

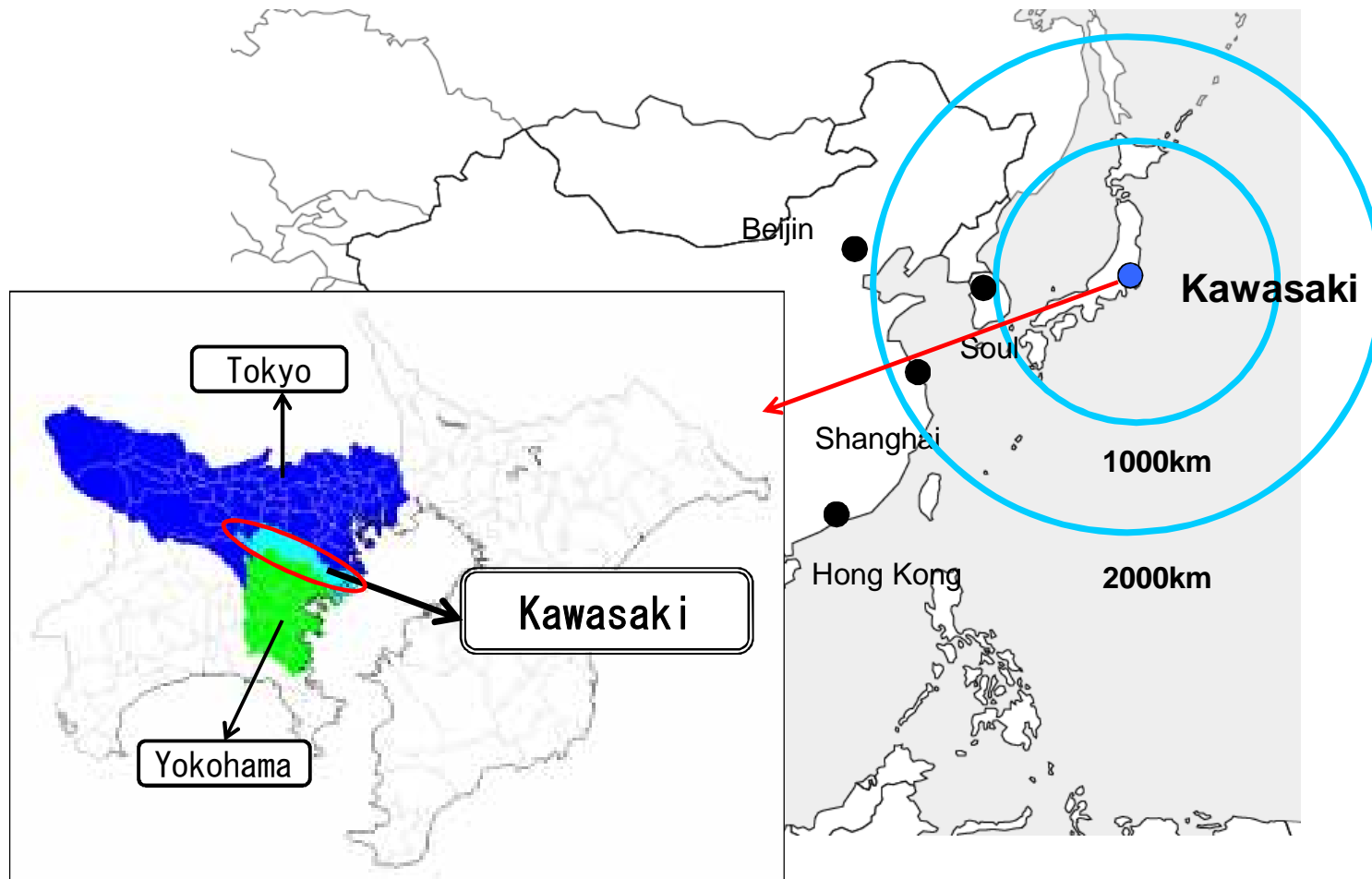
JCM City-to-City Collaboration between Kawasaki-city and Yangon-city



Kawasaki-city
Japan

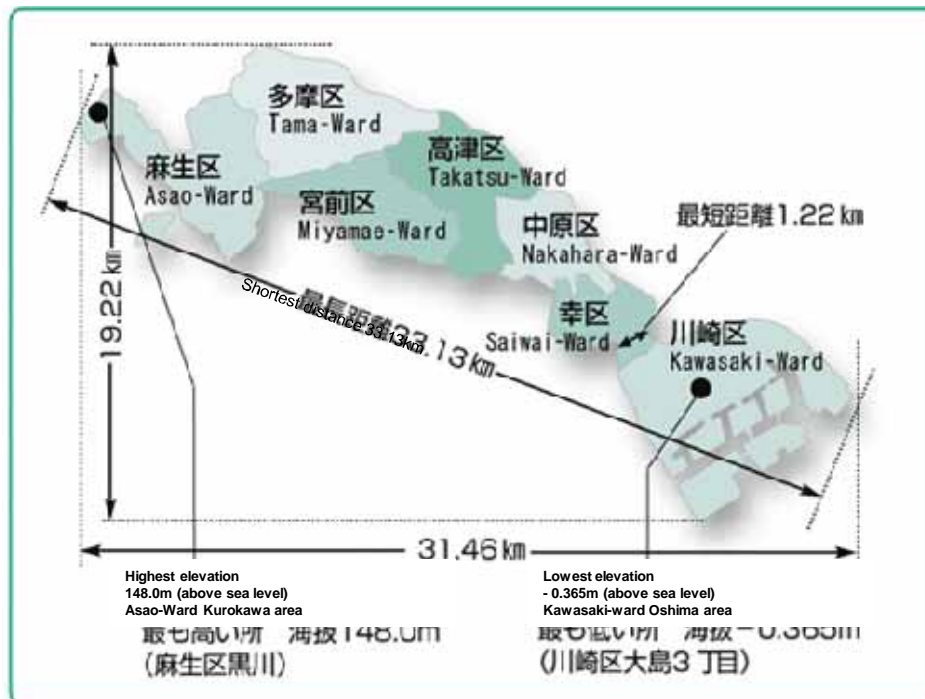


About Kawasaki-city, Japan

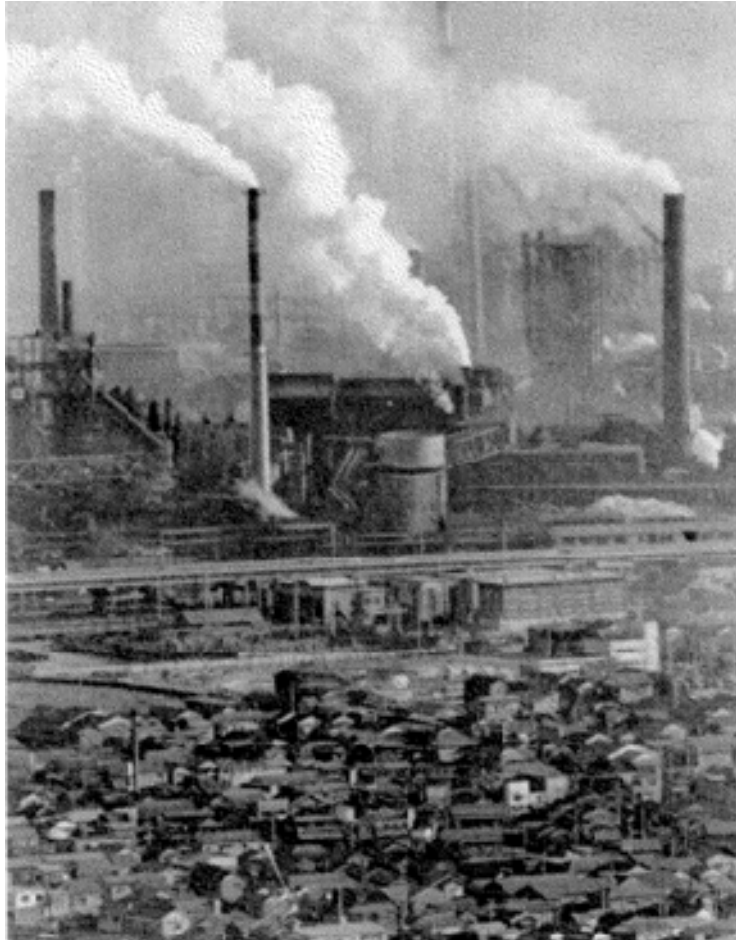


About Kawasaki-city, Japan

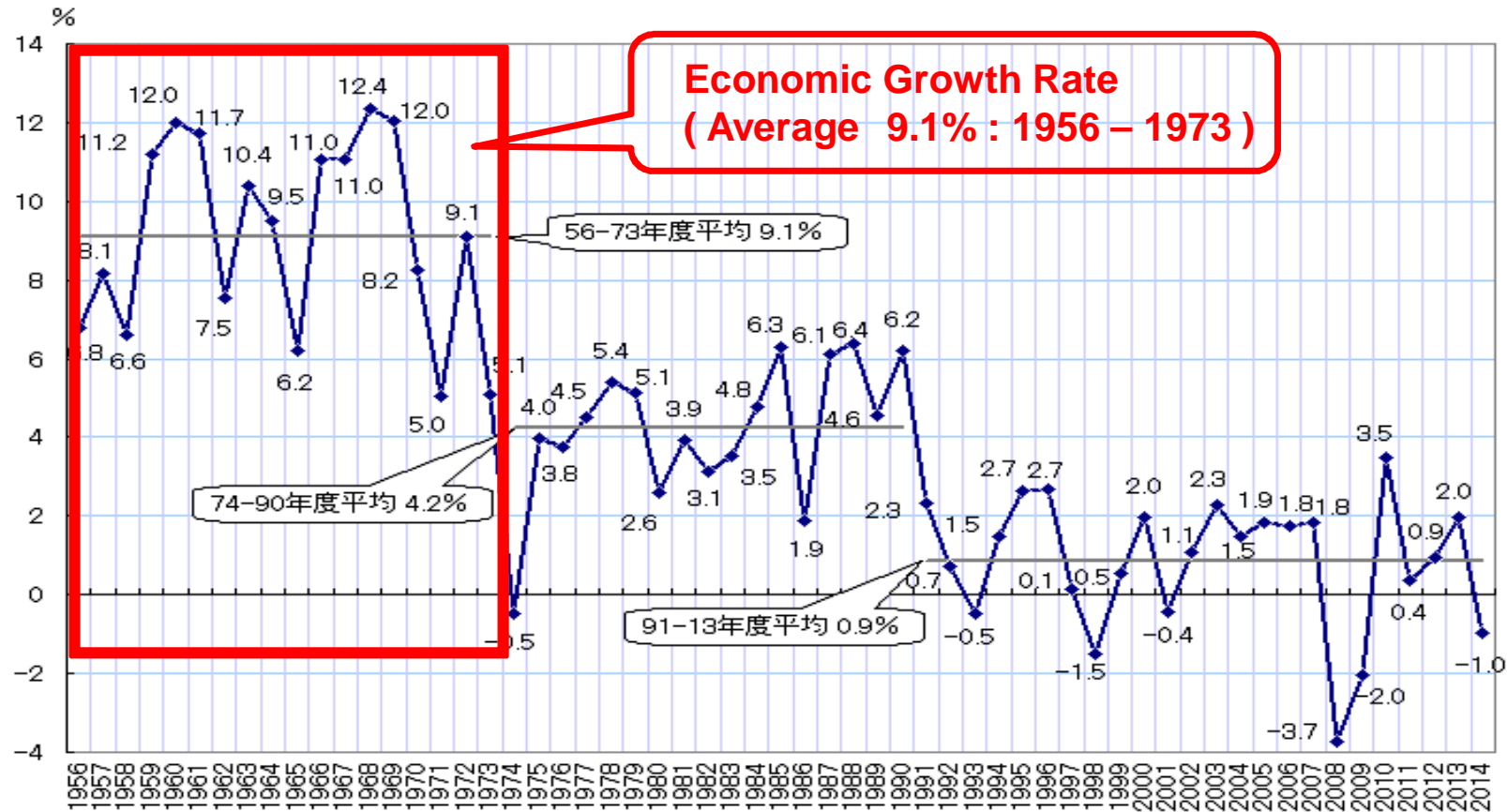
- Population: APPROX 1.47 million population (2014)
- Area: 144.35 Km²
- City budget: APPROX 10 billion US\$ (2015)



Experience of Industrial Pollution in Kawasaki (1960-70)



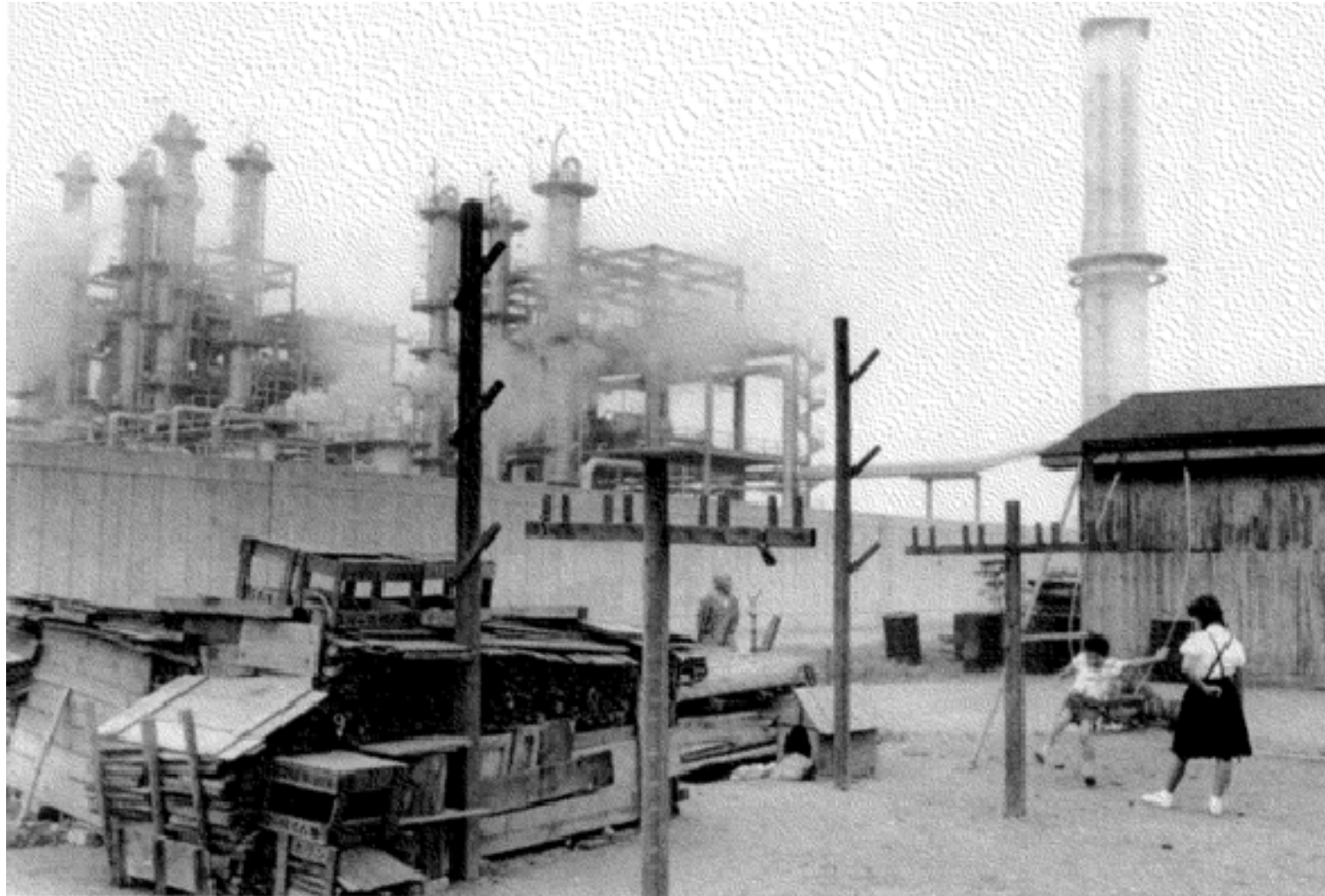
Economic Growth Rate in Japan



(注) 年度ベース。93SNA連鎖方式推計。平均は各年度数値の単純平均。1980年度以前は「平成12年版国民経済計算年報」(63SNAベース)、1981～94年度は年報(平成21年度確報)による。それ以降は、2015年7-9月期2次速報値 <2015年12月8日公表>

(資料)内閣府SNAサイト

Factories nearby Residential Area in Kawasaki (1970)



Water Pollution at Tama-River (1970)



PHOTOGRAPH BY

Tama-River covered by full of Garbage (1970)



Air Pollution over Kawasaki Waterfront Area (1960)



Efforts to overcome Pollution Problems

Local Business

- Investment for pollution control
- Development of pollution control technologies

Citizen

- Civil action against pollution
- Public awareness for environment

Kawasaki-city

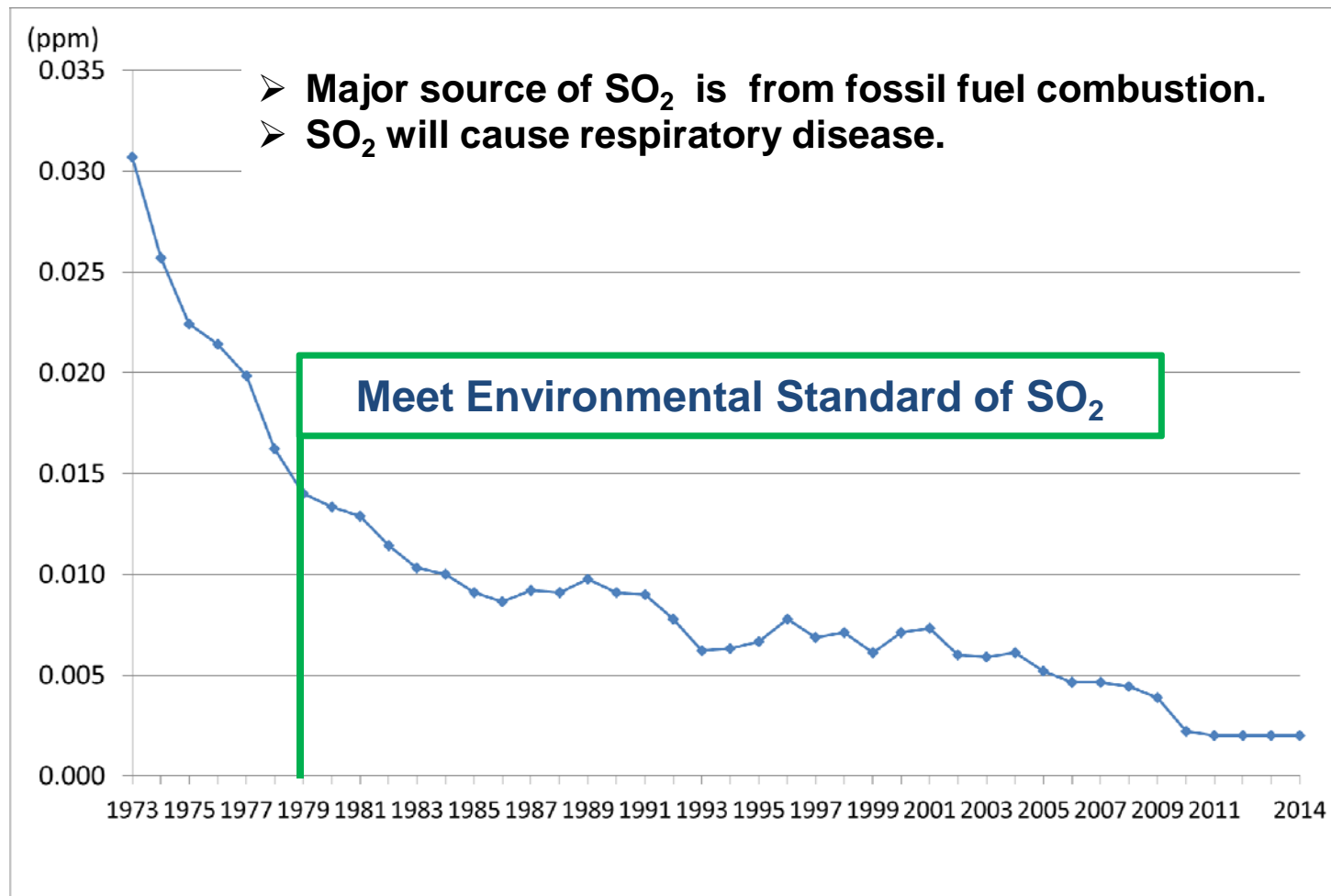
- Pollution control agreement with local industries
- Regulation for pollution control
- Pollution monitoring system



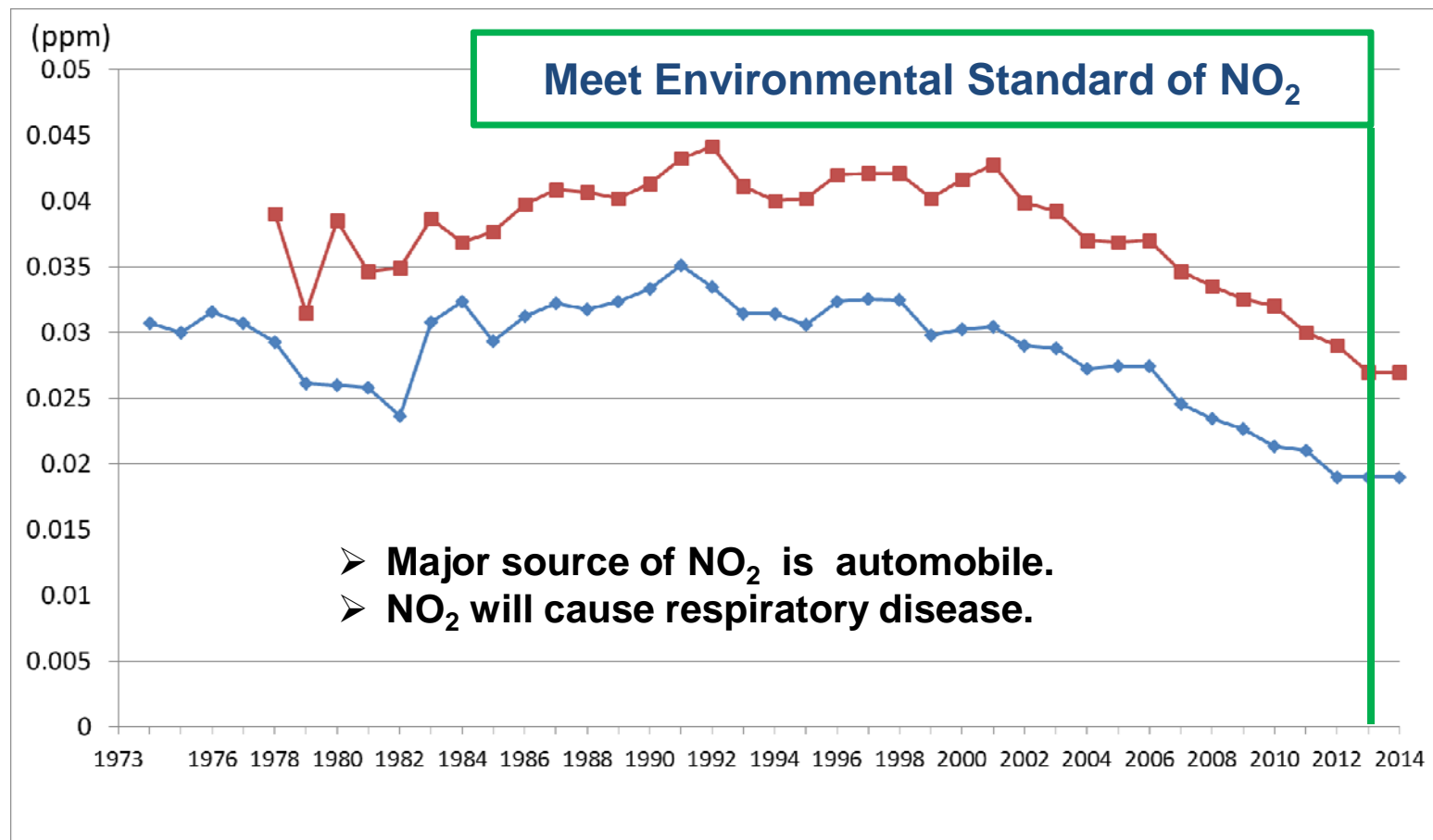
"Sharing of Roles" & "Cooperative Action"

Improvement of Environmental Problems

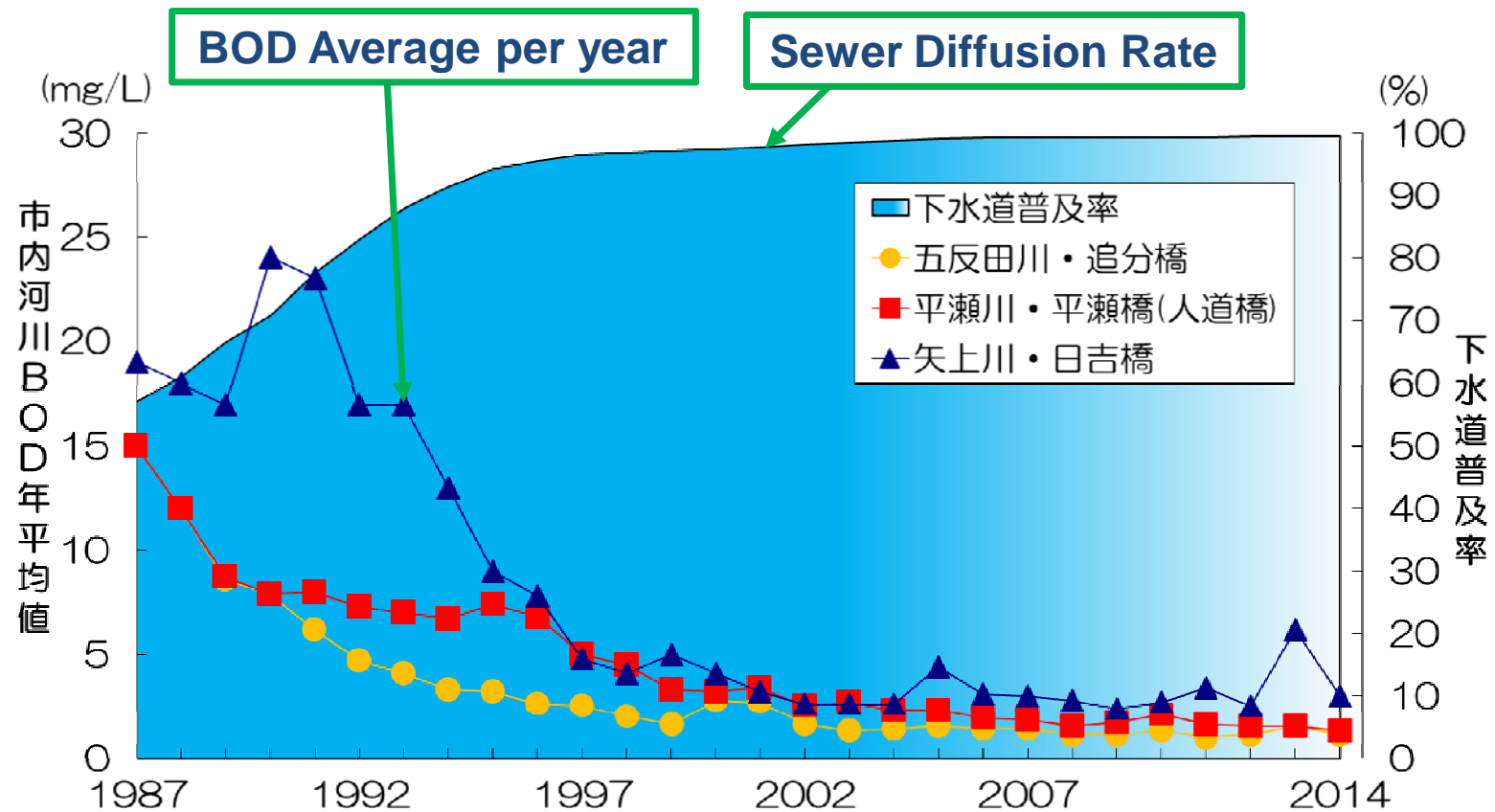
SO₂ Concentration in Air from 1973 - 2014



NO₂ Concentration in Air from 1973 - 2014



BOD in River Water and Sewer Diffusion Rate from 1987 - 2014



Current Landscape of Tama-River (2016)



Current Landscape over Kawasaki Waterfront Area (2016)



Current Landscape over Kawasaki Waterfront Area (2016)



About Yangon-city, Myanmar



About Yangon-city, Myanmar

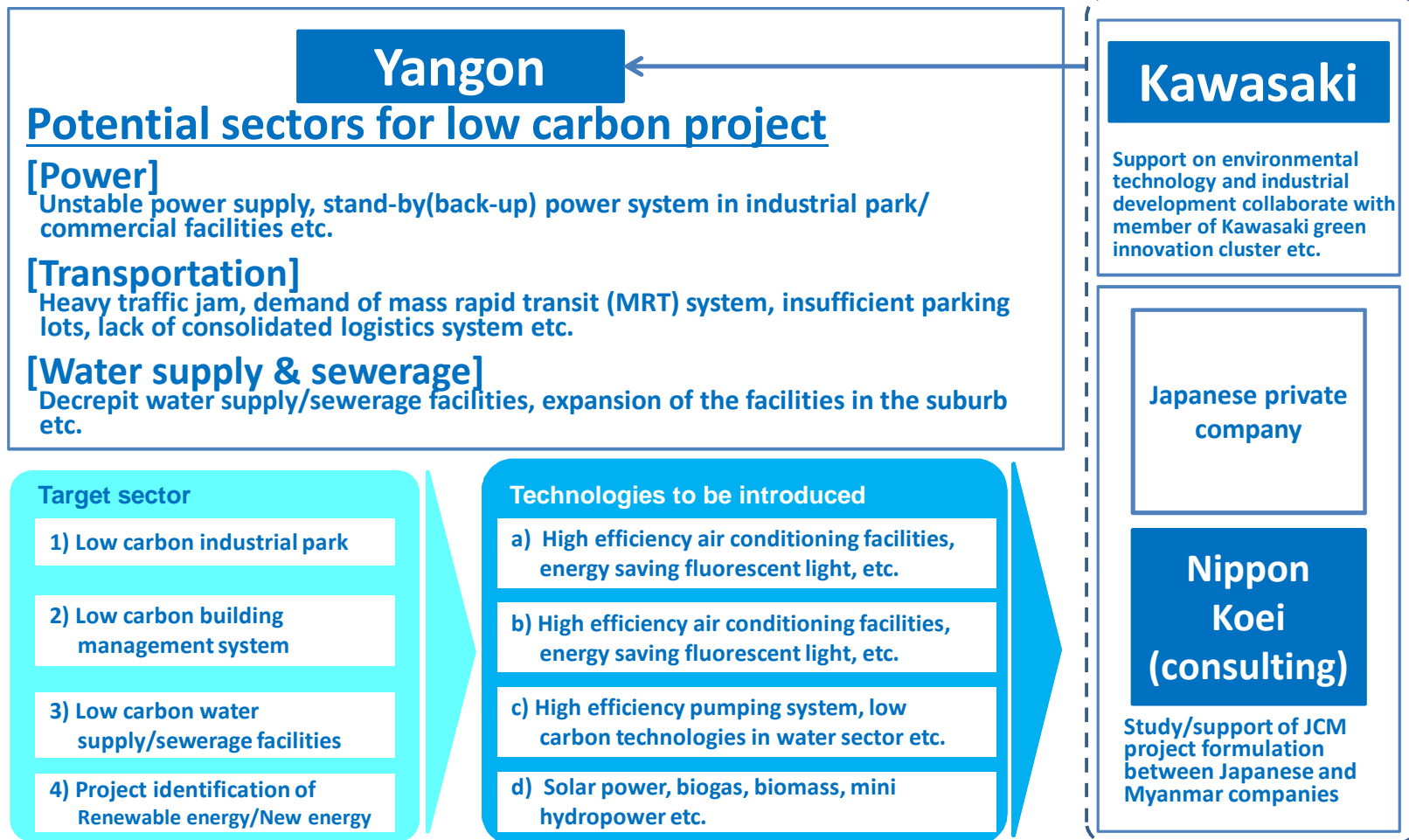
- Population: APPROX 5.2 million population (2014)
- Area: 598.8 Km²
- Economic Growth Rate **7.8 %** (2016: Estimated by World Bank)



JCM City-to-City Collaboration Project (2015)

【Objectives】

To contribute to **sustainable development** and realize **low carbon society in Yangon**, the study aims to **formulate prospective JCM projects collaborate with Kawasaki city and Japanese private entities**, which have high-efficiency and low carbon technologies.



JCM City-to-City Collaboration Project (2015)



Mingaradon Industrial park in Yangon



Pollution Control and Cleansing Department in YCDC



City Planning and Land Administration in YCDC



Meeting with CPLA&PCCD in YCDC regarding City-to-city collaboration workshop

JCM City-to-City Collaboration Project (2015)



Kawasaki Chamber of Commerce and Industry



Economic and Labor Affairs Bureau of Kawasaki



2016/01/13

Zero-Emission Industrial park



2016/01/14

Ukishima Incineration Plant

JCM City-to-City Collaboration Project (2015)



Building up "Trust" and "Mutual Understanding"

2016/01/29



2016/01/29



City-to-city collaboration workshop held in Yangon city hall

2016/01/29



2016/01/29

JCM City-to-City Collaboration Project (2015)



City News article


Achievement: MOU between Kawasaki and Yangon (2015)

Memorandum of Understanding Between the City of Kawasaki, JAPAN and the City of Yangon, Myanmar on the City to City Collaboration

In order to promote city to city collaboration between Kawasaki and Yangon for achievement of low carbon city in Yangon and thus to contribute to the further prosperity of both, the City of Kawasaki and the City of Yangon hereby agree upon the following:

1. Both parties shall be committed to promote city to city collaboration for achievement of low carbon society in Yangon and contribute to the further prosperity of Kawasaki and Yangon within the fields of technical cooperation, information exchange, and economic exchange as well as develop cooperative framework based the idea of both cities are on win-win and equal relationship.
2. In order to achieve the aforementioned objectives, both parties shall cooperate on the following:
 - (a) Excavating and supporting of low-carbon projects utilizing Joint crediting mechanism (JCM) scheme
 - (b) Technical cooperation and information exchange for realizing low-carbon society of Yangon
 - (c) Supporting creation of new business in a field of environment
3. According to this Memorandum of Understanding (MOU), there shall be back to back missions to have exchanges and study visits in both cities.
4. This MOU shall become effective on the signed date and remain valid for three years. If one country wants to terminate the MOU, they shall inform in writing before one month, otherwise the MOU will be continued automatically.
5. The contents of this MOU can be amended in accordance with a written agreement of both parties.
6. Any disagreement which comes from interpretation of the MOU shall be solved in a friendly way based on both parties' trust and discussion.
7. This MOU shall be made in two original copies in English.

March 25th, 2016


H.E U Hla Myint
Mayor of Yangon


Mr. Norihiko Fukuda
Mayor of Kawasaki

August 2015: Start of city-to-city collaboration

October 2015: 1st Visit to Yangon-city

December 2015: Discussion on Draft MOU at Yangon-city

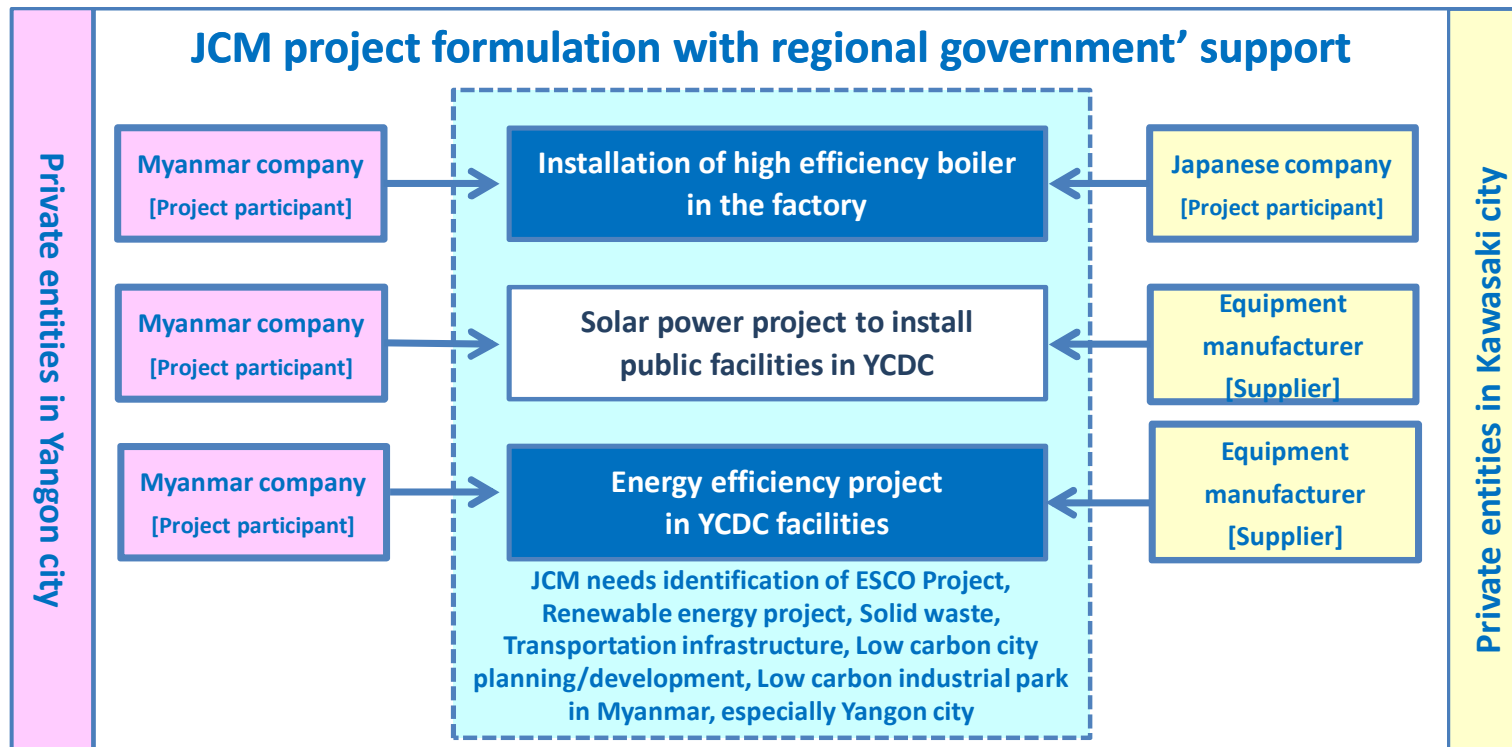
January 2016: Workshop on City-to-city collaboration at Yangon-city

March 2016: Concluding MOU between Kawasaki city and YCDC



Workshop for city-to-city collaboration at Yangon

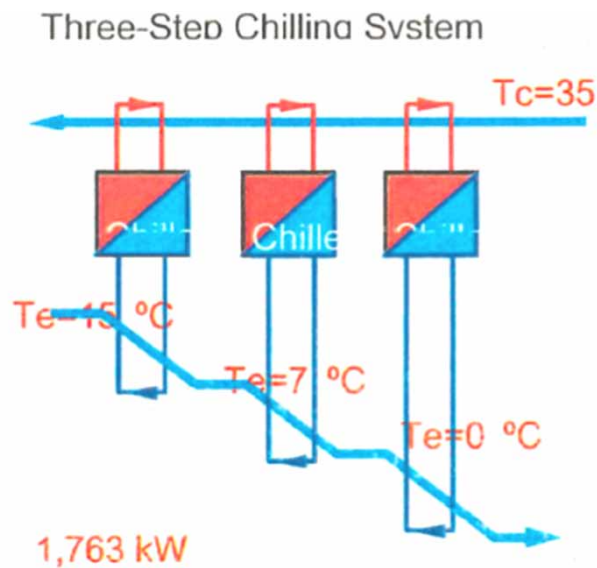
JCM City-to-City Collaboration Project (2016)



Ongoing JCM Model Project - 1 (2016)

JCM Model Project - 1: Saving Energy by High Efficient Chiller

<Introduced Technology>



Item	Value
Location	Drinking factory in Yangon
Efficiency	COP4.3, compressor 95%
Capacity	Compressor 1401+1039kW Condenser 1650 kW x 2
Investment	2.25 mil US\$
Annual saving	1.8-3.2 GWh/year (0.18-0.32 mil US\$/yr)
CO2 Reduction	1029 ton/year

- Cascade system of high efficient chiller can reduce electricity consumption and CO2 emission
- 28% electricity reduction

Ongoing JCM Model Project - 2 (2016)

JCM Model Project - 2: Saving Energy by High Efficiency Boiler

<Introduced Technology>



Item	Value
Location	Food factory in Yangon
Efficiency	94%
Capacity	2 ton/h x 6 nos
Investment	0.81 mil USD
Annual fuel saving	257 kL/yr, 0.14 mil US\$/yr
CO2 Reduction	674 ton/year

- High-efficiency once-through oil boiler reduce fossil fuel and CO2 emission
- Co-benefit of reduction of air pollutant
- 9.6% fuel reduction

Ongoing JCM Model Project (2016): Installation of Solar Power Generation Device in Public Facility in Yangon



Selection of Solar PV Generation Pilot Project of YCDC Facility

- Selection of Pilot Project Site:
 - (1) Interview Survey → (2) Site Survey → (3) Document Review
- Criteria for Selection: Needs, Demand, Location

Candidate	Status	Load	Selection result
Nyaung Hnit Pin	-Peak 7MW, off-peak 6.8 Mw, 24 hr operation -1 st phase 2014, 2 nd phase 2015	440 kW (LV) 3.2MW+3.4 MW (HV)	1 st priority: PV possible to supply LV side. (110 kW x 4 unit of lift-up pump) For HV side, further study necessary.
Hlawga	- 24hr, fixed demand - 1MW x 2nos, 6.6 kV - Pump installation in 2008	2 MW	2 nd priority: Under partial update (new electric board has mismatch of interface). →It will take time until PV connection study becomes possible.
La Gun Byin	132kWx6+25 kWx6 + 30 kWx4, 400V Peak 450 kW, off-peak 350 kW	450 kW	Too small, remote

Pilot Project Site: Nyaung Hnit Pin Water Purification Plant



Electric Room (PV –related Equipment can be stored)

Pump Room



Candidate PV Module Area

Photo Voltaic (PV) System Concept

< PV System on Planning >

- Solar PV Energy sent to YESC (Yangon Electric Supply Company) grid
- YCDC purchase Electricity from YESC grid
- Net Metering : $\text{Tariff Payment} = \text{Energy used} - \text{PV generated}$

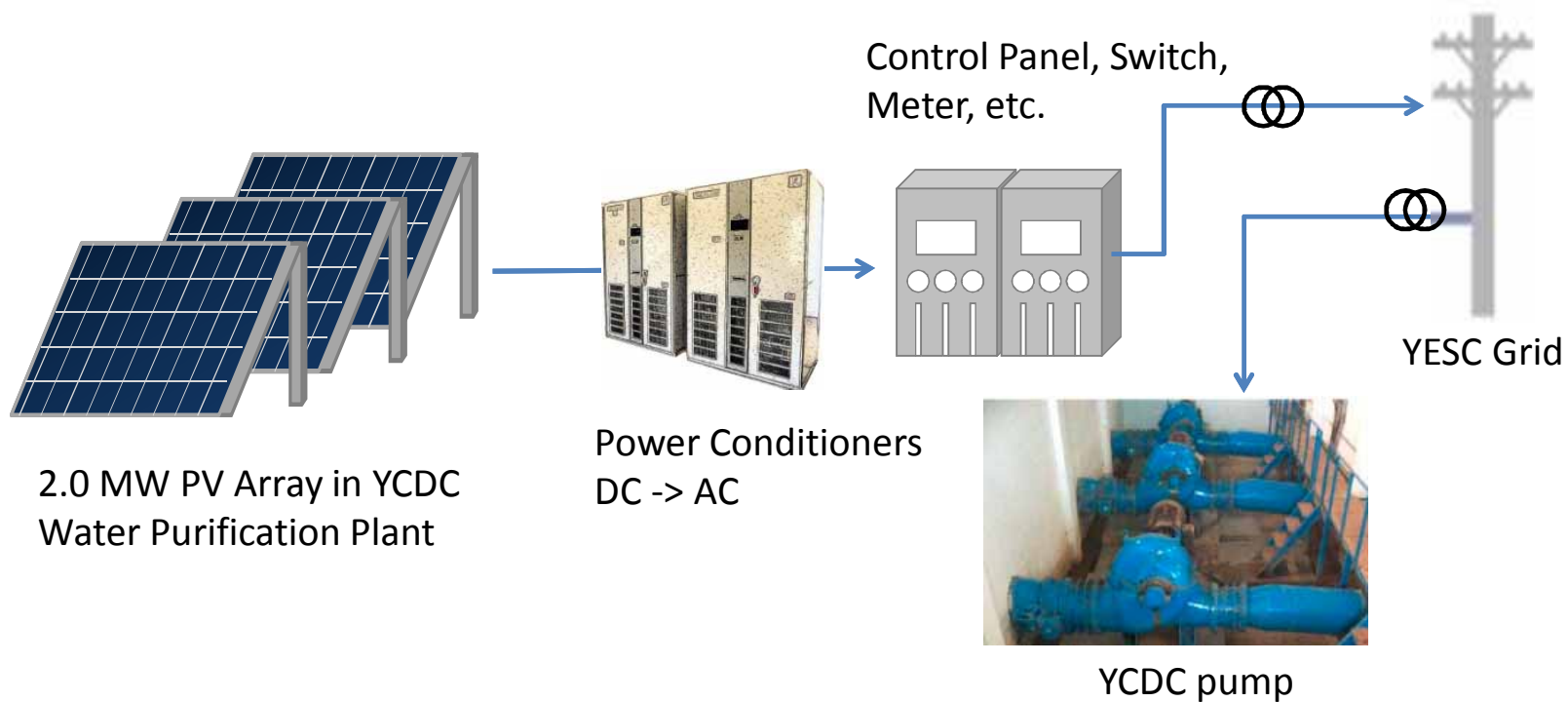
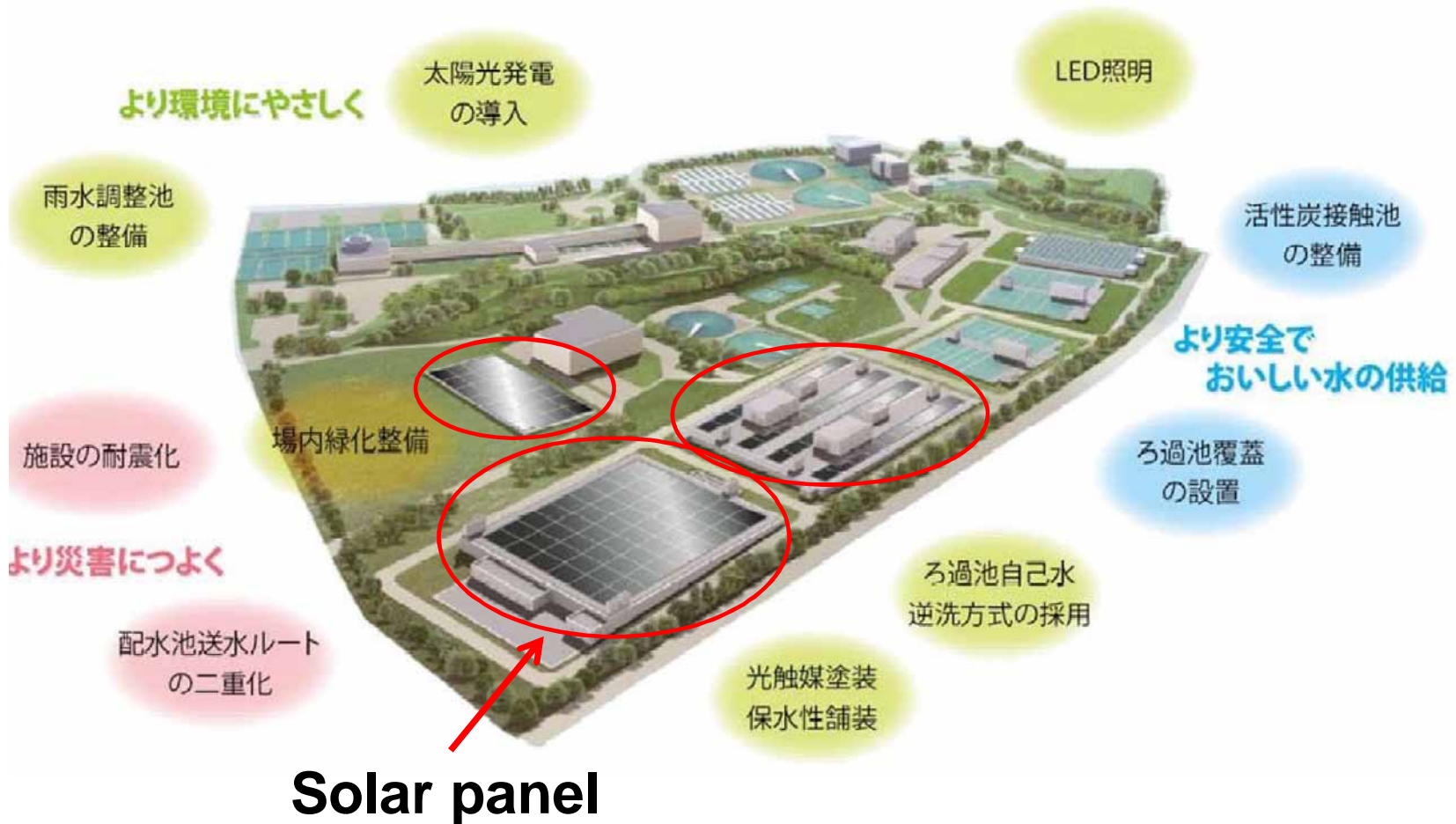


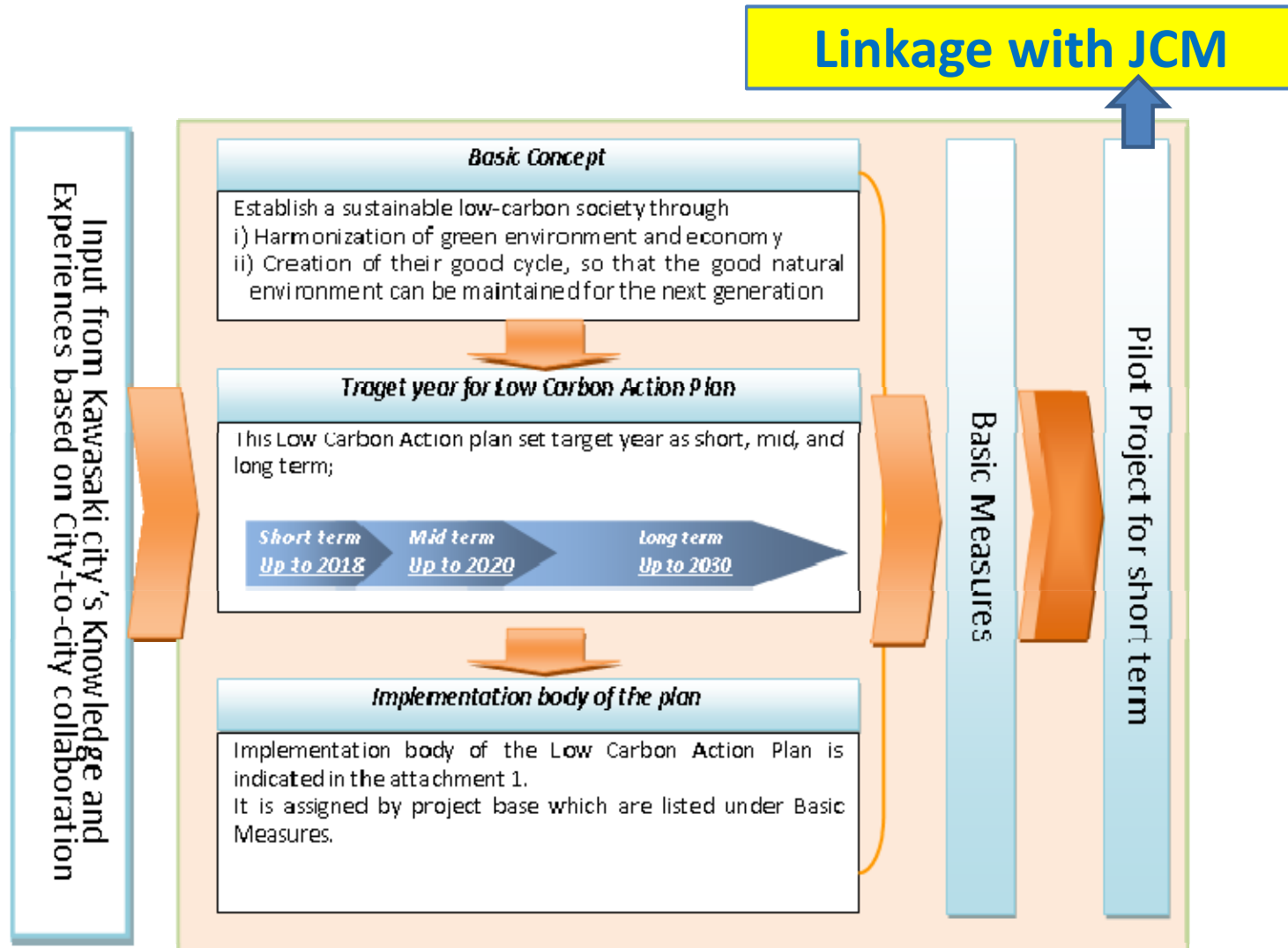
Image of installation of solar power generation device in public facility:
Nagasawa Water Purification Plant in Kawasaki

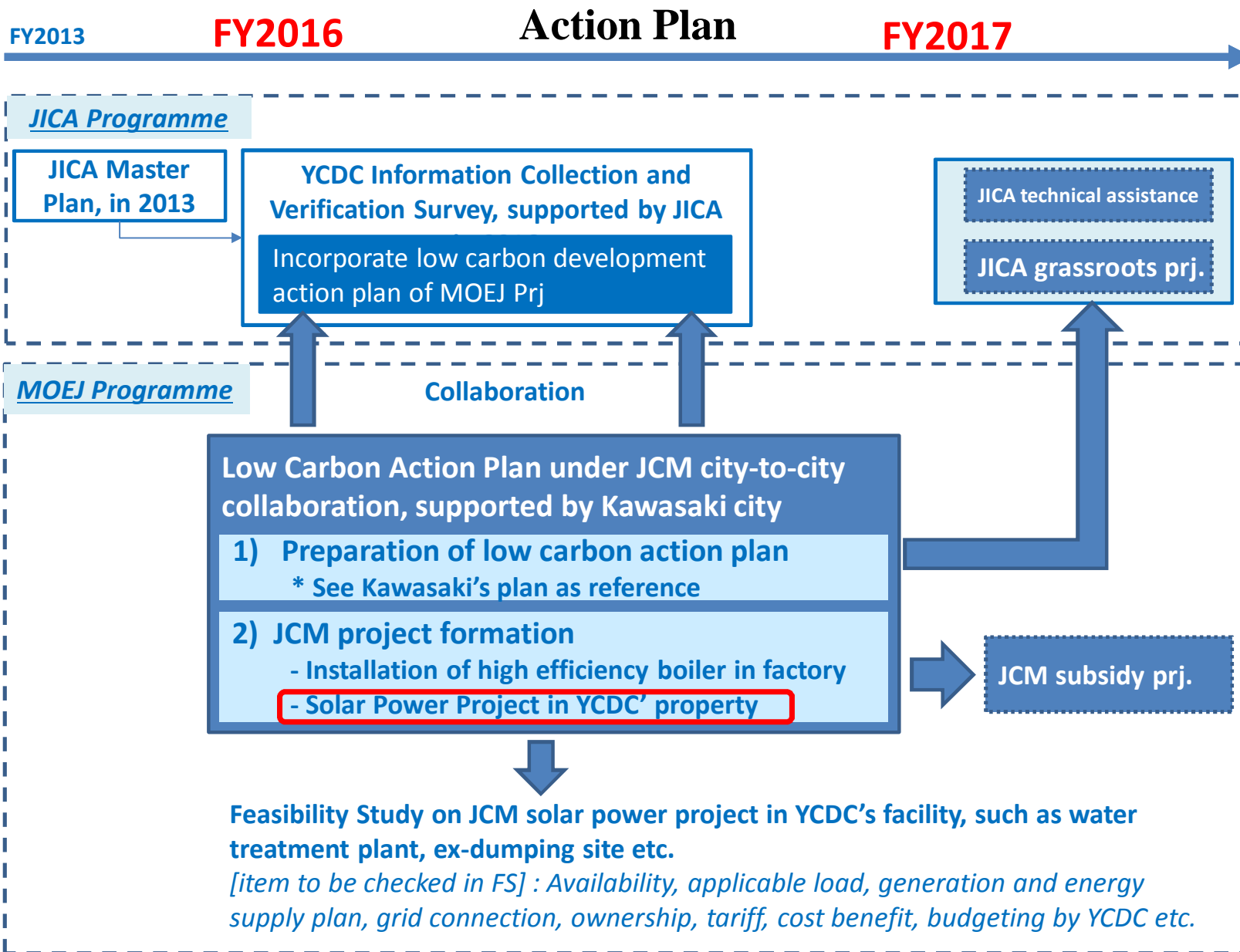


Image of installation of solar power generation device in public facility:
Nagasawa Water Purification Plant in Kawasaki



Preparation of Low Carbon Action Plan in Yangon (2016)





Potential of City-to-City Collaboration in the future (1)

Low Carbon Society

- Eco town planning and sharing experience
- Introduction of energy saving products/technologies from Japanese private entities
- Support on Private sector collaboration, such as Kawasaki Chamber of Commerce and Industry etc.
- Support on capacity development through JICA scheme etc.

Monitoring

- Support on system development on car exhaust/air pollution/water quality / soil condition, including analysis know-how

Solid Waste

- Planning/implementation of solid waste collection system
- Planning/implementation of garbage separation program
- Planning/implementation of compost promotion program
- Knowledge sharing of industrial waste management
- Establishment of solid waste database etc.

Potential of City-to-City Collaboration (2)

Water supply /Sewerage

- Sharing of management knowledge on water supply / sewerage system
- Sharing of water tariff collecting / water quality management knowledge

Education

- Planning / implementation of environmental education programs

Other options

- Implementation of site tour on Kawasaki eco town etc.
- Establishment of Environmental Impact Assessment (EIA) system



Introduction of Japanese Advanced Products and Technologies
in terms of “Low Carbon” or “Zero Carbon”

Thank you for your kind attention.

