

FY2022

City-to-City Collaboration for Zero Carbon Society

City-to-City Collaboration for Zero-Carbon Society

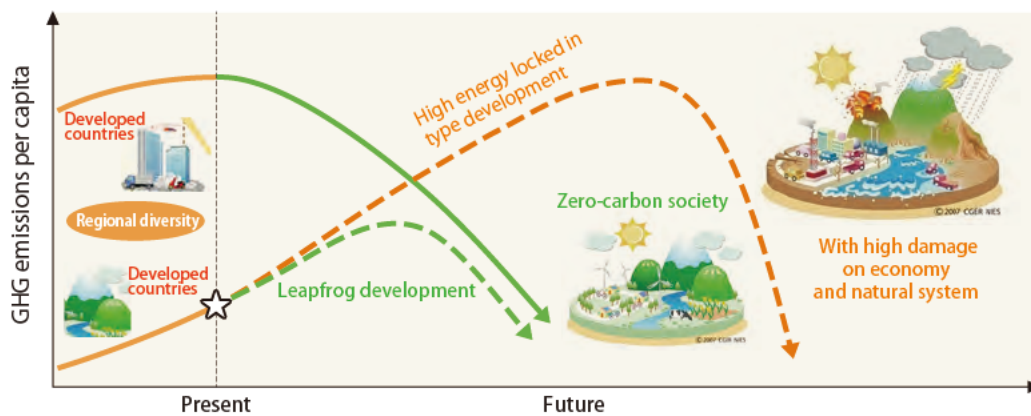
Programme Background

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

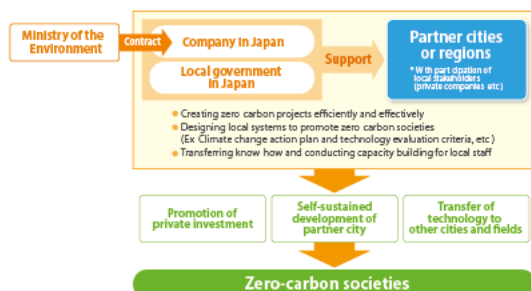
Note: The figure was created based on a figure from the National Institute for Environmental Studies (<https://2050.nies.go.jp/index.html>)

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

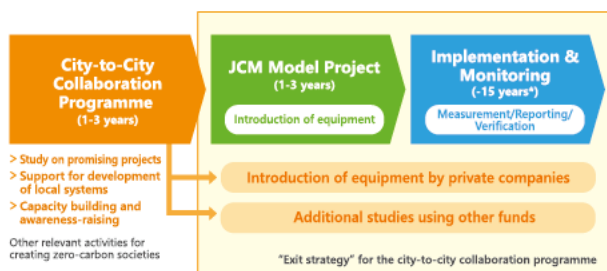


Image of activities under the city-to-city collaboration programme and exit strategies

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 25 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, Senegal, Tunisia, Azerbaijan, Moldova, Georgia, Sri Lanka, Uzbekistan, Papua New Guinea.



JCM outline figure

Source: Global Environment Centre Foundation "Introduction of the Joint Crediting Mechanism (JCM) & Financing Programme for JCM Model Projects" (Oct. 2022)
http://carbon-markets.env.go.jp/wp-content/uploads/2022/11/JCM2022Oct_Web_ENG.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

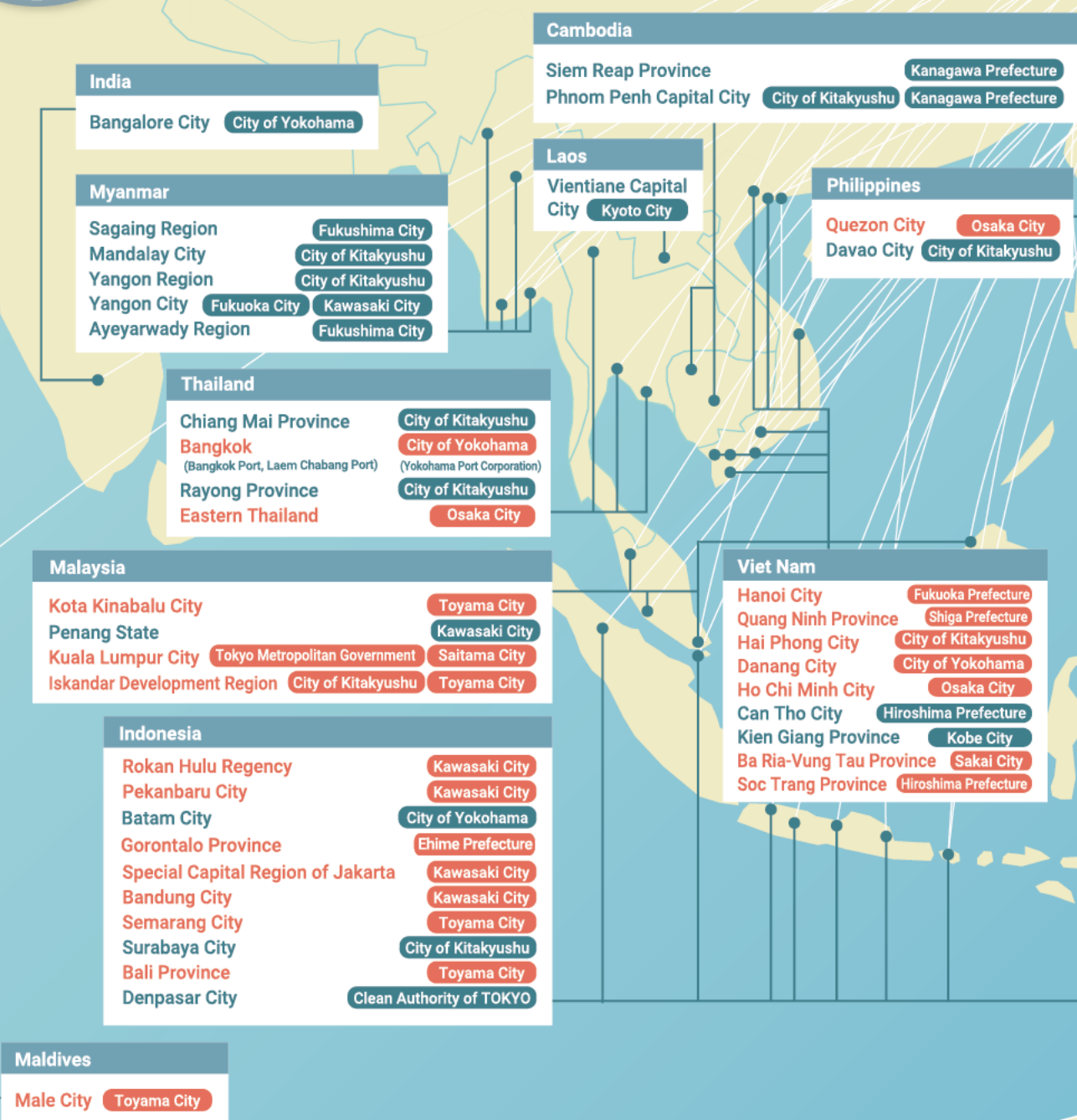
that directly contribute to reducing CO₂ emissions from energy sources, as well as costs for equipment, and primary and incidental construction. As of December 2022, 223 projects have been adopted in 22 countries and regions, which are expected to reduce CO₂ emissions by approximately 2.4 million tonnes 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 (FY2013–2022)

Participating countries and cities

To date, **45** cities and area from **13** countries in the world
and **20** 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 FY2022 Programme.



(As of September 2022)

List of City-to-City Collaboration for Zero-Carbon Society in FY2022

Renca, Santiago, Chile - Toyama City

01	Project to Promote SDGs Future City with Renca, Santiago	Implementation Body Nippon Koei Co., Ltd.
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Pekanbaru, Indonesia – Kawasaki City

02	Project to Promote 2050 Zero-Carbon City in Riau Province Region through Cooperation with Pekanbaru City	Implementation Body Nippon Koei Co., Ltd.
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Gorontalo Province, Indonesia – Ehime Prefecture

03	Support Project for the Achievement of SDGs and Developing a Sustainable Decarbonised Society	Implementation Body Japan NUS Co., Ltd.
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Bandung City, Indonesia – Kawasaki City

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

05	Hydrogen Society Development Project for Realising a Decarbonisation Society under City-to-City Collaboration between Toyama City and Bali Province	Implementation Body Japan NUS Co., Ltd.
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Johor Iskandar Development Area and Kota Kinabalu City, Malaysia - Toyama City

06	Zero-Carbon City Development Project through Decarbonised Transportation and Renewable Energy	Implementation Body Japan NUS Co., Ltd.
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Kuala Lumpur, Malaysia - Tokyo Metropolitan Government and Saitama City

07	Developing an Institutional Framework towards Kuala Lumpur Zero-Carbon City and Neighbourhood in Collaboration with Tokyo Metropolitan Government and Saitama City	Implementation Body Institute for Global Environmental Strategies
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Iskandar Development Region, Malaysia – City of Kitakyushu

08	Carbon-Free Model Area Development Project (Phase 1)	Implementation Body NTT Data Institute of Management Consulting, Inc.
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Malé City, Maldives - Toyama City

09	Support Project for Developing a Sustainable Eco-Friendly Smart City: City-to-City Collaboration between Toyama City and Malé City	Implementation Body Japan NUS Co., Ltd.
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Ulaanbaatar City, Mongolia - Sapporo City

10	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 Airai, Palau - Urasoe City

11	Support Project for Developing a Sustainable Eco-Friendly Smart City: City-to-City Collaboration between Urasoe City and Airai State	Implementation Body Japan NUS Co., Ltd.
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State of Koror, Palau - City of Kitakyushu

12	Support Project for the Introduction of Technology and Establishment of Measures to Promote for Carbon-Free Society and Co-Benefits in State of Koror	Implementation Body ATGREEN Co., Ltd.
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Quezon City, Philippines – Osaka City

13	Zero-Carbon Development in Quezon City for the Realisation of Carbon Neutral Society	Implementation Body Oriental Consultants Co., Ltd.
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Bangkok, Thailand - City of Yokohama

14	Realising Carbon Neutral under the Bangkok Master Plan on Climate Change –Promoting Mitigation Policy and Projects through the Public-Private Partnership Platform-	Implementation Body Overseas Environmental Cooperation Center
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Eastern Thailand (Eastern Economic Corridor), Thailand – Osaka City

15	Support for Designing Decarbonisation Society with BCG Economy	Implementation Body Nippon Koei Co., Ltd.
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Hanoi City, Viet Nam - Fukuoka Prefecture

16	Promotion of Zero-Carbon Technology to Improve the Environment in Hanoi City	Implementation Body Nippon Koei Co., Ltd.
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Quang Ninh Province, Viet Nam - Shiga Prefecture

17	Project to Support the Achievement of Green Growth and Realisation of Decarbonised Society through City-to-City Collaboration between Quang Ninh Province and Shiga Prefecture	Implementation Body KANSO TECHNOS CO., LTD.
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Hai Phong City, Viet Nam - City of Kitakyushu

18	Promotion of Eco-Industrial Parks toward Carbon Neutrality in Hai Phong City, Vietnam	Implementation Body Institute for Global Environmental Strategies
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Danang City, Viet Nam - City of Yokohama

19	Support for Developing Low-Carbon Technology Projects under City-to-City Collaboration between Danang and Yokohama toward Sustainable and Zero-Carbon Society	Implementation Body Institute for Global Environmental Strategies
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Ho Chi Minh City, Viet Nam – Osaka City

20	Promotion of Carbon Neutrality Based on Climate Change Policies in Ho Chi Minh City and Thu Duc City	Implementation Body Nippon Koei Co., Ltd.
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Ba Ria-Vung Tau Province, Viet Nam - Sakai City

21	Promotion of Zero-Carbon Smart City through City-to-City Collaboration between Ba Ria-Vung Tau Province and Sakai City	Implementation Body Nippon Koei Co., Ltd.
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Soc Trang Province, Viet Nam - Hiroshima Prefecture

22	Project to Promote the Formation of an Autonomous Decarbonised Society through City-to-City Collaboration between Hiroshima Prefecture and Soc Trang Province, Viet Nam	Implementation Body E-Square Inc.
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Relevant Websites



Web Portal for Zero 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 zero-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.



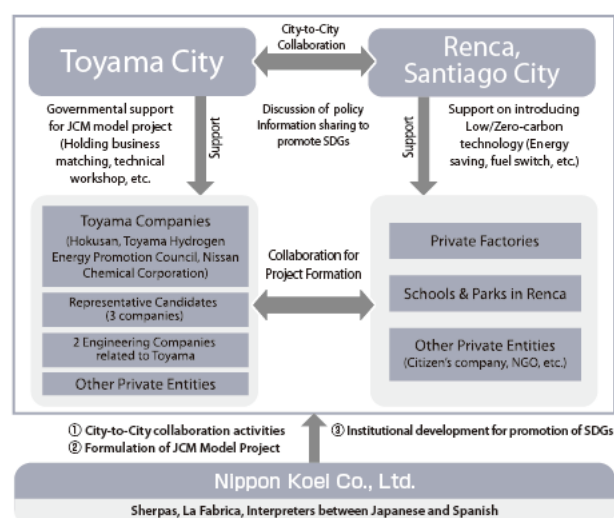
Project to Promote SDGs Future City with Renca, Santiago

| Implementation Body | Nippon Koei Co., Ltd.

| Partner Entities | Toyama City, Hokusan Co., Ltd.,
Toyama Hydrogen Energy Promotion Council, Nissan Chemical Corporation



Toyama City and Renca district, located in Chile's capital city of Santiago, have engaged in extended discussions at international conferences and in other forums since 2019. Using Toyama's knowledge and expertise in formulating SDGs Future City plans and energy visions, this project aims to be instrumental in addressing the challenges Renca faces from environmental, social and economic perspectives and reinforce city-to-city collaboration. Renca is enthusiastically working to decarbonise, with the mayor speaking at a side event organised by Japan's Ministry of the Environment at COP26 and joining Race to Zero in 2021. The two cities are continuing to cooperate on the introduction of renewable energy in Cerro Renca, local health centres and other facilities, and in efforts to decarbonise transportation and logistics in the community, as well as factories, by utilising the JCM Model Project scheme and other programmes.



Project to Promote 2050 Zero-Carbon City in Riau Province Region through Cooperation with Pekanbaru City

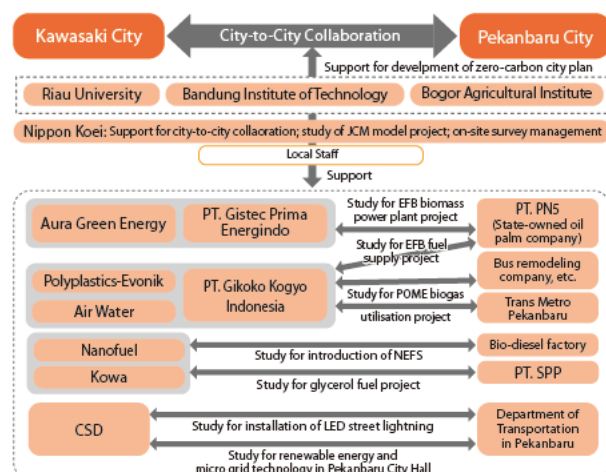
| Implementation Body | Nippon Koei Co., Ltd.

| Partner Entities | Kawasaki City, Aura Green Energy Co., Ltd., PT. Gistec Prima Energiindo, Polyplastics-Evonik Corporation, AIR WATER INC., PT. Gikoko Kogyo Indonesia, Nanofuel Co., Ltd., Kowa Company, Ltd., CSD Co., Ltd.



The Mayor of Kawasaki City declared the city's commitment to becoming a zero-carbon city on 17 February 2020, formulating the "Kawasaki Carbon Zero Challenge 2050" in November of the same year.

This project aims to sustain the realisation of the decarbonisation domino effect in Riau Province, with the inception of support for the formulation of a 2050 Zero-Carbon City Roadmap for Pekanbaru City, fortified by city-to-city collaboration between Kawasaki and Pekanbaru. The project also aims to introduce renewable and efficient energy and IoT technologies when promoting decarbonisation, especially in urban areas and industrial parks, to achieve the creation of an environmentally friendly economy and society that utilizes waste and by-products from the region's core palm sector, in collaboration with companies that focus on the environment and human rights.





Support Project for the Achievement of SDGs and Developing a Sustainable Decarbonised Society

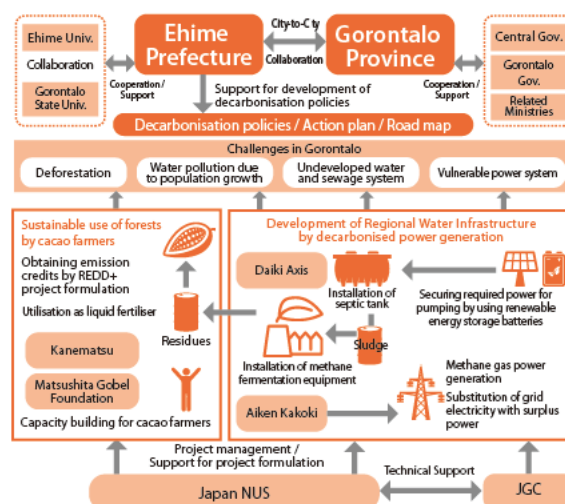
| Implementation Body | Japan NUS Co., Ltd.

| 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.



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

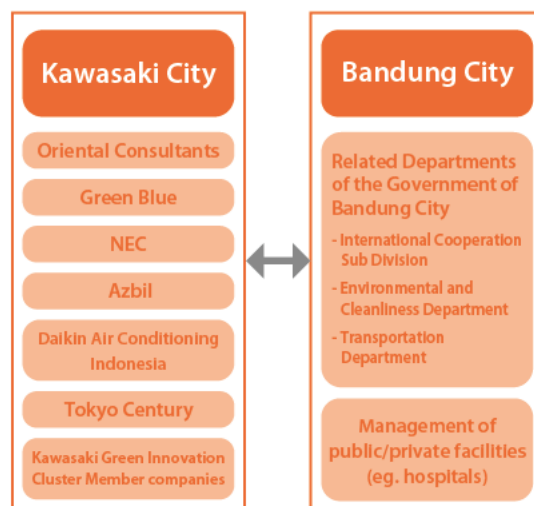
| Implementation Body | Oriental Consultants Co., Ltd.

| Partner Entities | Kawasaki City, Green Blue Corporation, Azbil Corporation, NEC Corporation, Daikin Air Conditioning Indonesia, Tokyo Century Corporation



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.

Launched in fiscal 2021, the project includes studies on the introduction of high-efficiency air conditioning equipment, installation of LED street lights, and options for easing traffic congestion and improving air quality monitoring, as well as studies focusing on the feasibility of commercialisation. Support is also provided in efforts to share Kawasaki's knowledge on measures and initiatives to realise a decarbonised society and through the application of technologies and know-how from Japanese companies.





Hydrogen Society Development Project for Realising Decarbonisation Society under City-to-City Collaboration between Toyama City and Bali Province

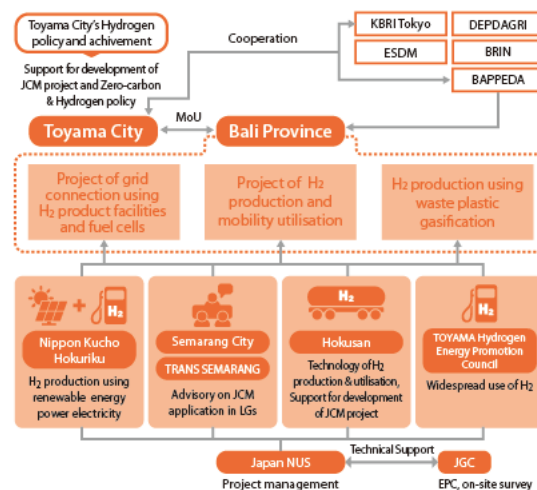
Implementation Body | Japan NUS Co., Ltd.

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



As an SDGs Future City, Toyama is promoting a wide range of pioneering approaches to enhance the city's value, which has led to its declaration as a zero-carbon city. With Toyama's long-standing collaborative relationship with Bali Province, this project will utilise the JCM Model Project scheme to decarbonise the province, focusing on government-based support and knowledge sharing with reference to Toyama's compact city strategy and decarbonisation efforts.

This project will include studies on the development of JCM Model Projects for energy storage and utilisation with hydrogen, as well as low-carbon and decarbonisation through the spread of fuel cell and electric vehicles in the transportation sector, in cooperation with companies in Toyama City, with a view to enhancing the promotion and utilisation of solar power, an area that Bali aims to expand. The project will also investigate the potential for deploying Toyama's knowledge and technologies in resource recycling and energy use as Bali faces challenges with the disposal of plastic waste.



Zero-Carbon City Development Project through Decarbonised Transportation and Renewable Energy

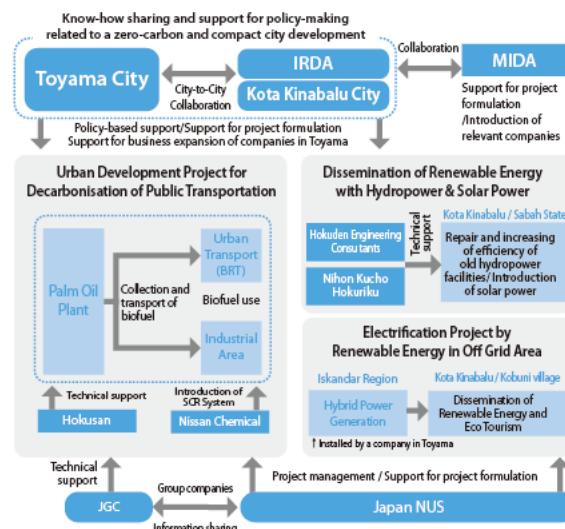
Implementation Body | Japan NUS Co., Ltd.

Partner Entities | Toyama City, Hokusan Co., Ltd., Nihon Kucho Hokuriku Ltd., Hokuden Engineering Consultants Co., Ltd., Toyama University of International Studies



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.



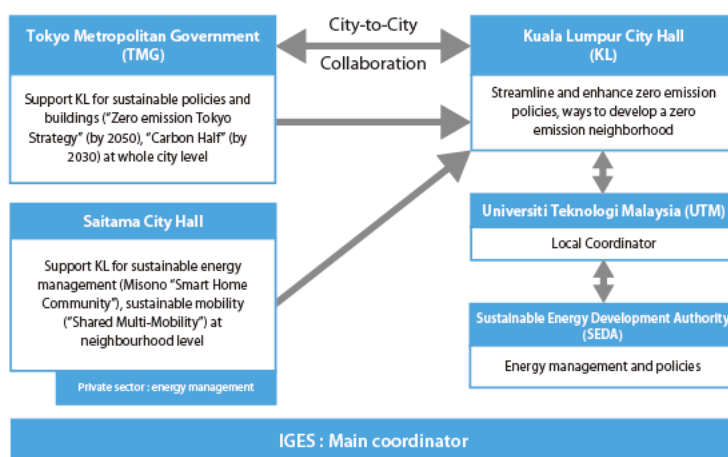


Developing an Institutional Framework towards Kuala Lumpur Zero-Carbon City and Neighbourhood in Collaboration with Tokyo Metropolitan Government and Saitama City

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

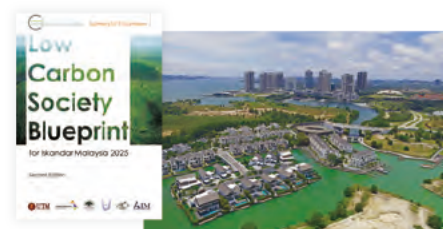


The Tokyo Metropolitan Government (TMG) and Kuala Lumpur City collaborated on transferring TMG's expertise on systems to encourage environmental perspectives in buildings in Kuala Lumpur over a period of three years from fiscal 2018 to 2021 (Phase 1). During that project period, Kuala Lumpur announced a citywide zero-carbon declaration, designating one district in the city as the "Wangsa Maju Carbon Neutral Growth Centre" with the aim of creating a carbon neutral area. In Phase 2 of this project, TMG will continue to support the citywide carbon neutral development of Kuala Lumpur and the creation and operation of systems to expand the use of energy savings (renewable energy) in buildings. Support will also be provided for the development of carbon-neutral areas by sharing the know-how and expertise of Saitama City and private companies, which employ a leading approach in Japan to developing zero-carbon districts in the Misono area.



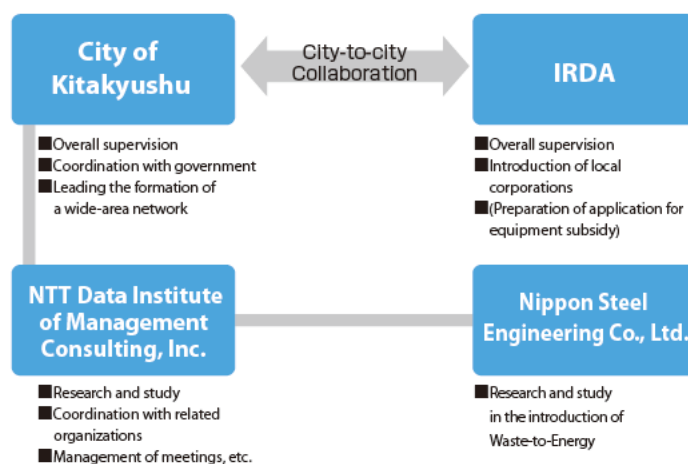
Carbon-Free Model Area Development Project (Phase 1)

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.

Aiming to promote decarbonisation in Malaysia and develop JCM Model Projects that will be instrumental in promoting decarbonisation, this project will focus on conducting studies on projects that will play a role in the development of inter-industrial linkages in industrial parks and the introduction of solar power in commercial facilities in the Iskandar region, as well as on waste-to-energy projects, in partnership between IRDA and Kitakyushu.





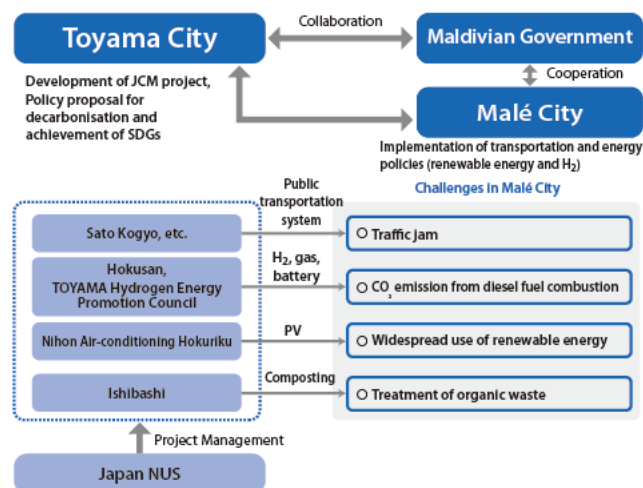
Support Project for Developing a Sustainable Eco-Friendly Smart City: City-to-City Collaboration between Toyama City and Malé City



| Implementation Body | Japan NUS Co., Ltd.

| Partner Entities | Toyama City, Sato Kogyo Co.,Ltd., Hokusan CO.,LTD., Nihon Air-conditioning Hokuriku Co.,Ltd.

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

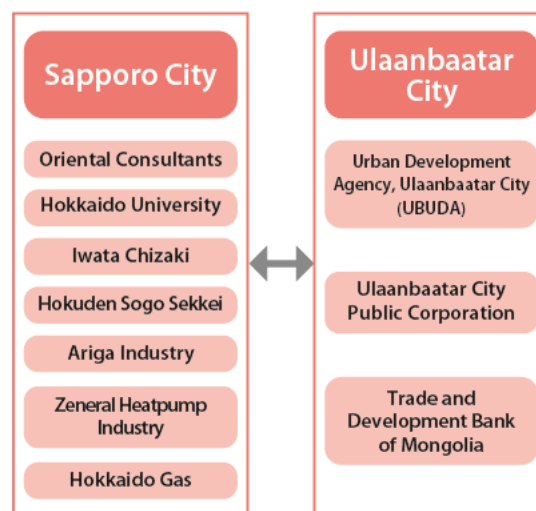


| Implementation Body | Oriental Consultants Co., Ltd.

| Partner Entities | Sapporo City, Hokkaido University, Iwata Chizaki Inc., HOKUDEN SOGO SEKKEI Corporation, Ariga Industry Co., Ltd., Zeneral Heatpump Industry Co., Ltd., Hokkaido Gas Co., Ltd., 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.





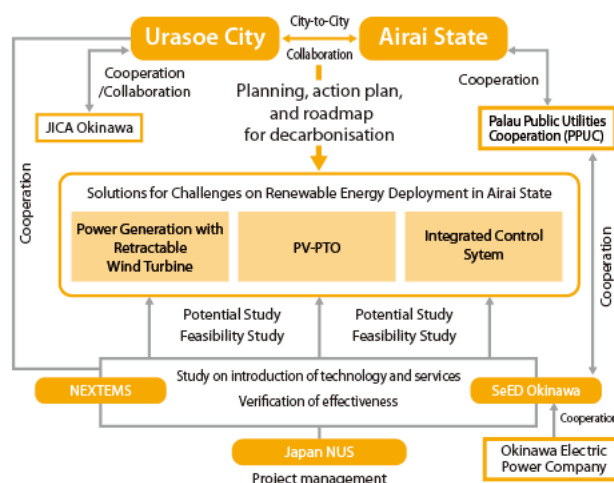
Support Project for Developing a Sustainable Eco-Friendly Smart City: City-to-City Collaboration between Urasoe City and Airai State

| Implementation Body | Japan NUS Co., Ltd.

| Partner Entities | Urasoe City, SeED Okinawa LLC, NEXTEMS



With most electricity in the State of Airai generated by diesel power, the introduction and spread of renewable energy must be accelerated to ensure that the Republic of Palau can meet its emission reduction targets. This project will focus on promoting studies on novel initiatives, such as the free installation of photovoltaic systems, as well as the introduction of retractable wind power technologies, an area of significant interest to the Palau government. An increasing number of public and commercial facilities in the State of Airai also holds potential for energy services and hydrogen production through the application of high-efficiency heat source equipment. The project aims to achieve efficient energy operation through the comprehensive management and use of energy generation systems that utilise this wide range of resources, in order to play a role in the realisation of sustainable, environmentally friendly cities in island regions.



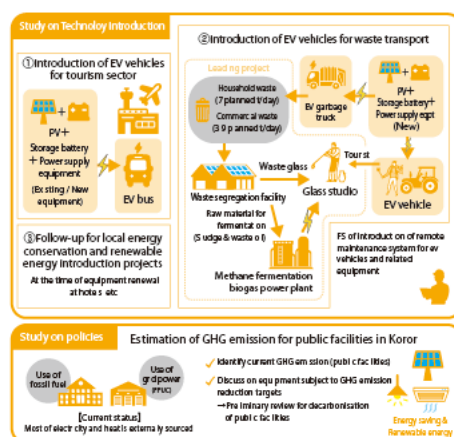
Support Project for the Introduction of Technology and Establishment of Measures to Promote for Carbon-Free Society and Co-Benefits in State of Koror

| Implementation Body | ATGREEN Co., Ltd

| Partner Entities | City of Kitakyushu, EV Motors Japan Co., Ltd., Amita Co., Ltd., Quand Inc.



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 tourism industry and public transportation sector by promoting the use of EV 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. The project will also examine renewable energy and energy savings and present the potential for reductions based on estimates of GHG emissions from energy use in government buildings. The outcomes from this study will be used to help Koror consider ways to decarbonise in the future.





Zero-Carbon Development in Quezon City for the Realisation of Carbon Neutral Society

| Implementation Body | Oriental Consultants Co., Ltd.

| Partner Entities | Osaka City, Azbil Corporation, ENDO Lighting Corporation, PUES Corporation, Green Blue Corporation, Tokyo Century Corporation, NEC Corporation



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.

With support from Japanese companies, this project will examine current conditions and issues in Quezon and utilise the knowledge from Osaka to consider a path forward in implementing GHG emission reduction projects, under the themes of promoting energy management and the creation of smart buildings and employing traffic flow measures to improve air quality.



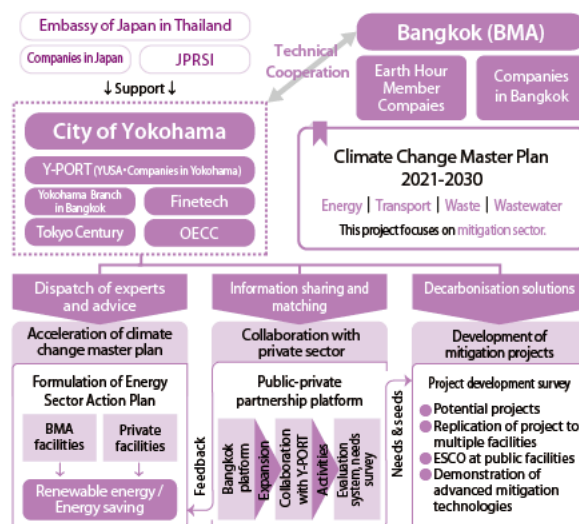
Realising Carbon Neutral under the Bangkok Master Plan on Climate Change –Promoting Mitigation Policy and Projects through the Public-Private Partnership Platform-

| Implementation Body | Overseas Environmental Cooperation Center (OECC)

| Partner Entities | City of Yokohama, Yokohama Urban Solution Alliance, Finetech Co., Ltd., Tokyo Century Corporation



Bangkok, the capital city of Thailand, has a major role to play in helping the nation achieve its carbon neutrality targets for 2050, with Bangkok employing a long-term vision of net-zero emissions by 2050 in its commitment to climate change action. Building on the foundations of the cooperative relationship between Yokohama City and Bangkok, this project will promote the implementation of the Bangkok Master Plan on Climate Change and strengthen and leverage public-private partnerships to engage private companies while also providing support from a policy perspective. The project will focus on the following key activities: (1) collaboration and partnerships with the private sector, (2) accelerated implementation of Bangkok's Master Plan on Climate Change, and the (3) formation and implementation of mitigation projects.





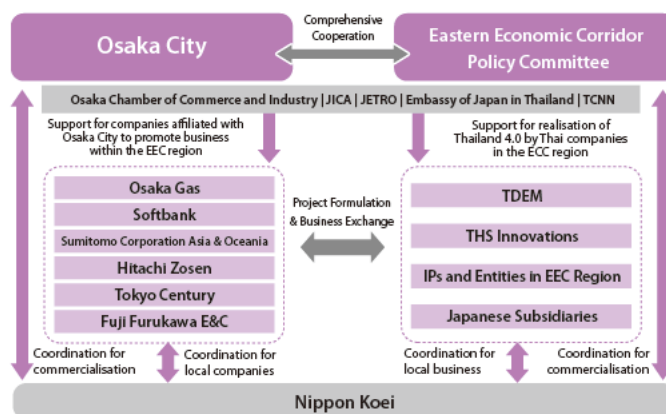
Support for Designing Decarbonisation Society with BCG Economy

| Implementation Body | Nippon Koei Co., Ltd.

| Partner Entities | Osaka City, Osaka Gas Co., Ltd., Sumitomo Corporation Asia & Oceania Pte. Ltd., SoftBank Corp., Hitachi Zosen Corporation, Tokyo Century Corporation, Fuji Furukawa Engineering & Construction Co.Ltd., Toyota Daihatsu Engineering & Manufacturing (TDEM), THS Innovation Co.,Ltd.



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 four 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 project will confirm the feasibility of JCM candidate projects identified in the lead up to the last fiscal year and examine the potential of developing ESCO projects in buildings and waste-to-energy projects using IoT.



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

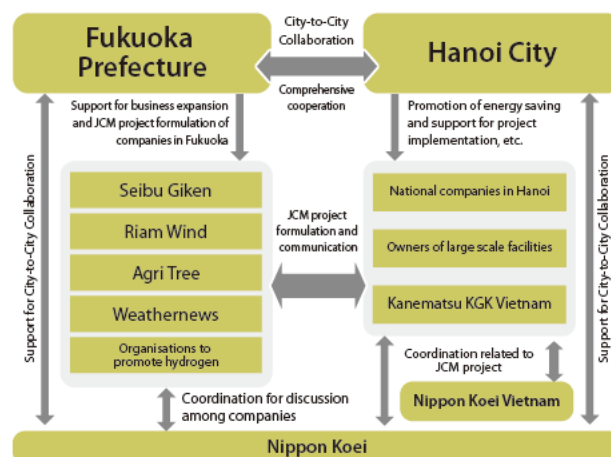
| Implementation Body | Nippon Koei Co., Ltd.

| Partner Entities | Fukuoka Prefectural Government, Seibu Giken Co., Ltd., Riamwind Corporation, Agritree Co., Ltd., Kanematsu KGK VIETNAM Co., Ltd., Weathernews Inc.



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.



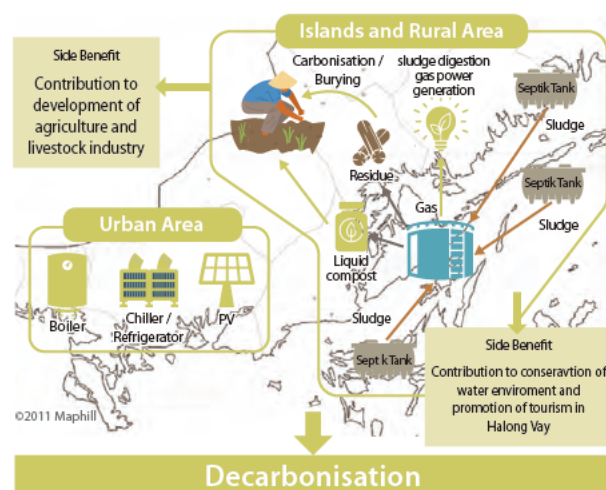


Project to Support the Achievement of Green Growth and Realisation of Decarbonised Society through City-to-City Collaboration between Quang Ninh Province and Shiga Prefecture

Implementation Body | KANSO TECHNOS CO., LTD.

Partner Entities | Shiga Prefecture, Hiyoshi Corporation, The Kansai Electric Power Company, Incorporated, Kawasaki Thermal Engineering Co., Ltd., EN2+ Corporation, Kansai Energy Solutions (Vietnam) Co., Ltd.

This project aims to continue and strengthen support and cooperation for the implementation of Quang Ninh Province's strategy for green growth from the perspective of decarbonisation, based on a "Memorandum of Understanding for Mutual Cooperation in the Environment and Economy" signed by Shiga Prefecture and Quang Ninh Province. This project will provide support for a wide range of initiatives and needs being considered by Quang Ninh in its decarbonisation efforts on the basis of the knowledge and experience gained through Shiga's initiatives to achieve a CO₂ net-zero society and protect the water environment. Companies and organisations in Shiga will implement model decarbonisation projects in Quang Ninh's tourism industry and major industrial centres with the aim of creating a ripple effect within the province.



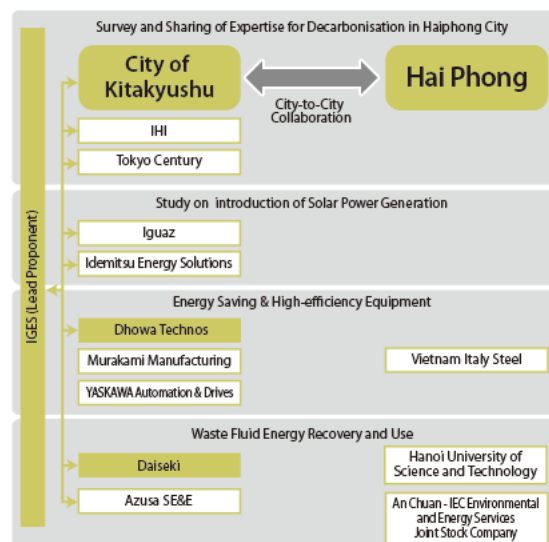
Promotion of Eco-Industrial Parks toward Carbon Neutrality in Hai Phong City, Vietnam

Implementation Body | Institute for Global Environmental Strategies

Partner Entities | City of Kitakyushu, Department of Foreign Affairs of Hai Phong City, Daiseki Co., Ltd., Dhowa Technos Co., Ltd.

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, one of the centrally-controlled city and the largest port city in northern Vietnam, and Kitakyushu, which has a sister city relationship with Hai Phong.

Specifically, the project will examine the feasibility of (1) introducing solar power, (2) using waste liquids and solid waste at cement plants, and (3) introducing energy-saving and high-efficiency equipment/facilities in factories by leveraging the excellent environmental technologies of participating companies, in addition to (4) sharing know-how on ways to decarbonise Hai Phong in cooperation with Kitakyushu, the location of one of the largest eco-towns in Japan that has asserted itself as a zero-carbon city.





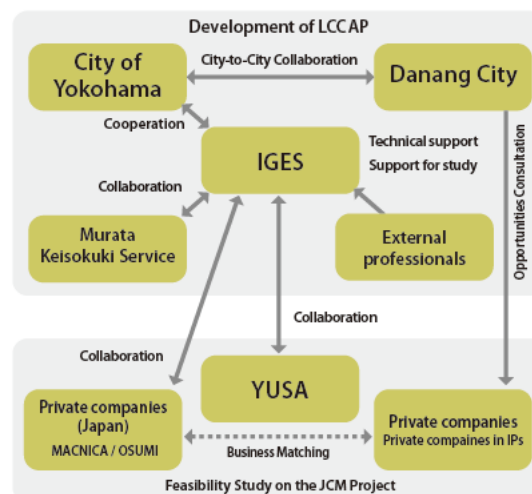
Support for Developing Low-Carbon Technology Projects under City-to-City Collaboration between Danang and Yokohama toward Sustainable and Zero-Carbon Society



| 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: supporting the development of systems to create a decarbonised society in Danang and examining the feasibility of new low-carbon projects. This fiscal year, recommendations will be presented on measures to promote decarbonisation in Danang, with studies conducted on the potential for applying the JCM for renewable energy projects in factories and the creation of a framework to promote technological exchange between companies in Yokohama and Danang.



Promotion of Carbon Neutrality Based on Climate Change Policies in Ho Chi Minh City and Thu Duc City



| Implementation Body | Nippon Koei Co., Ltd.

| Partner Entities | Osaka City, Osaka Gas Co. Ltd., YUASA Trading Co., Ltd., Sumitomo Mitsui Trust Panasonic Finance Co., Ltd., ENDO Lighting Vietnam Co., Ltd., Toyota Daihatsu Engineering & Manufacturing 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, with support from Osaka and other stakeholders for the implementation of the Climate Change Action Plan (CCAP) 2021-2030, which is being formulated by the cities of Ho Chi Minh and Thu Duc. 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 update the MOU this year for further decarbonisation. Under city-to-city collaboration, this project aims to promote the application of “high-efficiency air conditioning, boilers and LED lighting (energy savings)” and “photovoltaic power projects (renewable energy)” to other sectors by making use of the outcomes of JCM projects by participating companies, to formulate projects in the new fields of “transportation infrastructure” and “CFC recovery and destruction”, and to utilize the “JCM Eco-Lease” scheme.





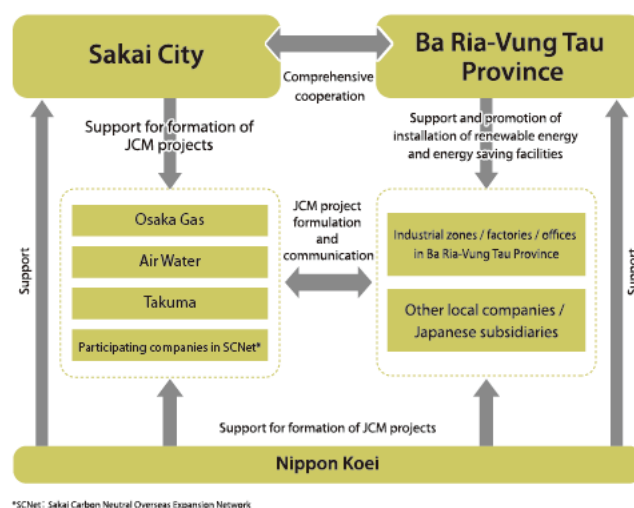
Promotion of Zero-Carbon Smart City through City-to-City Collaboration between Ba Ria-Vung Tau Province and Sakai City

| Implementation Body | Nippon Koei Co., Ltd.

| Partner Entities | Sakai City, Osaka Gas Co. Ltd., Air Water Inc., TAKUMA CO., LTD.



This project is promoting the formation of a sustainable urban environment and smart city in Ba Ria-Vung Tau Province under city-to-city collaboration between Sakai City and the province in three primary areas where Ba Ria-Vung Tau's needs and Sakai's strengths are visible: decarbonisation, circular economy, and smart cities (including smart industrial parks). The project aims to share knowledge and provide support for studies and the development of systems related to these areas, in addition to comprehensively decarbonise the urban environment in the province through the implementation of studies on the formation of JCM projects in relation to the introduction of renewable energy, energy savings, waste-to-energy, and the use of biomass energy.



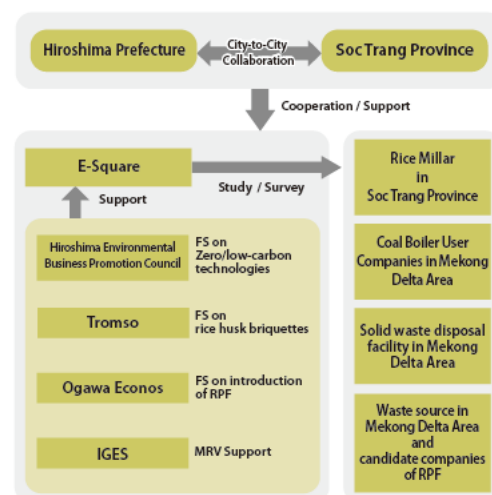
Project to Promote the Formation of an Autonomous Decarbonised Society through City-to-City Collaboration between Hiroshima Prefecture and Soc Trang Province, Viet Nam

| Implementation Body | E-Square Inc.

| Partner Entities | Hiroshima Prefecture, Hiroshima Environmental Business Promotion Council, Tromso Co., Ltd., Ogawa Econos Inc., 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.



Dissemination of local decarbonisation initiatives and policies internationally

The number of cities around the world engaged in decarbonisation at the local level is increasing rapidly and support for such initiatives is accelerating. The Ministry of the Environment, Japan (MOEJ) has emphasised the effectiveness of city-to-city collaboration projects and disseminated information at international events.

Zero Carbon City International Forum 2022

The Zero Carbon City International Forum 2022 was hosted by the MOEJ and the US Office of Special Presidential Envoy for Climate on 9- 10 March 2022, in full cooperation with the UNFCCC, ICLEI- Local Governments for Sustainability and IGES, in collaboration with the Organisation for Economic Co-operation and Development (OECD) and Global Covenant of Mayors for Climate & Energy (GCoM). The

event featured speakers from 22 cities and regions and 10 institutions from 14 countries who shared opportunities and challenges of sub-national climate actions based on leading practices in different regions of the world. The forum also expressed its expectations for countries, sub-national governments, and relevant stakeholders to take actions to accelerate local initiatives.



COP27 Japan Pavilion Side Event



Quad Workshop on Subnational Climate Action under Q-CHAMP (17 November)

The Ministry of the Environment of Japan organized two side events on 17 November, 2022 at the Japan Pavilion during COP27 together with ICLEI, IGES, and OECD. At the “Quad Workshop on Subnational Climate Action” under the Quad Climate Change Adaptation and Mitigation Package (Q-CHAMP), national government officials from Japan, Australia, India and the US discussed the role of central governments in encouraging local governments to take



Leading Actions towards Zero Carbon Cities (17 November)

climate action, and ways to promote city-to-city collaboration. Minister Nishimura stressed that central government support for local governments and city-to-city collaboration are effective as approaches for achieving decarbonisation. At the seminar on “Leading Actions towards Zero Carbon Cities”, efforts such as creating leading regions in Japan and the EU, and specific measures for cities were introduced.

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