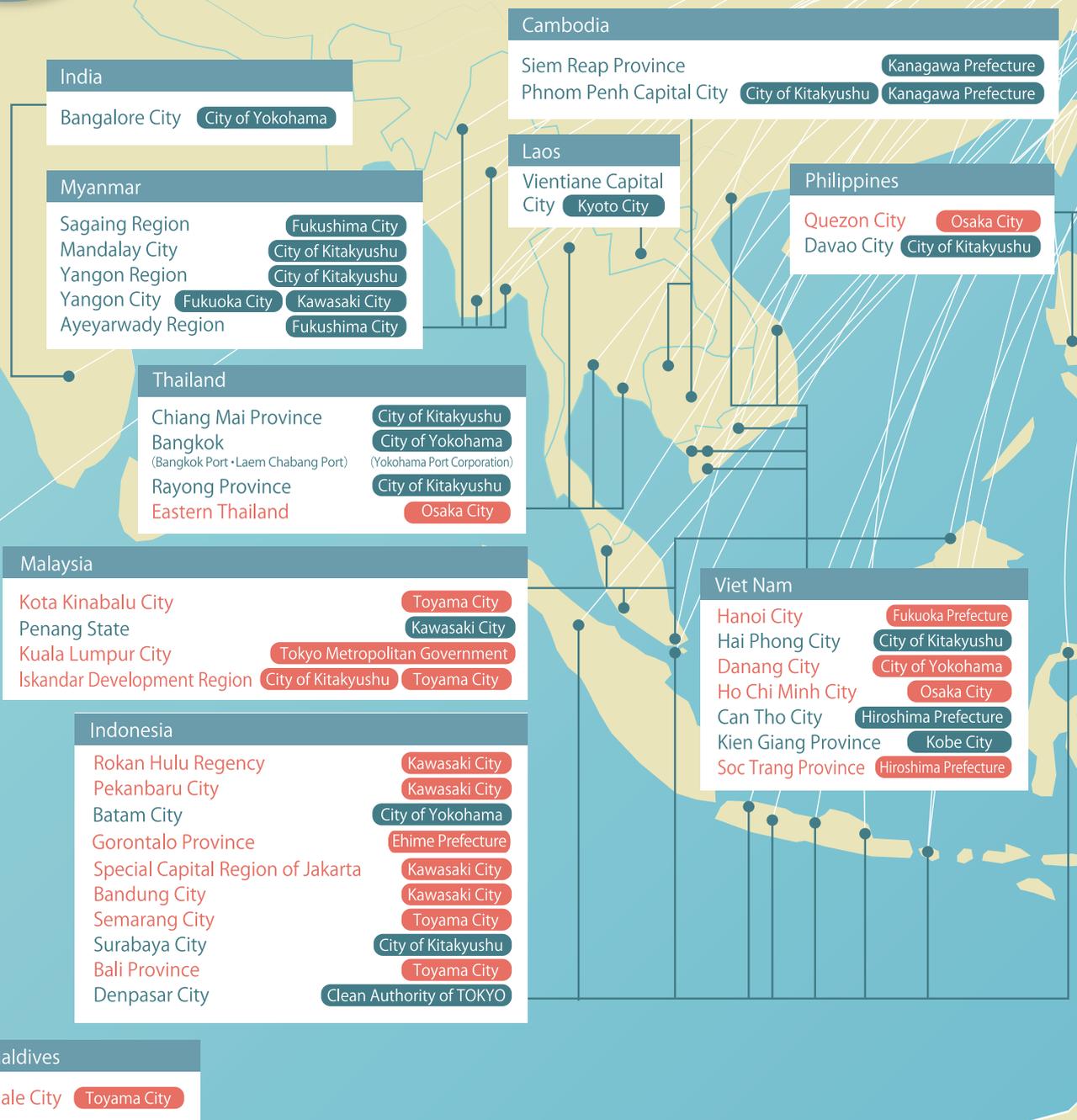
that directly contribute to reducing CO₂ emissions from energy sources, as well as costs for equipment, and primary and incidental construction. As of September 2021, 203 projects have been adopted in 17 countries and regions, which are expected to reduce CO₂ emissions by approximately 2.22 million tonnes annually.

Source: Ministry of the Environment, Japan, "List of adopted JCM Model Projects in JCM partner countries (FY2013-2021)"

Cities participating in the City-to-City Collaboration Programme (FY2013–2021)

Participating countries and cities

To date, **41** cities and area from **13** countries in the world and **17** municipalities in Japan have taken part in the City-to-City Collaboration Programme



Note: Cities for each country are listed in order from north to south. The cities in orange colour are for the FY2021 Programme.

Japan
17
 municipalities

Mongolia
 Ulaanbaatar City
 Hokkaido
 Sapporo City
 Töv Province
 Sapporo City

Hokkaido
 Sapporo City

Toyama City
 Fukushima City
 Clean Authority of TOKYO
 Tokyo Metropolitan Government
 Hiroshima Prefecture
 Kyoto City
 City of Kitakyushu
 Osaka City
 Fukuoka Prefecture
 Ehime Prefecture
 Kobe City
 Kawasaki City
 City of Yokohama
 Kanagawa Prefecture

Palau
 Koror State
 City of Kitakyushu

Chile
 Renca, Santiago City
 Toyama City

Overseas
41 cities and area
 in **13** countries

(As of September 2021)

List of City-to-City Collaboration for Zero-Carbon Society in FY2021

Renca, Santiago, Chile - Toyama City

01	Project to Promote SDGs FutureCity with Renca, Santiago	Implementation Body Nippon Koei Co., Ltd.
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DKI-Jakarta, Indonesia – Kawasaki City

02	Promotion of Green Innovation to Realize Zero-Carbon City by the Collaboration between DKI-Jakarta and Kawasaki City	Implementation Body Nippon Koei Co., Ltd.
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Rokan Hulu Regency and Pekanbaru City, Indonesia – Kawasaki City

03	Project to Promote Development of Circular Economy and 2050 Zero-Carbon City in Riau Province Region	Implementation Body Nippon Koei Co., Ltd.
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Bandung City, Indonesia – Kawasaki City

04	Zero-Carbon Society Development in Bandung City through Energy Saving and Improvement of Transportation Infrastructure System	Implementation Body Oriental Consultants Co., Ltd.
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Bali Province and Semarang City, Indonesia – Toyama City

05	City-to-City Cooperation Project by Toyama City to Realize SDGs FutureCity for Bali Province and Semarang, Central Java Province	Implementation Body Japan NUS Co., Ltd.
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Gorontalo Province, Indonesia – Ehime Prefecture

06	Support Project for the Achievement of SDGs and Developing a Sustainable Decarbonized Society: City-to-City Collaboration between Ehime Prefecture and Gorontalo Province	Implementation Body Japan NUS Co., Ltd.
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Kuala Lumpur, Malaysia - Tokyo Metropolitan Government

07	Project Developing a Policy and Implementation Framework for Building Energy Efficiency through City-to-City Collaboration between Kuala Lumpur Government and Tokyo Metropolitan Government	Implementation Body Institute for Global Environmental Strategies
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Johor Iskandar Development Area and Kota Kinabalu City, Malaysia - Toyama City

08	Urban Development Project through Decarbonized Transportation Using Bio-fuel and Zero-Carbon City Development Project through Dissemination of Renewable Energy	Implementation Body Japan NUS Co., Ltd.
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Iskandar Development Region, Malaysia – City of Kitakyushu

09	Promotion of Carbon-Free Society in Iskandar Regional Area (Phase 3) (City of Kitakyushu — Iskandar Regional Development Authority Collaboration Project)	Implementation Body NTT Data Institute of Management Consulting, Inc.
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Male City, Maldives - Toyama City

10	Support Project for Developing a Sustainable Eco-friendly Smart City: An Intercity Collaboration between Toyama City and Male' City	Implementation Body Japan NUS Co., Ltd.
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Ulaanbaatar City, Mongolia - Sapporo City

11	Zero-Carbon Society Development by Promoting Architecture and Renewable Energy Suitable for Cold Regions in Ulaanbaatar City	Implementation Body Oriental Consultants Co., Ltd.
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State of Koror, Palau - City of Kitakyushu

12	Project to Accelerate Carbon-Free and to Create Co-Benefit through EV Vehicles in State of Koror, Palau (City of Kitakyushu-Koror Cooperation Project)	Implementation Body ATGREEN Co., Ltd
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Quezon City, Philippines – Osaka City

13	Zero-Carbon Development in Quezon City for the Implementation of Climate Change Mitigation Actions	Implementation Body Oriental Consultants Co., Ltd.
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Eastern Thailand (Eastern Economic Corridor), Thailand – Osaka City

14	Support for the Realization of Zero-Carbon Society to Achieve Thailand 4.0	Implementation Body Nippon Koei Co., Ltd.
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Danang City, Viet Nam - City of Yokohama

15	Support for Developing Danang's "Local Climate Change Action Plan (LCCAP)" and Low-Carbon Technology Projects under City-to-City Cooperation between Danang and Yokohama toward Low-Carbon Smart City	Implementation Body Institute for Global Environmental Strategies
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Ho Chi Minh City, Viet Nam – Osaka City

16	Promotion of Zero-Emission Technology to Industrial and Public Sectors in Ho Chi Minh City	Implementation Body Nippon Koei Co., Ltd.
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Soc Trang Province, Viet Nam - Hiroshima Prefecture

17	Project to Promote the Formation of an Autonomous Decarbonized Society through City-to-City Collaboration between Hiroshima Prefecture and Soc Trang Province, Viet Nam	Implementation Body E-Square Inc.
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Hanoi City, Viet Nam - Fukuoka Prefecture

18	Promotion of Zero-Carbon Technology to Improve the Environment in Hanoi City	Implementation Body Nippon Koei Co., Ltd.
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Hai Phong City - City of Kitakyushu

19	Promotion of Eco-Industrial Parks Toward Carbon Neutrality in Hai Phong City, Viet Nam	Implementation Body Institute for Global Environmental Strategies
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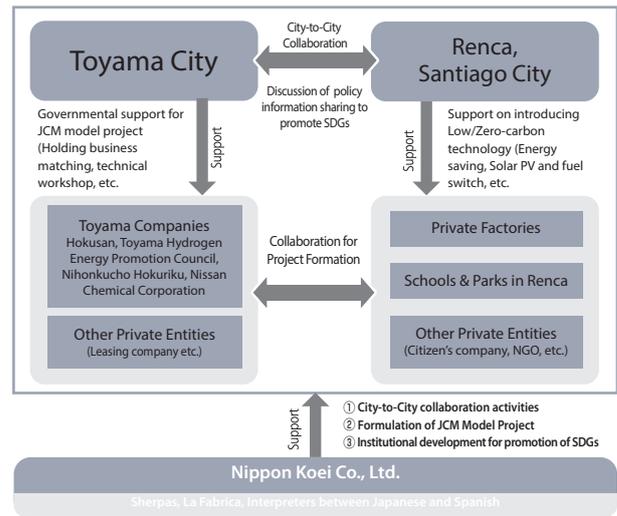


Project to Promote SDGs FutureCity with Renca, Santiago



| Implementation Body | Nippon Koei Co., Ltd.
 | Partner Entities | Toyama City, Hokusai Co., Ltd., Nihonkucho Hokuriku Co., Ltd., Toyama Hydrogen Energy Promotion Council, Nissan Chemical Corporation

In the wake of the OECD meeting in 2019, Toyama City and the Renca district, which is a part of Chile’s capital city of Santiago, signed an agreement on city parks and the environment and have continued their dialogue at COP25 and on other occasions. In this project, the partners have been promoting a city-to-city collaboration project that aims to help address the challenges faced by Renca from environmental, social and economic perspectives based on the knowledge and experience gained from Toyama City’s SDGs plan and Energy Vision. The Renca district is known for its industrial area located near the airport and a hill called Cerro Renca. There are plans to introduce renewable energy to the district’s schools and other facilities, as well as Cerro Renca, and decarbonise transportation, logistics and industries in the district through the City-to-City Collaboration Programme.



Chile
Indonesia
Malaysia
Maldives
Mongolia
Myanmar
Palau
Philippines
Thailand
Viet Nam



Promotion of Green Innovation to Realize Zero-Carbon City by the Collaboration between DKI-Jakarta and Kawasaki City



| Implementation Body | Nippon Koei Co., Ltd.
 | Partner Entities | Kawasaki City, Enoah Inc., Hino Motors Asia Ltd., CSD Co., Ltd., Miura Co., Ltd.,

Kawasaki City and the Special Capital Region of Jakarta have engaged in city-to-city collaboration since 2017 with the aim of promoting green innovation in Jakarta. In March 2019, the cities signed a letter of intent on city-to-city collaboration to achieve a decarbonised society. Activities are also being carried out to achieve the SDGs through intercity cooperation reflecting Kawasaki City’s selection as an “SDGs FutureCity” in July 2019. This fiscal year, the two cities are conducting a feasibility study on stabilising electric power with the introduction of a self-sustaining hydrogen energy supply system to a remote island, promoting green industries with the introduction of energy-efficient technologies in factories, and the introduction of EV buses and charging systems. Kawasaki and Jakarta also aim to promote green innovation in the Special Capital Region of Jakarta through activities to achieve the SDGs.





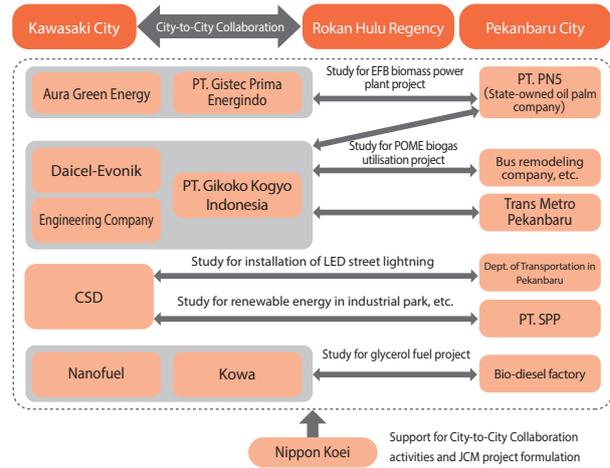
Project to Promote Development of Circular Economy and 2050 Zero-Carbon City in Riau Province Region



Implementation Body | Nippon Koei Co., Ltd.

Partner Entities | Kawasaki City, Aura Green Energy Co., Ltd., PT. Gistec Prima Energindo, Daicel-Evonik Ltd., PT. Gikoko Kogyo Indonesia, Nanofuel Co., Ltd., Kowa Company, Ltd., CSD Co., Ltd.

In its aim to create an advanced sustainable city, Kawasaki City has positioned a “Zero-Emissions Initiative” as its basic concept for the formation of a local sustainable economy and society and promoting it as the key to regional development. This project aims to contribute to the sustainability and decarbonisation of the palm oil industry, a key industry in the area, through the generation of biomass power using empty fruit bunches (EFBs) owned by companies affiliated with Kawasaki City and technologies for refining and utilising biogas generated from palm oil mill effluent (POME) in the Riau region, the world’s largest production area of palm oil. The project will also examine green recovery from COVID-19 and implement initiatives for the formation of a zero-carbon city in Pekanbaru City by 2050.



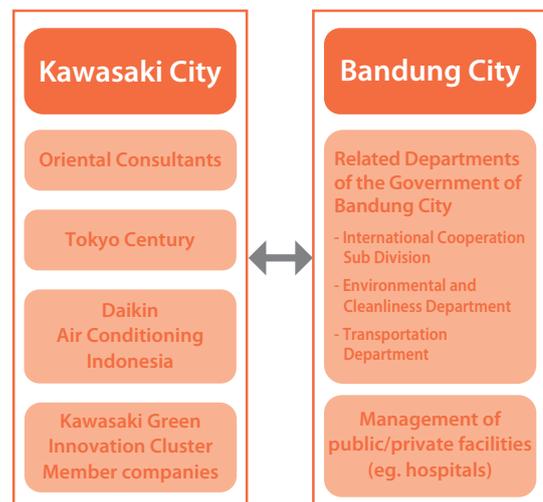
Zero-Carbon Society Development in Bandung City through Energy Saving and Improvement of Transportation Infrastructure System



Implementation Body | Oriental Consultants Co., Ltd.

Partner Entities | Kawasaki City, Tokyo Century Corporation, Daikin Air Conditioning Indonesia

Kawasaki City has concluded a memorandum of understanding on city-to-city collaboration in the environmental field with Bandung City, the third largest city in Indonesia. This project on green innovation aims to support and encourage Bandung in creating a decarbonised society with a focus on high-priority projects that offer significant greenhouse gas (GHG) reduction effects. In the first year of this three-year plan, Bandung and Kawasaki will focus on the introduction of high-efficiency air-conditioning systems, LED street lights, and measures to alleviate traffic congestion and improve air quality, all issues that Bandung has studied in the past and that are expected to be implemented in the future. The project will prioritise current issues and examine the path forward for implementing GHG emission reduction projects by utilising the knowledge of Kawasaki City and the technologies and expertise of Japanese companies.



Chile, Indonesia, Malaysia, Maldives, Mongolia, Myanmar, Palau, Philippines, Thailand, Viet Nam

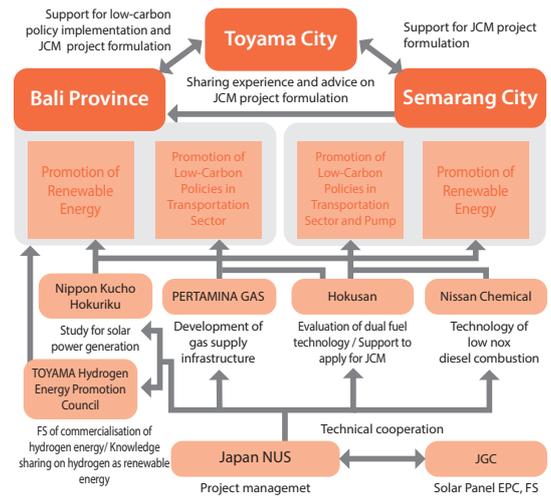


City-to-city Cooperation Project by Toyama City to Realize SDGs FutureCity for Bali Province and Semarang, Central Java Province



Implementation Body | Japan NUS Co., Ltd.
 Partner Entities | Toyama City, Hokusan Co., Ltd., Nippon Kucho Hokuriku Co., Ltd., TOYAMA Hydrogen Energy Promotion Council, Nissan Chemical Corporation

Toyama City is engaged in a variety of pioneering approaches to enhance its value as a SDGs FutureCity, making it possible to share its know-how with Bali and local municipalities. Specific areas include administrative support and shared knowledge based on initiatives in Toyama City, such as the strategy of the Compact City. In addition, the use of JCM model projects is being promoted with the aim to position municipalities in Bali as “tourism cities of the future” utilising the island’s rich tourism resources. In this project, studies are being conducted to develop JCM projects with the knowledge gained from Semarang, which has experience in developing JCM projects. These include the introduction of energy-efficient and renewable-energy equipment as well as decarbonisation by using natural gas and hydrogen. This will be carried out in cooperation with local companies in Toyama city to achieve the creation of tourism future cities in Bali. Studies on the feasibility of developing JCM projects in Semarang City, will also be conducted, such as the promotion of renewable energy facilities and fuel conversion.

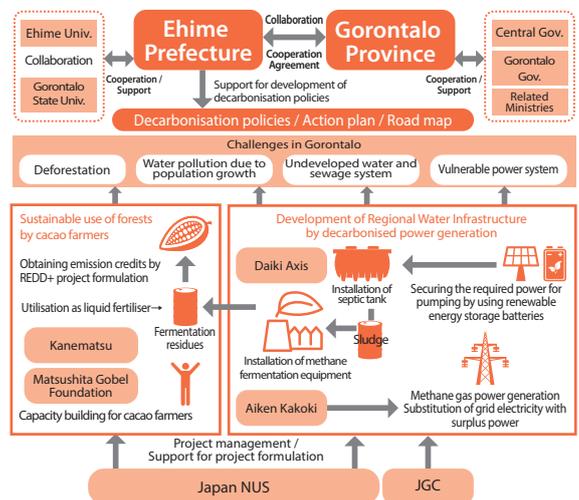


Support Project for the Achievement of SDGs and Developing a Sustainable Decarbonized Society: City-to-City Collaboration between Ehime Prefecture and Gorontalo Province



Implementation Body | Japan NUS Co., Ltd.
 Partner Entities | Ehime Prefecture, Kanematsu Corporation, Daiki Axis Co., Ltd., Aiken Kakoki K.K., Ehime University

Gorontalo Province has called upon Ehime Prefecture for their support in developing solutions to the environmental and social challenges the province is facing based on the formulation of decarbonisation policies. With a long-term goal of becoming carbon neutral by 2050 as defined in its Action Plan for Global Warming Countermeasures formulated in February 2020, Ehime Prefecture has promoted efforts to decarbonise, as well as technical cooperation in introducing pollution control measures, international cooperation at the private sector level, and support for the development of sales channels overseas for local companies in the prefecture. This project will provide support for the formulation of decarbonisation policies and plans for Gorontalo Province and examine the development of local water infrastructure using decarbonised energy and the sustainable use of forests through the cultivation of cacao, in cooperation with Ehime Prefecture and local companies. Policies and systems will also be proposed and developed through this project to facilitate the selection and implementation of JCM candidate model projects, including proposals for future JCM projects.





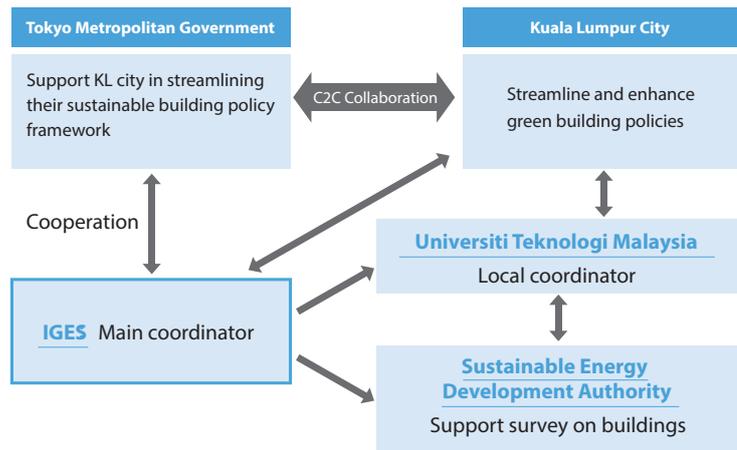
Project Developing a Policy and Implementation Framework for Building Energy Efficiency through City-to-City Collaboration between Kuala Lumpur Government and Tokyo Metropolitan Government



| Implementation Body | Institute for Global Environmental Strategies
 | Partner Entities | Tokyo Metropolitan Government

The Tokyo Metropolitan Government and Kuala Lumpur have built up a relationship as member cities of the “Asian Network of Major Cities 21 (ANMC21)” established in 2001 and as members of the C40 (Cities Climate Leadership Group). Both IGES, the proponent of this project, and the local coordinator, Universiti Teknologi Malaysia (UTM), are organisations that collaborated in the formulation of the “Kuala Lumpur Low Carbon Society Blueprint 2030” in 2018.

This project will help achieve the goals of this blueprint, which aims to reduce CO₂ emissions by 70% based on forecasts of the situation and events to 2030, and transfer the experience and expert knowledge of the Tokyo Metropolitan Government on systems to expand the use of energy-efficient buildings to Kuala Lumpur.



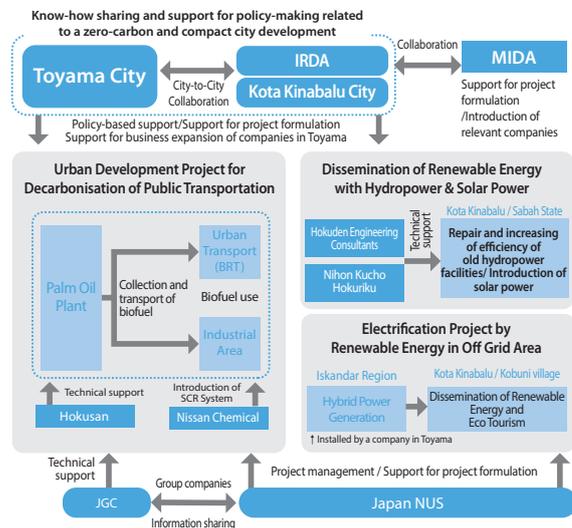
Urban Development Project through Decarbonized Transportation Using Bio-fuel and Zero-Carbon City Development Project through Dissemination of Renewable Energy



| Implementation Body | Japan NUS Co., Ltd.
 | Partner Entities | Toyama City, Hokusan Co., Ltd., Nissan Chemical corporation, Nihon Kucho Hokuriku Ltd., Hokuden Engineering Consultants Co., Ltd.

The Iskandar region has undergone large-scale urban development in recent years, a priority regional development project promoted by the Malaysian government, and is promoting the development of low-carbon and carbon-free systems in order to create eco-friendly public transportation networks. In addition, Kota Kinabalu City, the state capital of Sabah, is engaged in the implementation of environmental tours, awareness raising activities on environmental protection, and research on the development of biofuels as it aims to become one of the most livable cities in Asia.

The project will be promoted with the objective of developing a candidate JCM model project, as the cities share Toyama’s collective knowledge gained over the years on compact city strategies based on public transportation and support urban development shaped by carbon-free public transportation using biofuels from local companies, the spread of renewable energy built upon small-scale hydropower, and electrification of off-grid areas.

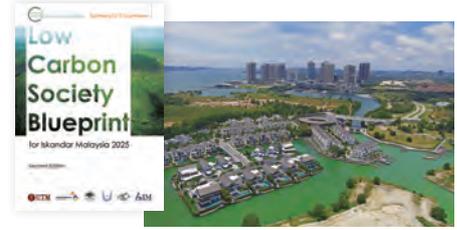


Chile
Indonesia
Malaysia
Maldives
Mongolia
Myanmar
Palau
Philippines
Thailand
Viet Nam



Promotion of Carbon-Free Society in Iskandar Regional Area (Phase 3)

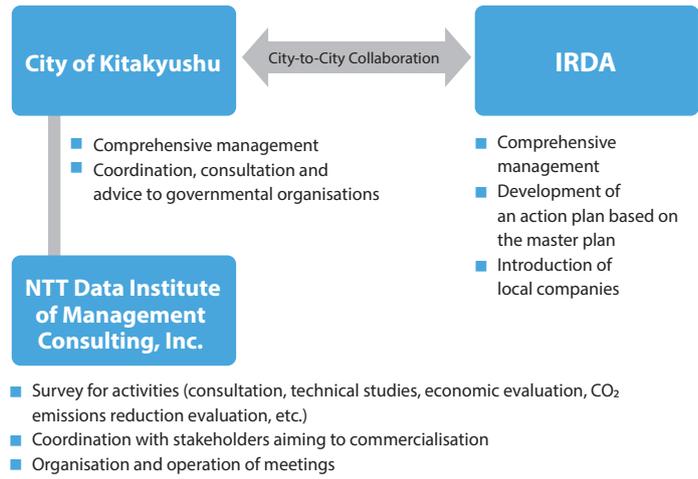
(City of Kitakyushu – Iskandar Regional Development Authority Collaboration Project)



Implementation Body | NTT Data Institute of Management Consulting, Inc.
 Partner Entities | City of Kitakyushu, Nippon Steel Engineering Co., Ltd., IRDA

City of Kitakyushu has a history of implementing city-to-city collaboration projects with the Iskandar Regional Development Agency (IRDA) in Malaysia between fiscal 2015 and 2016. Both cities signed a Letter of Understanding (LOU) in August 2016 based on the results of this collaboration.

In this study, with the aim of promoting decarbonisation in Malaysia and formulating JCM projects, a follow-up survey is being conducted on potential projects that can contribute to simultaneously achievement of industrial symbiosis and industrial park as well as introduction of waste-to-energy, based on the “Low-Carbon Society Blueprint” formulated by IRDA.

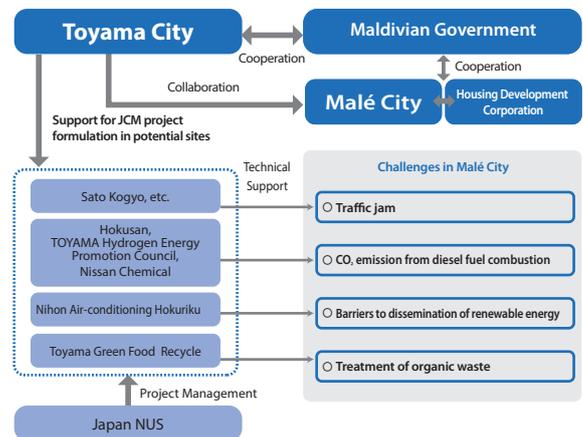


Support Project for Developing a Sustainable Eco-friendly Smart City: City-to-City Collaboration between Toyama City and Male' City



Implementation Body | Japan NUS Co., Ltd.
 Partner Entities | Toyama City, Sato Kogyo Co.,Ltd., Hokusan CO.,LTD., Nihon Air-conditioning Hokuriku Co.,Ltd., TOYAMA Hydrogen Energy Promotion Council, Nissan Chemical Corporation

The Male metropolitan area, where one-third of the population of the Maldives is concentrated, is promoting smart, compact, and environmentally-friendly urban planning and has requested support from Toyama City, a SDGs FutureCity, in the areas of renewable energy, waste treatment and transportation. This project is examining ways to promote the reduction of increasing greenhouse gas emissions from automobiles by introducing Toyama City's compact city policies and optimal low- and zero-carbon transportation systems. In addition, since Male is currently dependent on diesel power for most of its electricity needs, the project will examine how to increase the use of low and zero-carbon energy sources, such as natural gas, hydrogen, and photovoltaic power generation systems, and explore the possibility of introducing methane fermentation gasification of organic waste and its use in generating power, with the aim of contributing to the realisation of sustainable and eco-friendly cities in island regions.





Zero-Carbon Society Development by Promoting Architecture and Renewable Energy Suitable for Cold Regions in Ulaanbaatar City

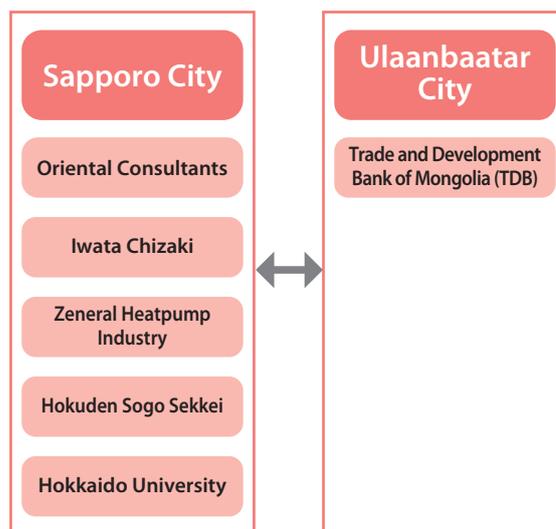


Implementation Body | Oriental Consultants Co., Ltd.

Partner Entities | Sapporo City, Iwata Chizaki Inc., Zeneral Heatpump Industry Co., Ltd., HOKUDEN Integrated Consulting Service Co.,Ltd., Hokkaido University, Trade & Development Bank

The cities of Sapporo and Ulaanbaatar are members of the World Winter Cities Association for Mayor (WWCAM), an international network organised by Sapporo. Both cities have also participated in a city-to-city collaboration project since fiscal 2016.

In this project starting in 2020, Sapporo and Ulaanbaatar will conduct a series of studies and support activities to promote the formation of a carbon-free society in Ulaanbaatar City in Mongolia, which is also a country with a cold climate as well as a JCM member country. These studies and support activities will be carried out by sharing Sapporo's experience and knowledge on the formation of a carbon-free city in a cold climate area. The project aims to help promote energy efficiency and the introduction of renewable energy by showcasing energy-efficient administrative systems in the housing and building sectors in Sapporo and energy-reduction technologies in the housing and building sectors of the private sector, as well as by providing support for capacity building.



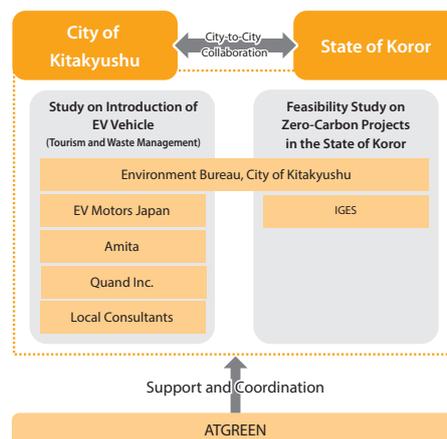
Project to Accelerate Carbon-Free and to Create Co-Benefit through EV Vehicles in State of Koror, Palau (Kitakyushu-Koror Cooperation Project)



Implementation Body | ATGREEN Co., Ltd

Partner Entities | City of Kitakyushu, EV Motors Japan Co., Ltd., Amita Co., Ltd., Quand Inc., Institute for Global Environmental Strategies

Since 2015, City of Kitakyushu has carried out ongoing cooperation for a project formation study on establishing a resource circulation system in Koror, the capital of the Republic of Palau. In this project, a feasibility study will be conducted on a transportation model to control the use of fossil fuels by operating electric vehicles (EVs) using existing (or possibly newly constructed) photovoltaic power generation systems in Koror as one of the measures to solve issues unique to island regions, such as a dependence on imported fossil fuels and unstable power sources. Specifically, the project will (1) consider how to increase the ratio of renewable energies and decarbonise the key tourism industry by promoting the use of EVs for passenger vehicles (sightseeing buses, etc.) and (2) examine a plan to achieve the use of 100% renewable energies, including the promotion of EVs in waste treatment and recycling flows. In addition to examining the possibility of introducing subsidies for JCM model projects for each project, surveys will also be conducted on other decarbonisation needs in Koror and their feasibility. This project aims to share Kitakyushu's strengths in resource recycling, energy creation and utilization, and experience and knowledge of the SDGs with the state, as well as to further strengthen city-to-city collaboration.





Zero-Carbon Development in Quezon City for the Implementation of Climate Change Mitigation Actions



| Implementation Body | Oriental Consultants Co., Ltd.

| Partner Entities | Osaka City, Tokyo Century Corporation, Daikin Airconditioning Philippines, Inc.

The cities of Osaka and Quezon set their partnership in motion in fiscal 2015 through a project sponsored by the Ministry of the Environment of Japan and have been engaged in the city-to-city collaboration programme since 2017. In 2018, Quezon and Osaka signed a memorandum of understanding on cooperation in developing a low-carbon city, and have engaged in policy dialogue on this topic. The MoU will be renewed in 2021 to further enhance and expand cooperation for the development of Quezon as a decarbonised city.

In this project, a study is being carried out on the development of a model project that combines the introduction of a high-efficiency air conditioning system and CFC compliance in Quezon City government buildings. The study will also identify demand for energy-efficient air-conditioning in schools, hospitals and shopping malls and examine appropriate project schemes, including subsidies for JCM model projects. Support is also being provided to Quezon City for expanding its environmental policies and climate change action plan by sharing information on Osaka City's knowledge, experience and legal systems.



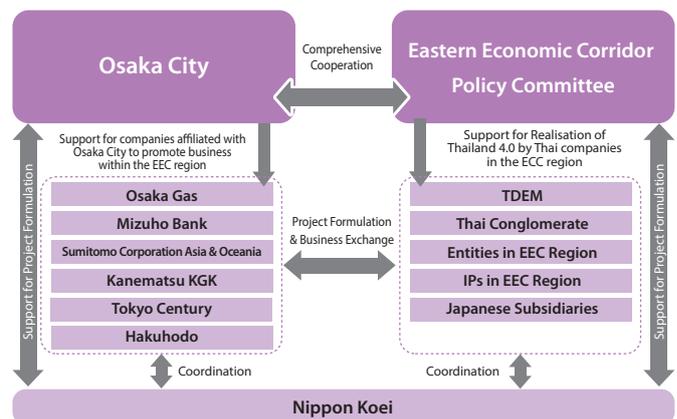
Support for the Realization of Zero-Carbon Society to Achieve Thailand 4.0



| Implementation Body | Nippon Koei Co., Ltd.

| Partner Entities | Osaka City, Osaka Gas Co., Ltd., Mizuho Bank, Ltd., Sumitomo Corporation Asia & Oceania Pte. Ltd., Kanematsu KGK Corp., Tokyo Century Corporation, Hakuodo Incorporated, Toyota Daihatsu Engineering & Manufacturing (TDEM)

The Thai government has positioned the Eastern Economic Corridor (EEC), which is located in the eastern region of Bangkok and encompasses three provinces (Chonburi, Rayong and Chachoengsao), as the core of industrial development in its "Thailand 4.0" policy for industrial development and advancement. The EEC, where large industrial parks are concentrated, contributes about 15% of Thailand's annual GDP. It is expected to expand and promote industrial development, and draws considerable attention to the introduction of advanced and decarbonisation technologies for the realisation of Thailand 4.0. Osaka has engaged in cooperation with the EEC for three years, and signed a memorandum of understanding with them in fiscal 2021 with the aim of strengthening cooperation and establishing a stable relationship to continue supporting the formation of a decarbonised society. This fiscal year, the project will confirm the feasibility of several JCM candidate projects that were identified in the previous year and will investigate the feasibility of biogas mobility projects, fuel cell promotion projects, and EEC Green Plan support projects.





Support for Developing Danang's "Local Climate Change Action Plan (LCCAP)" and Low-Carbon Technology Projects under City-to-City Cooperation between Danang and Yokohama toward Low-Carbon Smart City

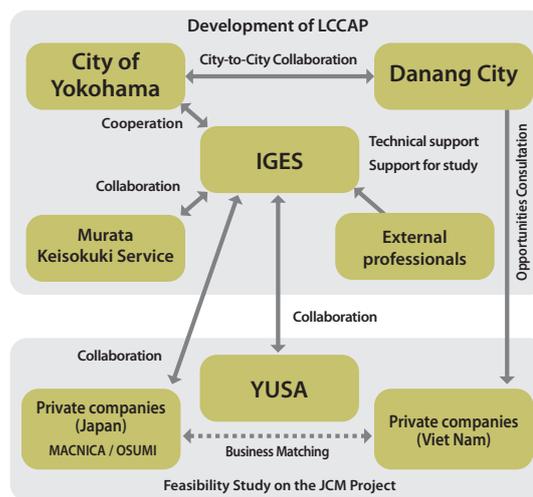


| Implementation Body | Institute for Global Environmental Strategies

| Partner Entities | City of Yokohama, OSUMI Co., Ltd., MACNICA, Inc., MURATA Keisokuki Service Co., Ltd., Yokohama Urban Solution Alliance (YUSA),

City of Yokohama signed a memorandum of understanding on technical cooperation for sustainable urban development with Danang City in 2013 and is providing support to promote sustainable urban development in Danang in collaboration with companies in Yokohama.

In light of the achievements of past city-to-city collaboration projects, this project will focus on two main activities: support for the formulation of a local climate change action plan (LCCAP) in Danang and examining the feasibility of new low-carbon projects. This year, Yokohama will also submit proposals on the formulation of LCCAP and conduct a survey on the applicability of JCM for energy-saving and renewable energy projects in factories and other facilities in Danang.



Promotion of Zero-Emission Technology to Industrial and Public Sectors in Ho Chi Minh City



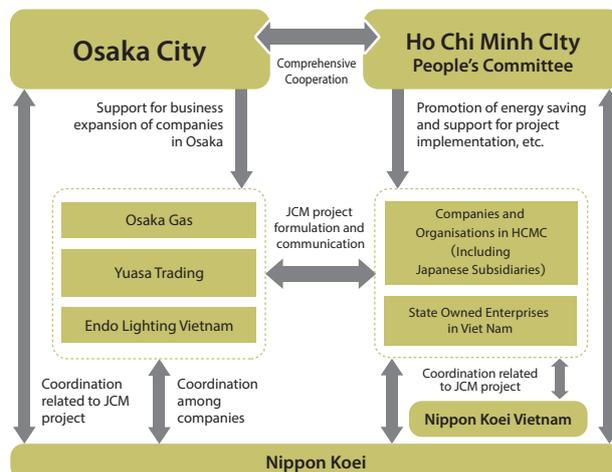
| Implementation Body | Nippon Koei Co., Ltd.

| Partner Entities | Osaka City, Osaka Gas Co. Ltd., YUASA Trading Co., Ltd., ENDO Lighting Vietnam Co., Ltd.

In October 2013, the cities of Osaka and Ho Chi Minh concluded a memorandum of understanding on the development of low-carbon cities in Ho Chi Minh and Osaka, and formulated the "Ho Chi Minh City Climate Change Action Plan 2017-2020 and 2020 Outlook" (CCAP 2017-2020) with support from Osaka City and other stakeholders.

The two cities promote effective and efficient city-to-city collaboration through the organisation of policy dialogues every year to clarify issues and needs in Ho Chi Minh City. The cities updates the MOU this year for further decarbonisation.

Under city-to-city collaboration between these two cities, this project will consider the introduction of energy-efficient and renewable energy technologies, such as high-efficiency LED lighting and gas boilers in the industrial and public sectors in Ho Chi Minh City. The project will also provide support for the implementation of the CCAP 2021-2030 plan and outlook, which was updated in 2021 to achieve zero-emissions in Ho Chi Minh City, with the aim of creating a synergy effects between support for system development and formation of JCM projects.





Project to Promote the Formation of an Autonomous Decarbonized Society through City-to-City Collaboration between Hiroshima Prefecture and Soc Trang Province, Viet Nam

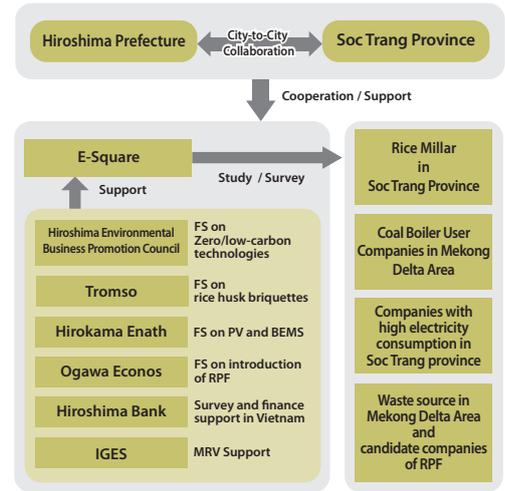


Implementation Body | E-Square Inc.

Partner Entities | Hiroshima Prefecture, Hiroshima Environmental Business Promotion Council, Tromso Co., Ltd., Hirokawa Enath Co., Ltd., Ogawa Econos Inc., Hiroshima Bank, Ltd., Institute for Global Environmental Strategies

Hiroshima Prefecture and Soc Trang Province have been involved in business changes in the environmental field since 2013 through the Japan External Trade Organization's (JETRO) Regional Industry Tie-Up (RIT) programme. In 2017, Hiroshima and Soc Trang signed a memorandum of understanding on cooperation in the field of environmental purification industries with the aim of offering the technologies and services of local companies in Hiroshima Prefecture to address the environmental issues being faced by Soc Trang Province and local companies in the province in a sustainable manner.

In order to support the development of an independent, decarbonised and low-carbon society in Soc Trang Province and neighbouring areas, this project will create a system for the continuous identification and formulation of projects with the establishment of the "Hiroshima-Soc Trang City-to-City Collaboration Council (tentative name)", provide soft support in relation to Hiroshima Prefecture's expertise on projects to introduce renewable energy that will benefit the community, and have studies conducted by companies in Hiroshima Prefecture that have carbon-free and low-carbon technologies.



Promotion of Zero-Carbon Technology to Improve the Environment in Hanoi City

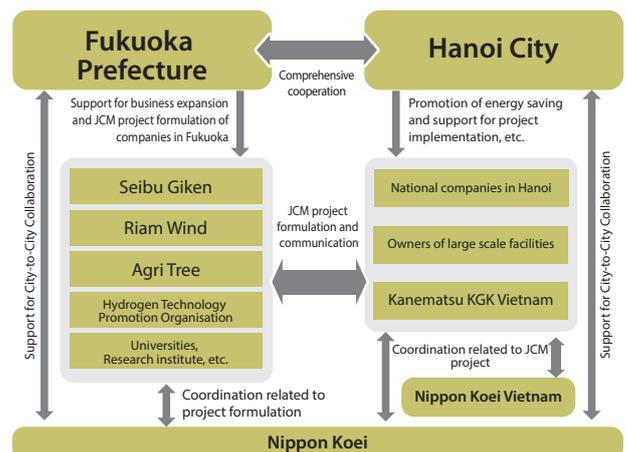


Implementation Body | Nippon Koei Co., Ltd.

Partner Entities | Fukuoka Prefectural Government, Seibu Giken Co., Ltd., Riamwind Corporation, Agritree Co., Ltd., Kanematsu GK Vietnam Co., Ltd.

Fukuoka Prefecture aims to promote the use of zero-carbon technology to support Hanoi City, Vietnam, with which it has a friendship agreement, in identifying solutions to environmental issues. This project will focus on developing human resources and sharing information to promote decarbonization and studying the introduction of advanced technologies on the basis of fundamental policies in both cities, such as environmental measures and the SDGs.

Energy shortages and air pollution are two major issues in Hanoi that have emerged as economic activities have intensified. This project will examine how to commercialise JCM model projects in a wide range of sectors through city-to-city collaboration activities, including the introduction of energy-efficient buildings in factories and commercial facilities, renewable energy in urban and suburban areas (wind power), renewable energy on farmland (solar power and biomass use), and the use of hydrogen technologies, an area in which Fukuoka Prefecture has been working for many years, with the aim of improving the environment and solidifying Hanoi's position as a decarbonised city.





Promotion of Eco-Industrial Parks Toward Carbon Neutrality in Hai Phong City, Viet Nam

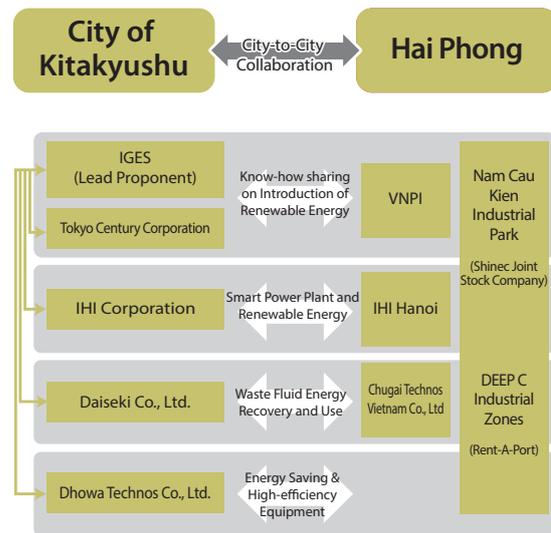


| Implementation Body | Institute for Global Environmental Strategies

| Partner Entities | City of Kitakyushu, IHI Corporation, Daiseki Co., Ltd.,
Dhowa Technos Co., Ltd., Tokyo Century Corporation

This study aims to bring about the creation of zero-emission industrial parks by promoting the development of “eco-industrial parks” that can reduce GHG emissions and encouraging resource recycling through city-to-city collaboration between Hai Phong, the largest port city in northern Vietnam that is under the direct authority of the central government, and Kitakyushu, which has a sister city relationship with Hai Phong.

Specifically, this project will be used to transfer Kitakyushu’s expertise on the introduction of renewable energy, a city that has one of the largest eco-towns in Japan and has since declared itself as a zero-carbon city, in a format that is optimal for industrial parks in Hai Phong. Feasibility studies will also be conducted on (1) smart power plants, (2) the recovery and use of energy from waste liquids, and (3) the introduction of energy-saving and high-efficiency equipment in two industrial parks that are promoting eco-friendly operations in Hai Phong.



Relevant Websites



Web Portal for Low Carbon Development in Asia



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

This portal provides information regarding related policy trends and support systems for achievement of low-carbon development in Asia.



JCM – The Joint Crediting Mechanism



<http://jec.jp/jcm/>

This site introduces JCM Model projects and provides information on call for proposals.



Carbon Markets Express



<https://www.carbon-markets.go.jp/eng/>

This website will introduce JCM and carbon markets in the world, based on the information released by the government of Japan.



The Joint Crediting Mechanism



<https://www.jcm.go.jp/>

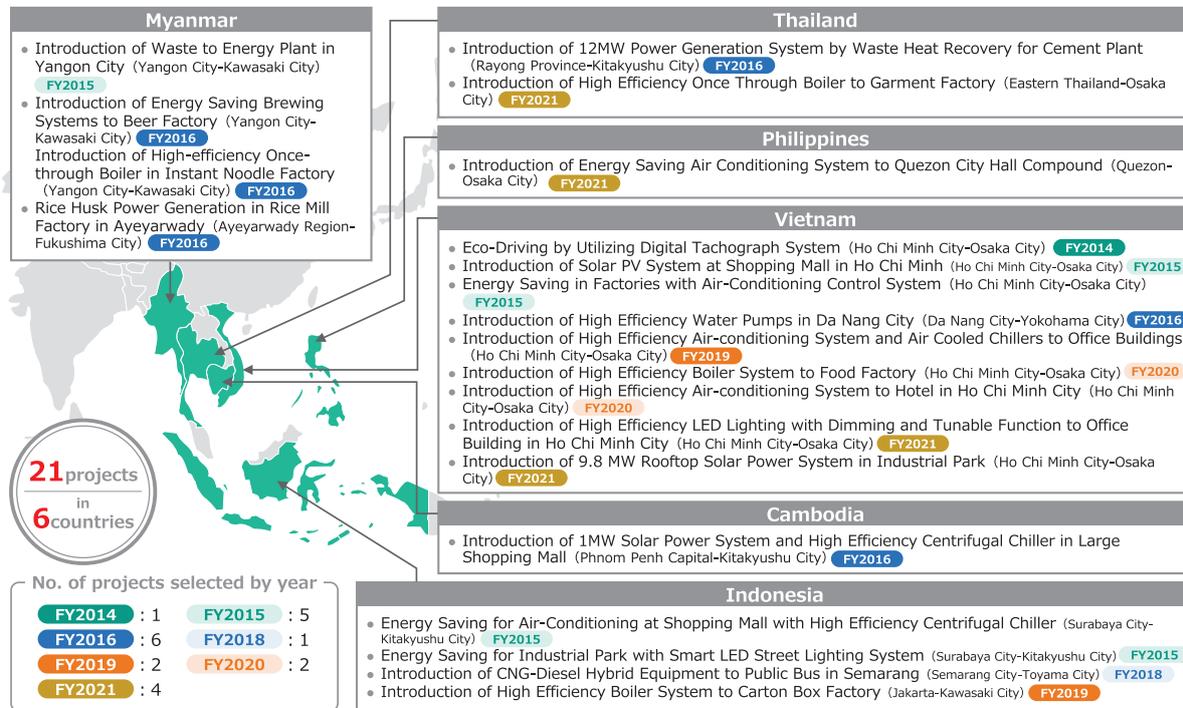
This official platform provides information and updates for the JCM.

Promoting the city-to-city collaboration programme

Performance of the city-to-city collaboration programme

To date, 41 cities and areas from 13 countries and regions in the Asia-Pacific region and South America, and 17 municipalities from Japan have taken part in the City-to-City Collaboration Programme (see pp. 3-4). The region is

making steady progress towards decarbonisation as the network between cities expands, with 21 of the projects implemented through this programme selected as JCM model projects (as of January 2022).



JCM model projects developed from the city-to-city collaboration programme

Online Training and Seminar on the City-to-City Collaboration Programme

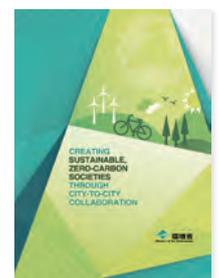
The Ministry of the Environment of Japan organises trainings and other activities as a space for people to learn together about creating a decarbonised society, with the aim of promoting understanding of city-to-city collaboration programme and expand the network. The online training in December 2020 was attended by local government officials, companies, and related organisations from 10 cities in five countries and regions both in Japan and overseas, who shared both their needs on decarbonisation technologies and the seeds they could provide, and gained a greater understanding of zero-carbon societies through dialogue. An online seminar was held in January 2021 introducing relevant policy trends and good practices in Japan and overseas in order to disseminate information to a broader range of stakeholders.



Guidebook "Creating Sustainable, Zero-Carbon Societies through City-to-City Collaboration"

The Ministry of the Environment of Japan has published a guidebook "Creating Sustainable, Zero-Carbon Societies through City-to-City Collaboration" to encourage participation in the programme. The guidebook provides an easy-to-understand overview of the background of the programme, the overall process from open calls for proposals to the completion of projects, and the introduction of case studies and outcomes.

The guidebook can be downloaded from the following website managed by the Ministry of the Environment of Japan.
<https://www.env.go.jp/earth/coop/lowcarbon-asia/english/>



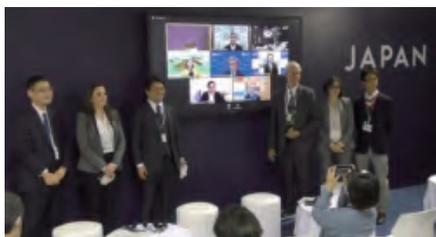
Toward the realisation of zero-carbon cities and expansion of "decarbonisation domino effect"

Zero Carbon City International Forum

In March 2021, the Ministry of the Environment of Japan hosted the Zero Carbon City International Forum in cooperation with the UNFCCC Secretariat. The forum confirmed the importance of city decarbonisation policies that are directly connected to communities and support from central governments and international organisations, and expressed the hope that the momentum created by the forum in promoting actions by cities would continue in discussions in the runup to COP26, and that the "decarbonisation domino effect" would unfold across the globe as leading actions at the city level spread to countries and regions around the world.



COP26 Japan Pavilion Side Event



Speakers at "Leading efforts towards achievement of Zero Carbon City"
(2 November, 2021)



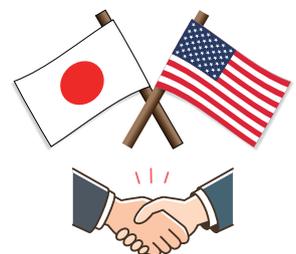
Speakers at "Roles of multi-stakeholders towards subnational decarbonization"
(10 November, 2021)



The Ministry of the Environment of Japan organised two hybrid-style side events at the Japan Pavilion during COP26 together with IGES, the Organisation for Economic Co-operation and Development (OECD), and ICLEI—Local Governments for Sustainability. In addition to the participation of several local government leaders from Japan, including Environment Minister YAMAGUCHI Michael Tsuyoshi, the side events also saw high-level participation from the United States, France, Chile, Malaysia, Indonesia and Vietnam. These events confirmed the effectiveness of promoting action at various levels and collaboration among various stakeholders for the early realisation of a decarbonised society. At the event on 10 November, Minister Yamaguchi announced the launch of the "Global Subnational Zero Carbon Promotion Initiative" by Japan and the United States.

Launch of the "Global Subnational Zero Carbon Promotion Initiative" by Japan and the United States (November 2021)

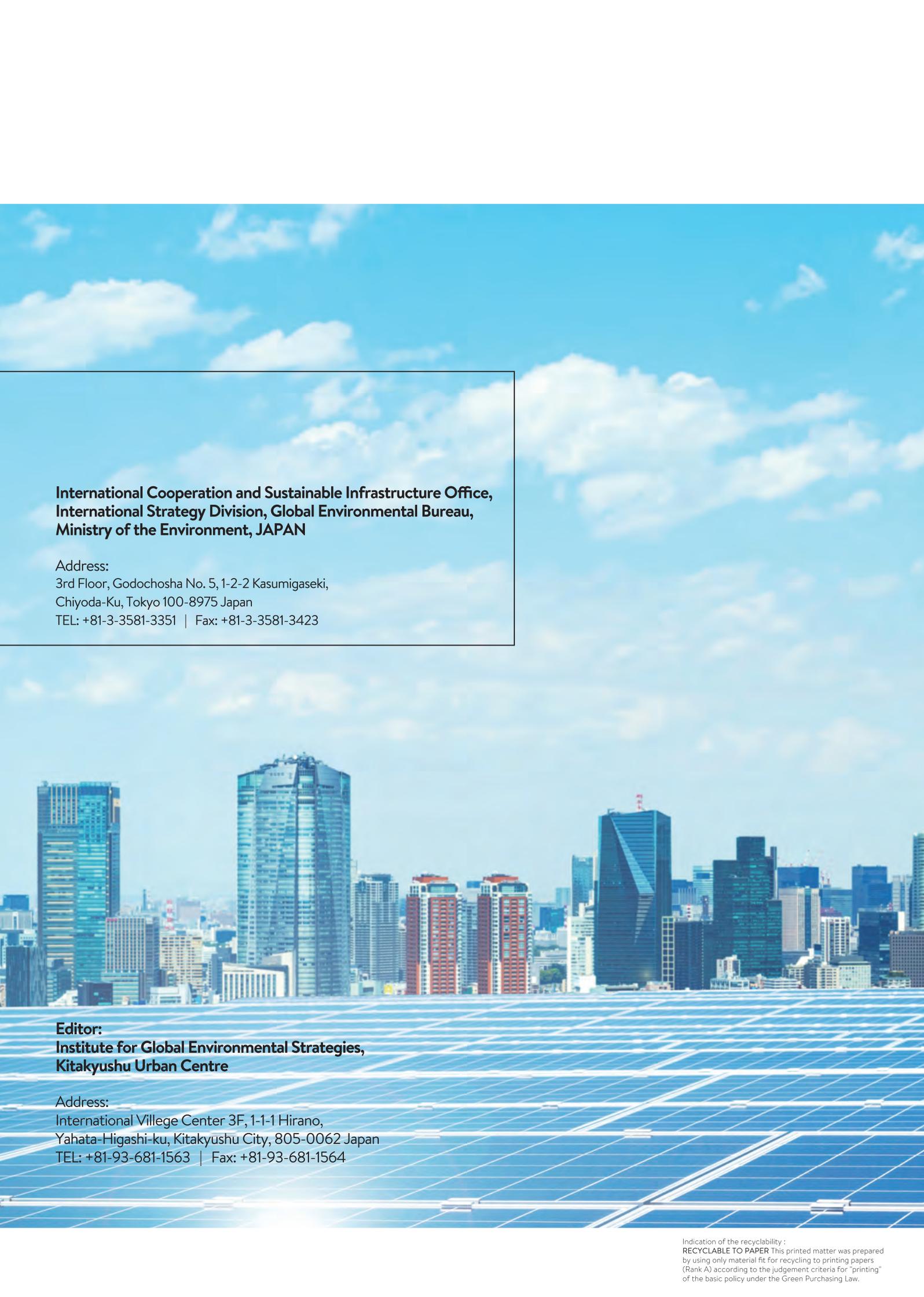
Japan and the United States have agreed to collaborate on accelerating the transition to a decarbonised society in third countries, particularly in the Indo-Pacific, on the basis of the "Japan-U.S. Climate Partnership".* In light of this recognition of the critical importance of action by subnational governments to achieve climate goals, the Ministry of the Environment of Japan and the Office of the Special Presidential Envoy for Climate, United States of America announced the launch of a U.S.-Japan "Global Subnational Zero Carbon Promotion Initiative" at a side event at the COP26 Japan Pavilion on 10 November 2021. Under this initiative, Japan and the United States will collaborate to promote global action to recognise, support and accelerate climate action at the subnational level.



* Japan-U.S. Climate Partnership on Ambition, Decarbonization, and Clean Energy (April 2021)

This partnership was announced at the U.S.-Japan Summit as the first framework for cooperation on climate change between the leaders of these two countries, with a focus on the following three priority areas: (1) Cooperation and dialogue on climate ambition and implementation of

the Paris Agreement, (2) Climate and clean energy technology and innovation, and (3) Cooperation on accelerating the transition to a decarbonised society in third countries, particularly in the Indo-Pacific.



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