

Parallel Session B

"Toward Achieving a Carbon Neutral Society"

1. Outline

Date:	10:30-12:30 JST, Wednesday, 27 October 2021
Format:	Online
Language:	Japanese, English, Chinese, Korean

2. Participant Information

City/Company	Name	Post
Fukuoka	Nakamura Eiichi	Deputy Mayor
Guiyang	Liu Lan	Vice Mayor
Kitakyushu	Umemoto Kazuhide	Deputy Mayor
Kumamoto	Onishi Kazufumi	Mayor
Saga	Ito Hiromi	Deputy Mayor
Ipoh	TPr. Tuan Haji Mohd Zainal bin Abdul Hamid	Director of Town Planning Department Ipoh City Council
Gunsan	Kang Im June	Mayor
Hai Phong	Nguyen Thi Bich Dung	Deputy Director of Hai Phong city's Department of Foreign Affairs
JFE Engineering Corporation	Takahashi Gen	General Manager, Overseas Administration Department

	Name	Organisation
Moderator	Kato Makoto	Director, Business Department Head, Chief Researcher, Overseas Environmental Cooperation Center, Japan
Assistant	Nakajima Riki	Researcher, Overseas Environmental Cooperation Center, Japan

3. Summary of Remarks on Parallel Session

1) Summary of Presentations by Cities and Companies

Moderator	<ul style="list-style-type: none">The idea that environmental problems are no longer a constraint, but rather opportunities for proactive interventions through advance investments for economic growth, has become the worldwide standard. The time to change the way of thinking has come and everyone needs to start moving towards a decarbonized society. Cities have a role to play not only in promoting their own initiatives in various fields of urban development, but also in promoting and educating
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	businesses and citizens.
Fukuoka	<ul style="list-style-type: none"> • In May 2020, Fukuoka City's population will surpass 1.6 million, ranking as the first among major cities in Japan in terms of both population growth and growth rate, yet its greenhouse gas emissions have decreased for six consecutive years, falling 29% from the 2013 baseline (as of Fiscal Year 2019). The three challenges that the city is currently taking on to achieve a decarbonized society are as follows: <ol style="list-style-type: none"> 1) Utilization of urban resources The city is utilizing resources that are unique to cities (roof-top solar power generation of houses, power generation using the difference in elevation between the dam and the water purification plant, and power generation using the heat from waste incineration). The city is also working to generate electricity and hydrogen from sewage biogas generated in the process of treating domestic water. 2) Implementation of new technologies Fukuoka City is working on the use of hydrogen energy as part of the new urban development. In addition to opening the world's first hydrogen station in the city and supplying hydrogen to fuel cell vehicles, the city is also transporting daily necessities using drones to remote islands and sharing electric kickboards as a social implementation of next-generation mobility to replace gasoline vehicles. 3) Building partnerships The city was the first in Japan to establish a blue carbon offset system using seaweed, selling the amount of CO2 absorbed as credits and using the proceeds to build an eelgrass bed, which is being carried out in cooperation with citizens. Furthermore, the city is attracting international financial functions with an emphasis on ESG investments. Additionally, the city has developed the "Fukuoka Method" which promotes the decomposition of waste at landfill sites through the action of microorganisms, and is working with UN-HABITAT, the Ministry of the Environment and JICA to solve waste management issues and decarbonize cities in the Asia-Pacific region.
Moderator	<ul style="list-style-type: none"> • These three innovative initiatives are very good examples that will be a major driving force for the creation of new cities.
Guiyang	<ul style="list-style-type: none"> • Guiyang is to share the effort, which was personally inspected by Mr. Xi Jinping, the President of China, to peak carbon emissions and to achieve

	<p>carbon neutrality.</p> <ul style="list-style-type: none"> • The city's ecological conservation model, the first of its kind in China, is aimed at improving, restoring, and protecting the ecological system of mountains, rivers, forests and farmlands. The city is focusing on green development through a large-scale ecological strategy that includes the creation of a garden city with 1,000 parks. • Guiyang is developing an action plan to explore ways to peak out carbon emissions, optimize energy efficiency such as piloting projects that simultaneously reduce GHG and air pollutant emissions, develop clean energy, and promote pollutant and carbon emissions trading. • To build a green economic system, the country is developing a green low-carbon circular development economic system based on the green development concept, aiming to increase the green economy to 50% of regional production by 2025. • To build a green economic system, the city is developing a low-carbon circular development economic system based on the green development concept, aiming to reducing GHG emissions in the city by 50% by 2025. • This year, Guiyang proposed the "One Belt, One Road Green Development Cooperation Alliance" at the international forum held in Guiyang, where it plans to vigorously promote green development collaborations.
Moderator	<ul style="list-style-type: none"> • It was a good example of how strong economic growth is being promoted along with the creation of a roadmap to peak out greenhouse gas emissions and depict carbon neutrality.
Kitakyushu	<ul style="list-style-type: none"> • In October last year, Kitakyushu City declared itself a Zero Carbon City, and in cooperation with industry, government, academia and the private sector, it has set a goal of reducing GHGs by 47% or more by FY2030 and achieving net zero emissions by 2050. • Kitakyushu City has compiled an action plan for decarbonizing energy and promoting innovation based on the three pillars of wind power, storage batteries and hydrogen, and plans to formulate a Kitakyushu Green Growth Strategy by the end of this fiscal year. The city's successful model will be rolled out to the Asian region. • Kitakyushu City is one of the first municipalities in Japan to use renewable energy to provide 100% of the electricity used by approximately 2,000 public facilities in the city. The "Kitakyushu 100% renewable energy model," which can reduce total costs by introducing zero initial investment on the part of the municipality, can be rolled out to neighboring small municipalities that lack the know-how to expand the introduction of renewable energy.

	<ul style="list-style-type: none"> • With the aim of building a sustainable society, including the revitalization of the local economy and the creation of jobs, the city is promoting the establishment of a comprehensive wind power generation industry base in a vast amount of working land and port area within the city. The city has been designated by the Japanese government as the only port in western Japan with offshore wind power plants. The wind farm project, which will serve as a catalyst for the establishment of the base, is scheduled to launch in 2025.
Moderator	<ul style="list-style-type: none"> • A very innovative pilot project is underway, and it is an example not only to other neighboring regions, but also to Japan and the rest of the world.
Kumamoto	<ul style="list-style-type: none"> • Kumamoto City introduced three initiatives related to the community energy businesses that are undertaken together with the private sector. The initiatives had two objectives of reducing GHG emissions and strengthening disaster response capabilities through: 1) supplying public facilities with electricity generated from waste; 2) providing base facilities such as ward offices and disaster risk reduction bases; and 3) securing electricity for evacuation centers using EVs. <ol style="list-style-type: none"> 1) Carbon-free electricity obtained from waste to energy power plants is supplied to about 220 city-owned facilities, reducing electricity costs significantly and providing subsidies for the introduction of energy-saving equipment based on the money saved. 2) Large storage batteries are being installed at the facility to ensure constant supply of electricity to disaster risk reduction centers in times of emergency, while reducing greenhouse gas emissions and strengthening disaster response. 3) The city is building EV recharging facilities that can provide uninterrupted power in the event of a disaster and has established a system that can supply power to 19 evacuation centers in the city under an agreement with the Nissan Group. • Kumamoto City was selected as an "SDGs Future City" by the government in recognition of its efforts to solve three issues - namely the environment, economy and society simultaneously. It is also the first city in Japan to formulate an action plan for global warming countermeasures in a metropolitan area in cooperation with 17 neighboring municipalities.
Moderator	<ul style="list-style-type: none"> • It is a very helpful case study that integrates disaster risk reduction management and energy and climate change and aims to the achievement of the SDGs in cooperation with neighboring municipalities, the private sector and citizens.
Saga	<ul style="list-style-type: none"> • Saga City has three initiatives to build a circular society by effectively

	<p>using conventionally discarded items as local resources: 1) to use CO2 locally; 2) to reduce the use of fossil fuels; and 3) to increase the amount of electricity generated by renewable energy sources.</p> <ol style="list-style-type: none"> 1) CO2 and waste heat recovered from the exhaust gas of the waste treatment facility are supplied via pipeline to a neighboring company for use in the cultivation of agricultural crops. This achieved a high yield of cucumbers - four times the national average in the first year of cultivation. 2) The city collects used cooking oil from homes and businesses in cooperation with private companies, refines it into high-quality biodiesel at a cleaning plant and uses it as fuel for buses and garbage collection vehicles running in the city. 3) The company is generating electricity using methane gas generated in the sewage treatment process as fuel, reusing the generated electricity and heat in sewage treatment. In the future, Kitakyushu City is planning to raise the electricity supply rate required for sewage treatment facilities to 58% - one of the highest in Japan. <ul style="list-style-type: none"> • Since the Ariake Sea is the largest producer of laver in Japan, the treated water containing a lot of nutrients is discharged to promote the growth of laver in the Ariake Sea whilst the dewatered sludge obtained from the sewage treatment process is processed into compost which is also used for rice cultivation.
Moderator	<ul style="list-style-type: none"> • It is a very interesting and dreamy case of realizing a decarbonized society by combining new technologies such as carbon recycling and agriculture with the characteristics of the local industry and society.
Ipoh	<ul style="list-style-type: none"> • Ipoh is working with 32 other municipalities across the country to achieve the national target of a 45% reduction in carbon emissions by 2030, along with the realization of low-carbon lifestyles, including awareness-raising activities through education, smart ways of working, promotion of energy efficiency, promotion of smart travel and promotion of green lifestyles. • As a guideline for GHG reduction, the "Low Carbon City 2030 Program" has been devised and is currently being implemented. It is a low-carbon framework that includes the urban environment, urban infrastructure, urban transportation and buildings. • In addition to webinars on low-carbon cities for high school students, the "No Plastic Straw Campaign" promotes smart working practices by encouraging adjustment of working hours and online meetings, resulting in electricity savings of up to RM2.5 million and the deployment of

	<p>hybrid and electric vehicles in government offices.</p> <ul style="list-style-type: none"> • In addition to the installation of solar panels on the rooftops of buildings and bicycle lanes for smart bikes, the city is planning to transform the old town and the development area in the city center into an ultra-low carbon emission area by providing options such as a free electric shuttle bus service, building facilities for electric scooters and bicycles in line with the Low Carbon City Strategic Plan.
Moderator	<ul style="list-style-type: none"> • It was a very impressive initiative through the setting of specific goals, visualized efforts, lifestyle changes and dialogue with citizens.
Gunsan	<ul style="list-style-type: none"> • Gunsan, a logistics hub, was in a critical situation due to the suspension of Hyundai's shipyard operations and the closure of GM's plant, but it is now working to turn a crisis into an opportunity by building a new carbon industrial structure based on renewable energy and an environmentally friendly future automobile industry. • It is currently building a smart green industrial park designated as a national model of RE100 - a leading area of the K-Green New Deal. The conversion to low-carbon industries has been speedily carried out. • In addition, Gunsan is working with citizens to implement carbon reduction measures that are rooted in their daily lives, such as planting 5 million trees, expanding urban green spaces such as forests that serve as hubs for birds and promoting "G-Power for Climate Action" and experiential education programs.
Moderator	<ul style="list-style-type: none"> • It is a good case study that can be used as a reference for recovery from the COVID-19 crisis as Gunsan's efforts turned a critical economic situation into a virtuous cycle.
Hai Phong	<ul style="list-style-type: none"> • As the largest port city in the north of Vietnam, the transportation business, other businesses and industrial activities are expected to grow rapidly in the future and CO2 emissions are also expected to increase in Hai Phong. • The city's action plan is based on the national strategies and plans to achieve green growth, reduce CO2 emissions and become a low-carbon city. In order to implement the plan, task categories are as follows: <ol style="list-style-type: none"> 1) Raising people's awareness, clarifying green growth indicators, and integrating them into sectoral plans such as the city's medium to long-term master plan for socioeconomic development. 2) Examination of green models such as Green Port and Green Town. 3) Recommendations for the introduction of high-tech green technology in production sites. 4) Promotion of environmental projects for the use of energy and

	<p>resources.</p> <p>5) Introduction of new technologies.</p> <p>6) Strengthening and adjusting the production plan.</p> <p>7) Strengthening International Cooperation.</p> <ul style="list-style-type: none"> • Regarding 7), Hai Phong has been implementing a joint project with Kitakyushu City to realize green growth and a low carbon city, and has developed 15 pilot projects in the fields of waste treatment, energy, energy conservation, green transportation and green production.
Moderator	<ul style="list-style-type: none"> • The city's efforts, especially the cooperative relationship with Kitakyushu City, were examples that can lead to international cooperation and inter-city cooperation which are included in the theme of today's session.
JFE Engineering Corporation	<ul style="list-style-type: none"> • JFE Engineering have committed to realizing a carbon-neutral society as one of Japan's leading companies that operates a variety of infrastructure businesses, including environmental and energy businesses, on a global scale. • Myanmar's first Waste-To-Energy (WTE) facility has been constructed, receiving 60 tons of municipal solid waste per day and reducing CO2 emissions by 4,000 tons per year. Introducing WTE facilities as an alternative to fossil fuel power grids can avoid methane emissions and reduce GHG emissions. • The WTE project in Vietnam, funded by IFC, JCM and the World Bank, is processing 500 tons of garbage and industrial waste per day, generating 10 MW of power, and reducing CO2 emissions by 40,000 tons per year. The company will continue to strengthen its efforts in waste recycling, utility services, infrastructure, carbon neutrality, and digital transformation towards 2030.
Moderator	<ul style="list-style-type: none"> • It is a case study of an effort to provide low carbon, decarbonized and sustainable urban solutions in Asian cities by utilizing technology and know-how.

2) Summary of Remarks during QA and Discussion

Moderator	<ul style="list-style-type: none"> • We would like to deepen the discussion on various approaches of cities regarding decarbonization and carbon neutrality.
Fukuoka	<ul style="list-style-type: none"> • According to UNEP, even if all 50 countries and regions that have announced carbon neutrality were to implement their plans and achieve net zero emissions, the increase would still be 2.2 degrees Celsius, indicating that the efforts of each country are still insufficient. • What are the measures and points that Saga City is taking to utilize used cooking oil and to extract methane gas from sewage treatment to

	promote industries?
Saga	<ul style="list-style-type: none"> • As a method of collecting waste cooking oil, we have set up collection boxes at community centers and supermarkets. The city has currently been cooperating with convenience store chains to collect waste oil from each store within the city. In addition, in cooperation with NEDO, the company converts the oil into high-quality biodiesel fuel which is used in buses and garbage collection vehicles. • In cooperation with a well-known bio-venture company called Euglena, which deals with and commercializes the Euglena - a type of green algae - Saga City is trying to use sludge and discharged water from a sewage purification center as crop fertilizer. • In addition, bamboo is now being used as a material for forest thinning. This project was a great opportunity for the citizens to rethink what they used to throw away as a resource and become aware of the possibility of recycling.
Fukuoka	<ul style="list-style-type: none"> • Fukuoka City does not have any large-scale factories. In order to become carbon neutral, the city would like to make effective use of and recycle the waste produced through the daily lives of citizens'.
Moderator	<ul style="list-style-type: none"> • It is a very good trend that two neighboring municipalities, Fukuoka City and Saga City are rethinking the resources in their cities and exploring the direction of effective use of energy.
Gunsan	<ul style="list-style-type: none"> • The advantages for companies who wish to move into the RE100 Industrial Park, which has a 2 trillion won-worth investment plan, include exemptions from various fees, RE100 certified consulting and the use of 3MW of solar power generated in the nearby power plants.
Moderator	<ul style="list-style-type: none"> • The case of Gunsan is in line with the national government's major policy, and as a special zone, it is attracting renewable energy sources and companies. In the end, it is creating jobs and new industries. • Similarly, in presentations by Hai Phong and Kitakyushu City, perspectives such as coordination and cooperation with the national government were included. Were there any difficulties?
Kitakyushu	<ul style="list-style-type: none"> • The result of many years of disseminating the know-how and the technology gained from past bitter experiences to the world and the local mindset was appreciated by the government and international cooperation organizations.
Hai Phong	<ul style="list-style-type: none"> • 1) consideration of models and 2) international cooperation are the key elements for a decarbonized society. It is important to build connections, secure cooperative systems, and share lessons learned. <ul style="list-style-type: none"> 1) The city is focusing on research and development of models such as Green Town, Green Port and Green Industry. This is where

	<p>we are achieving our long-term targets.</p> <p>2) With the aim of finding various solutions, technology from Kitakyushu City was transferred to Hai Phong. The city also participated in the Fukuoka Method and conducted cooperation and research with OECD countries.</p>
Moderator	<ul style="list-style-type: none"> • It is a very good proposal to take inter-city cooperation a step further; to work on a consistent basis.
Ipoh	<ul style="list-style-type: none"> • What are the low-carbon goals that Fukuoka City is working on and what measures are being taken?
Fukuoka	<ul style="list-style-type: none"> • The target of Fukuoka City is to achieving carbon neutrality by 2040 and the city is currently taking on every challenge to achieve a reduction of 50% or more. In addition, the city is currently adjusting the reduction rate for the interim target by 2030.
Moderator	<ul style="list-style-type: none"> • Fukuoka City and Ipoh have been exchanging information and cooperating with each other for many years in the fields of waste management, environment and infrastructure construction. It would be great if the results of cooperation between the two cities are extended to other cities. • What are the responses of the citizens, businesses and the city government to the ambitious green garden city in Guiyang?
Guiyang	<ul style="list-style-type: none"> • At the beginning of the project, there may have been people who felt that the project did not fit into their traditional lifestyles and there might have been some resistance. However, during the design stage, some incentives such as points were given to those who had cooperated in recycling, and supports were being devised to gradually raise the awareness of many people.
Moderator	<ul style="list-style-type: none"> • One of the main messages of today's session is that we should cooperate with each other in our efforts. • Kumamoto City also has experiences in turning the crisis of the earthquake into an opportunity for new growth.
Kumamoto	<ul style="list-style-type: none"> • The daily disaster preparedness will ultimately lead to a reduction in the burden on the environment. • Once a major disaster strikes, seven to eight times more disaster waste than usual may be generated. Of the two incineration facilities in the city, the one built by JFE Engineering Corporation survived, but the other incineration facility was damaged and it took many years for the city to recover from the disaster. • By sharing the city's approach and experience of reusing power generation during normal times for emergency backup in times of disaster, this could improve the disaster response capabilities of other

	<p>cities in the future.</p>
Moderator	<ul style="list-style-type: none"> • The lessons that Kumamoto City has learned from the disaster will be of great help not only to neighboring municipalities but also to the participating cities today. • What are the future goals of JFE Engineering Corporation, which is also known as "Just for the Earth".
JFE Engineering Corporation	<ul style="list-style-type: none"> • It was a great honor for JFE Engineering Corporation to be able to participate in this project on incineration facilities introduced by Kumamoto City, which not only treats waste, but also supplies electricity to the community and provides a certain level of safety in the event of a disaster. The participating cities may also adopt this approach. • To realize a low-carbon city and a carbon-neutral society, it is important to aim not only for the short-term installation of equipment and technology but also for the long-term stability of people's lives. In addition, JFE Engineering Corporation, which has been cultivating infrastructure construction and infrastructure technology, is willing to contribute and cooperate.
moderator	<ul style="list-style-type: none"> • These were the wrap-up points. It is important that cities continue to discuss and cooperate with each other in the future. <ul style="list-style-type: none"> - Efforts to decarbonize and actions to become carbon neutral cannot wait. - Measures to deal with the economic and social impacts of climate change are important. - Environmental initiatives are not constraints, but potential breakthroughs that will lead to growth. - It is important to choose carbon neutrality according to the characteristics of each city. - In this context, it is necessary to involve each stakeholder and proceed positively. - Scaling up to various cities in each country through neighboring municipalities, countries and international cooperation will be effective.

4 . Parallel Session Report

1) Current situation and issues surrounding cities

- I) The rapid deterioration of climate change has led to the increasing number and severity of natural disasters. Together with the COVID-19 crisis, they have become major risks and obstacles for cities to achieve sustainable growth.
- II) Environmental issues are not only related to disasters, but such issues as air and water pollution, and waste management cause deterioration of the living environment for citizens.
- III) There is a risk that economic rationality will take precedence over environmental considerations in the recovery from the COVID-19 crisis.
- IV) The Paris Agreement, which came into effect in 2016, positions cities as important actors in climate change. Traditionally national governments have taken the lead to efforts to address climate change, but now it is clear that roles and responsibilities of cities in these efforts are becoming more important.

2) New perspectives and ideas

- I) In the future, it will be important to take the perspective of positioning environmental efforts as a growth strategy, rather than as a constraint.
- II) Addressing the climate issues with involvement of different stakeholders provides more opportunities for cities to build new partnerships which can be useful to its development.

3) Direction of initiatives

- I) It is important for cities to set decarbonization targets and formulate action plans to contributed to the Paris Agreement, which encourages the cities' proactive involvement in climate change issues. Furthermore, cities can develop more efficiently by designing actions suited with the cities respective characteristics.
- II) In order to realize a decarbonized society, it is essential for cities to create a movement for green recovery involving businesses and citizens and broader regional cooperation by neighboring cities, to not only to implement local government projects.
- III) As environmental threats are global issues, it is important for cities to actively promote information dissemination and know-how sharing through international conferences and partnerships.