Webinar on the Joint Crediting Mechanism (JCM) Implementation in Indonesia
– Accelerating the Transition towards Decarbonization through JCM –

July 26th, 2022

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

City-to-City Collaboration for Zero Carbon Society between Kawasaki City and Bandung City 2021-2022

Oriental Consultants Co., Ltd

Project Overview

With Bandung and Kawasaki signing the MOU in the environmental field, this project aims to support high-priority GHG reduction projects in Bandung and contribute to the realization of zero-carbon society.

Project Contents

1. Promotion of energy-saving in building sector
2. Promotion of energy-saving for infrastructure system
3. Mobility improvement and air quality management

Expected Results

1. Proposals to create JCM and other low-carbon projects for the adoption of initiatives and technologies.
2. Research on infrastructure with high environmental performance for energy conservation.
3. Adopt energy-saving technologies in government and private facilities.

City to City Collaboration Between Kawasaki and Bandung

- Relationship began from Asia-Pacific Eco-Business Forum in 2007.
- Signing of MOU in 2016 and 5-year extension in June 2020
- Under the MOU, cooperation on projects under the JICA Technical Cooperation for Grassroot Projects scheme and MOE and MLIT programs, particularly in the areas of waste management and water environment management.

Main Stakeholders

Kawasaki City

川崎市 KAWASAKI CITY

- Oriental Consultants
- Green Blue Corporation
- NEC Corporation
- Azbil Corporation
- Daikin Airconditioning Indonesia
- Tokyo Century
- Kawasaki Green Innovation Cluster Member companies

Bandung City

Related departments
- International Cooperation Sub Division
- Environmental and Cleanliness Department
- Transportation Department

Management of public/private facilities (e.g. hospitals)

Kawasaki City: Achievements and Efforts for Zero Carbon Society

Kawasaki City declared goal of "Zero Carbon by 2050"

With Strategic Plans

- Basic Plan on Promotion of Global Warming Countermeasures
- Kawasaki Carbon Challenge 2050
- Model area "Carbon Zero Action Mizonokuchi"
- SDGs Promotion Policy, SDGs Future City

With Effective Mechanisms

- CASBEE Kawasaki
- Continuous monitoring system for air quality
- Subsidies, Green Bond

川崎市 KAWASAKI CITY

Project experience collaborating with the cities in Indonesia

2020-2023 Capacity Development for Water Environment Improvement in Bandung (JICA)
2019-2021 City-to-City Collaboration Project for the Improvement of Water Quality of Rivers in Bandung (MOE)
2019-2020 Development of Cloud GIS Database for Water and Sewage Infrastructure in Bandung (MLIT)
2018-2019 Promotion of Green Innovation through JCM City-to-City Collaboration in DKI Jakarta (MOE)
2018-2019 Support for Development of Environmentally Conscious Society and a Zero-Carbon City by 2050 Based on the Palm Oil Industry in the Riau Region (MOE)
2017-2020 Waste Management Support Project Toward a Sustainable Resource Recycling Society in Bandung (JICA)
2015-2016 JCM Project for the Introduction of Energy Management System (EMS) for Commercial Facilities

Oriental Consultants: Our Expertise and Experience

- Established in 1957, head office in Tokyo
- Over 20 branch offices/group companies in Japan, 9 offices and 8 local subsidiaries in the world
- Consultancy services in the fields of infrastructure (road, bridge, railway), environment, energy, disaster prevention, city planning, etc.

Research experiences of city-to-city collaboration project

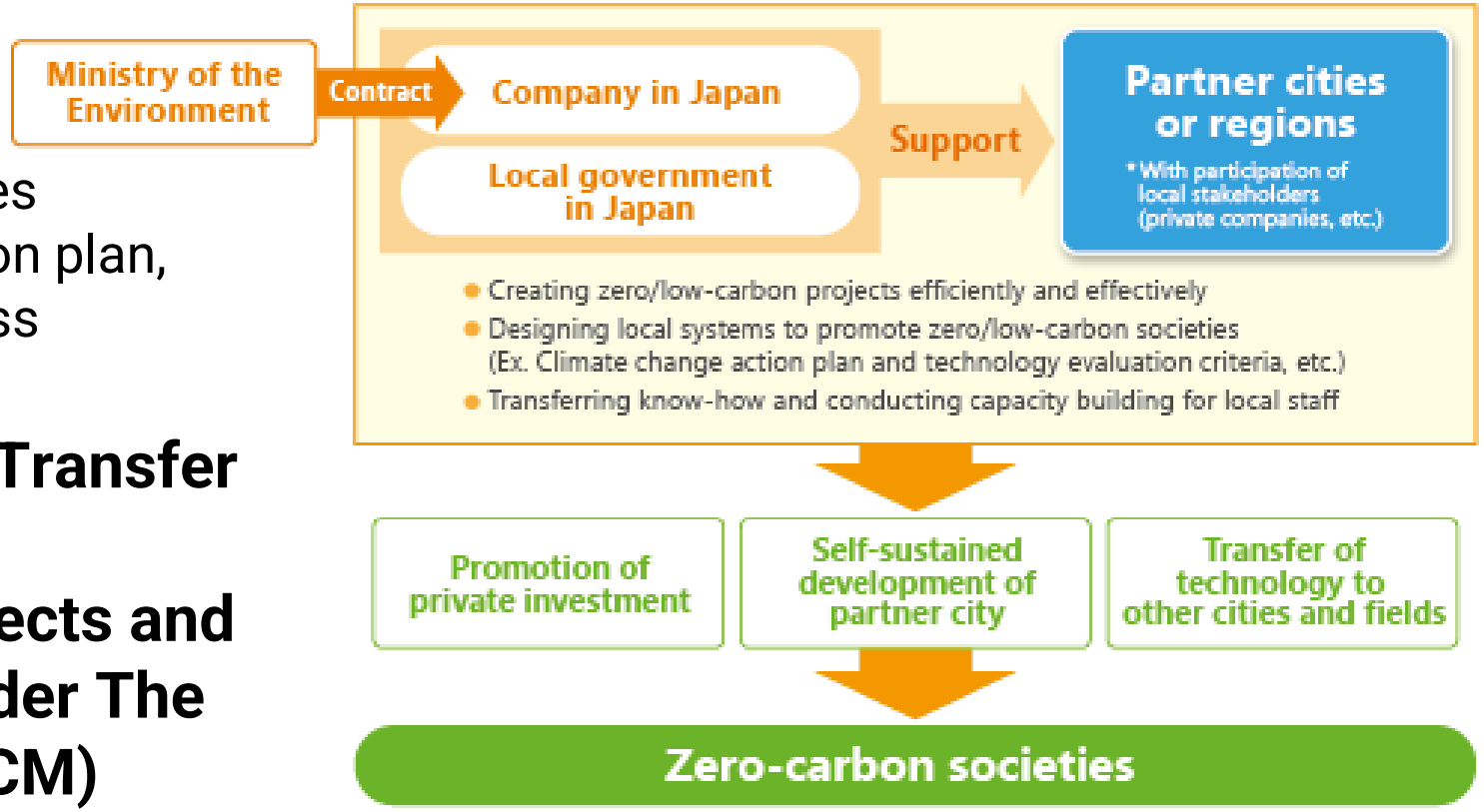
Period	Local governments	Project
2021-present	Quezon City	Financing Programme for JCM Model Projects: Introduction of Energy Saving Air Conditioning System to Quezon City Hall Compound
2021-present	Kawasaki City/ Bandung City	Zero Carbon Society Development in Bandung City through Energy Saving and Improvement of Transportation Infrastructure System
2020-present	Sapporo City/ Ulaanbaatar City	Zero Carbon Society Development by Promoting Architecture and Renewable Energy Suitable for Cold Regions in Ulaanbaatar City
2017-present	Osaka City/ Quezon City	Zero Carbon Development in Quezon City for the Implementation of Climate Change Mitigation Actions
2017-2018	Osaka City/ Ho Chi Minh City	Promotion of Low Carbon Development in Ho Chi Minh City under the City-to-City Cooperation between Ho Chi Minh and Osaka

Goals of City-to-City Collaboration for Zero Carbon Society Project

- **System Development**
  To promote zero/low-carbon societies
  e.g. Supporting climate change action plan, planning technical evaluation process

- **Capacity Building, Know-How Transfer**

- **Creating zero/low-carbon projects and utilizing financial schemes under The Joint Crediting Mechanism (JCM)**



Bandung City: Efforts and Current Conditions

Indonesia

- Updated Nationally Determined Contribution (NDC) in 2021
- Long-term strategy for low carbon and climate resilience 2050
- COP 26 leaders summit: **GHG "Net-Zero by 2060"**

Bandung City

- **Rencana Strategis Tahun 2018-2023**, Dinas Lingkungan Hidup Dan Kebersihan
- Bandung Mayor Regulation No.1023/2016 on Green Building
- Ministry Regulation No.21/2021 on **Green Building**

Current conditions of Bandung City

Rapid spread of modern **buildings** and increasing urban **energy consumption**	Introducing **LED street-light** as "Eco City"	**Traffic congestion** is a major issue of **air pollution**
		Air quality monitoring system is required

Our proposals

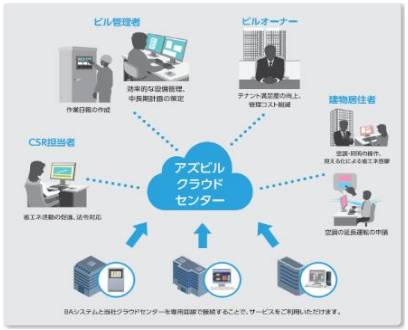
Activity-1: Energy-saving in building sector	Activity-2: Energy-saving for infrastructure system	Activity-3: Mobility improvement and air quality management

Aim to form the project under **The Joint Crediting Mechanism (JCM)**

Activity-1: Promotion of Energy-Saving in Building Sector

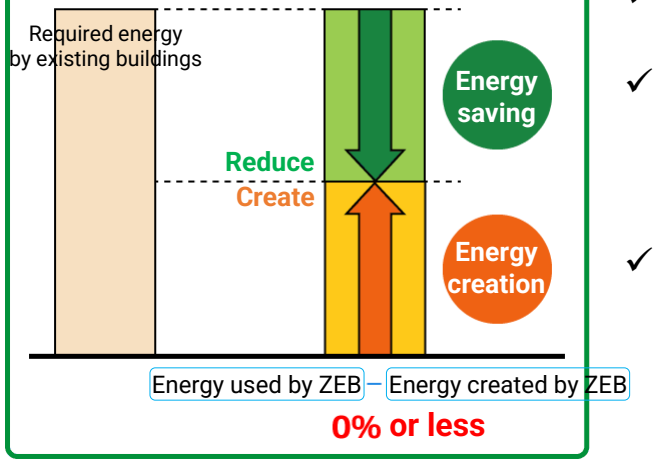
1. **Study of model project with improvement of building specification, including high-efficiency air conditioning system, smart LED, BEMS and exterior wall**
   - Screening of target facilities
   - Development of renewal plan, estimation of GHG reduction
   - Research of legislation and taxation, and examination of project frameworks
   - Examination of expansion to other facilities

2. **Promotion of ZEB* in subtropical regions**
   - Research of green building requirements in Bandung
   - Overview and case studies of ZEB in Japan



ZEB: Net Zero Energy Building

Reduce to 0% or less by energy saving+creation



- ✓ Improved wall insulation capacity
- ✓ High-efficiency equipment and systems for energy saving
- ✓ Comfortable indoor environment

***ZEB** buildings aim to consume net-zero energy, as primary energy used equals the amount of renewable energy created on the site

Activity-2: Promotion of Energy-Saving for Infrastructure System

1. **Proposal and commercialization of smart LED streetlight**
   - Confirmation of requirements
   - Collection of information for use of private sector funds and PPP
   - Examination of costs, financial plan, scheme, implementation plan for JCM scheme
   - Study on project implementation by PPP, ESCO, etc.

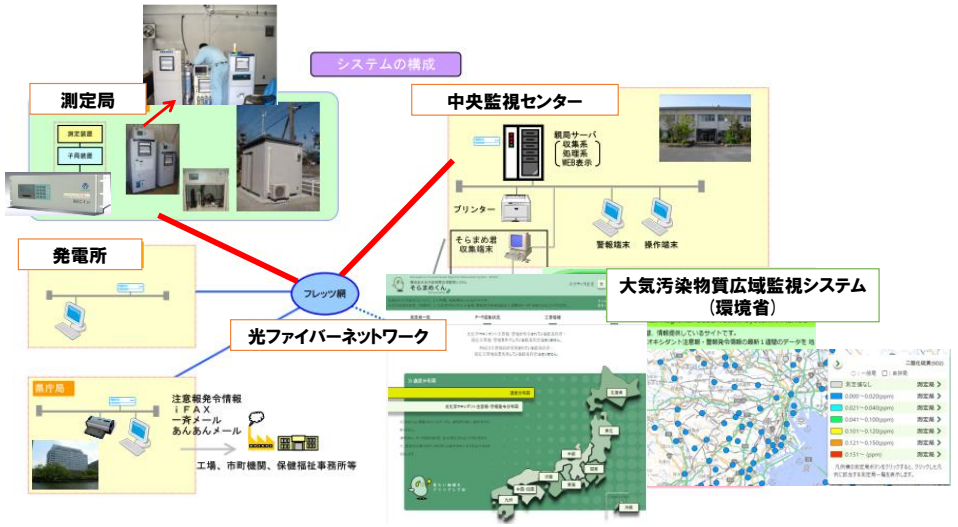
Number of streetlights: 45,507 in 2021 → 56,500 in 2030
- LED streetlights: 28,952 (64%)
- Non-LED streetlights: 16,555

Energy-saving by converting 16,555 non-LED to LED
- **CO_2 emission reduction: 1,253 t-CO_2/year**
- **Power reduction: 1,679,515 KWh/year**

Activity-3: Mobility Improvement and Air Quality Management

1. **Proposal for mobility improvement**
   - Introduction of measures to promote public transportation use and eco-driving
   - Examination for the introduction of measures

2. **Consideration of air quality management plan by introducing air quality monitoring system**
   - Research systems, standards and current conditions of air quality monitoring system
   - Development of air quality monitoring plan
   - Introduction of Japan's air pollution monitoring system
   - Study for the introduction of air quality monitoring system



Three-Year Project Plan

FY2021

Project Activities

1. **Promotion of energy conservation in facilities and infrastructure systems in Bandung City**

(General)
- Ascertain GHG emissions in Bandung
- GHG emissions of facilities and infrastructure systems

(Energy conservation through adoption of high-efficiency air conditioning)
- Screening of subject facilities
- Survey of existing air conditioning equipment
- Developing an upgrade plan, examination of the use of JCM scheme

(Promotion of LED streetlights)
- Examination of streetlight system and plans to adopt LEDs
- Survey of subject locations
- Examination of business model, use of JCM scheme

2. **Reducing traffic congestion and improving air pollution**
- Survey of traffic conditions in Bandung
- Current conditions of air pollution monitoring system in Bandung
- Introduction of proposed measures
- Identification of issues and needs

3. **Support for system building (green building promotion)**
- Understanding of green building system
- Introduction of green building measures

FY2022

Project Activities

1. **Promotion of energy-saving in building sector**

① Model projects and commercialization
- Screening of target facilities
- Planning of renewal plan, estimation of GHG reduction
- Research of legislation and taxation, and examination of project frameworks
- Examination of expansion to other facilities

② Promotion of ZEB in subtropical regions
- Research of green building requirements in Bandung
- Overview and case studies of ZEB

2. **Promotion of energy-saving for infrastructure system**

① Proposal and commercialization of smart LED streetlight
- Requirements of smart LED streetlights
- Collect basic information to use private sector funds and PPP
- Examination of costs, financial plan, scheme, implementation plan for use of JCM scheme
- Study on project implementation by PPP, ESCO, etc.

3. **Mobility improvement and air quality management**

① Proposal for mobility improvement
- Introduction of measures to promote public transportation use and eco-driving promotion
- Examination to introduce the measures

② Consideration of air quality management plan by introducing air quality monitoring system
- Research for system, standards and current conditions of air quality monitoring system
- Planning of air quality monitoring plan
- Introduction of Japan's air pollution monitoring system
- Study on introducing air quality monitoring system

FY2023

Project Activities (tbd)

1. **Promotion of energy- saving in building sector**
- Application and commercialization of JCM scheme for facilities and equipment

2. **Promotion of energy- saving for infrastructure system**
- Application and commercialization of JCM scheme for smart LED streetlights

3. **Mobility improvement and air quality management**
- Promote the use of public transportation and pilot introduction of eco-driving
- Pilot introduction of air quality monitoring system