Environmental Measures
in Port of Kobe JAPAN

Port and Horbar Bureau,
the City of Kobe

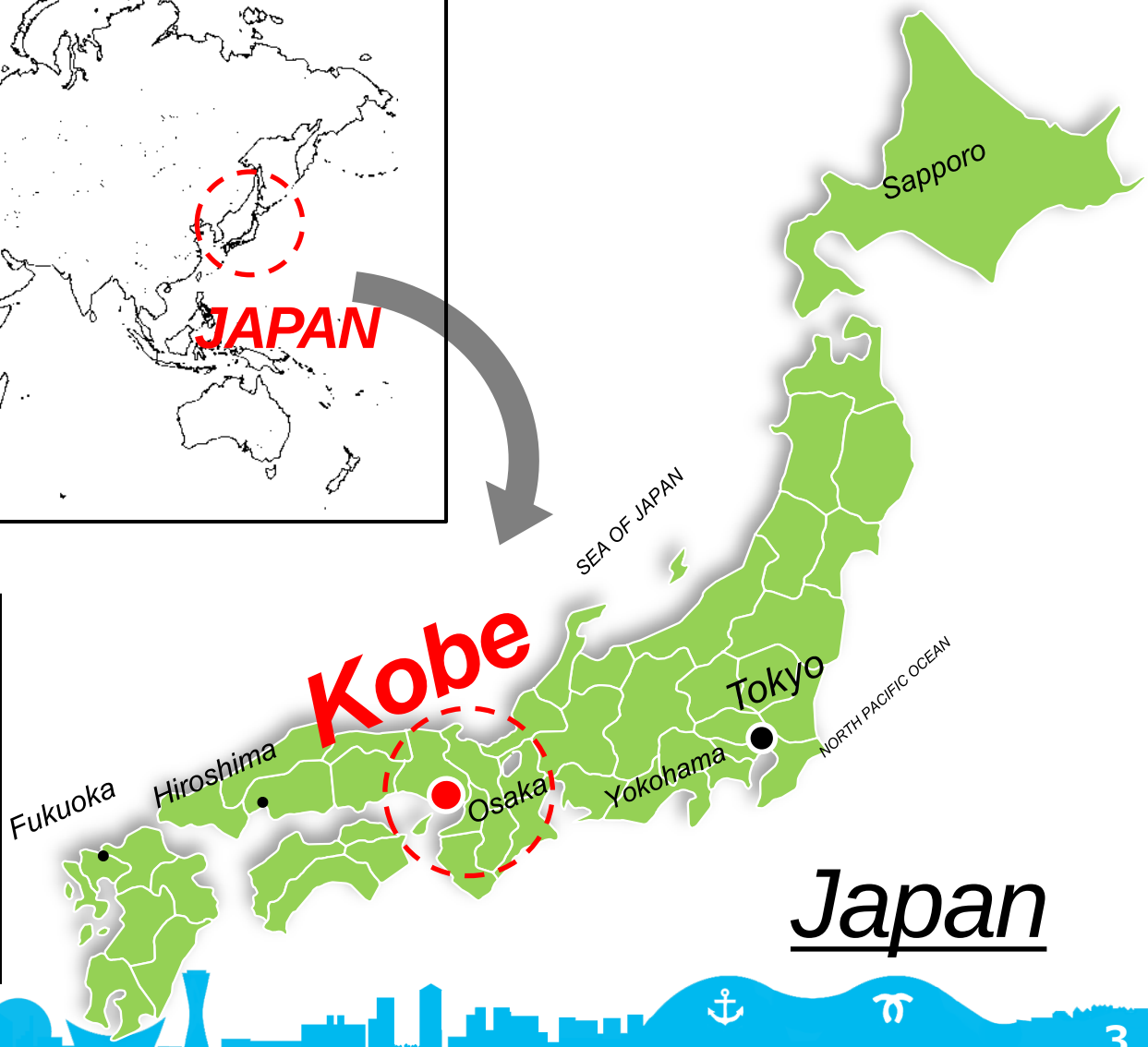
17.May.2018

BE KOBE

1. About ”KOBE”

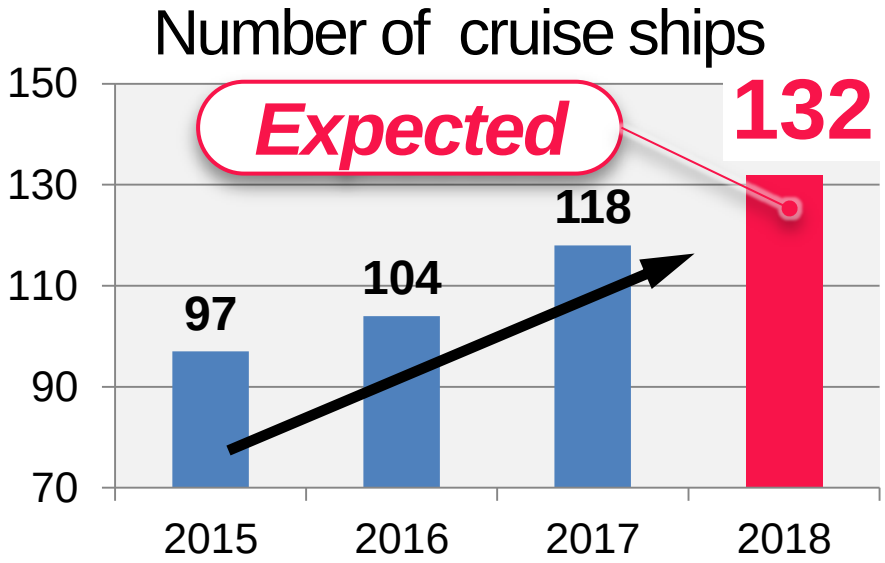
1. About "KOBE"
- Location

Area	557.02km2
Highest Point (Mt.Rokko)	931.3m
Estimated Population	1,532,391
Households	715,393
Population Density per k㎡	2,751

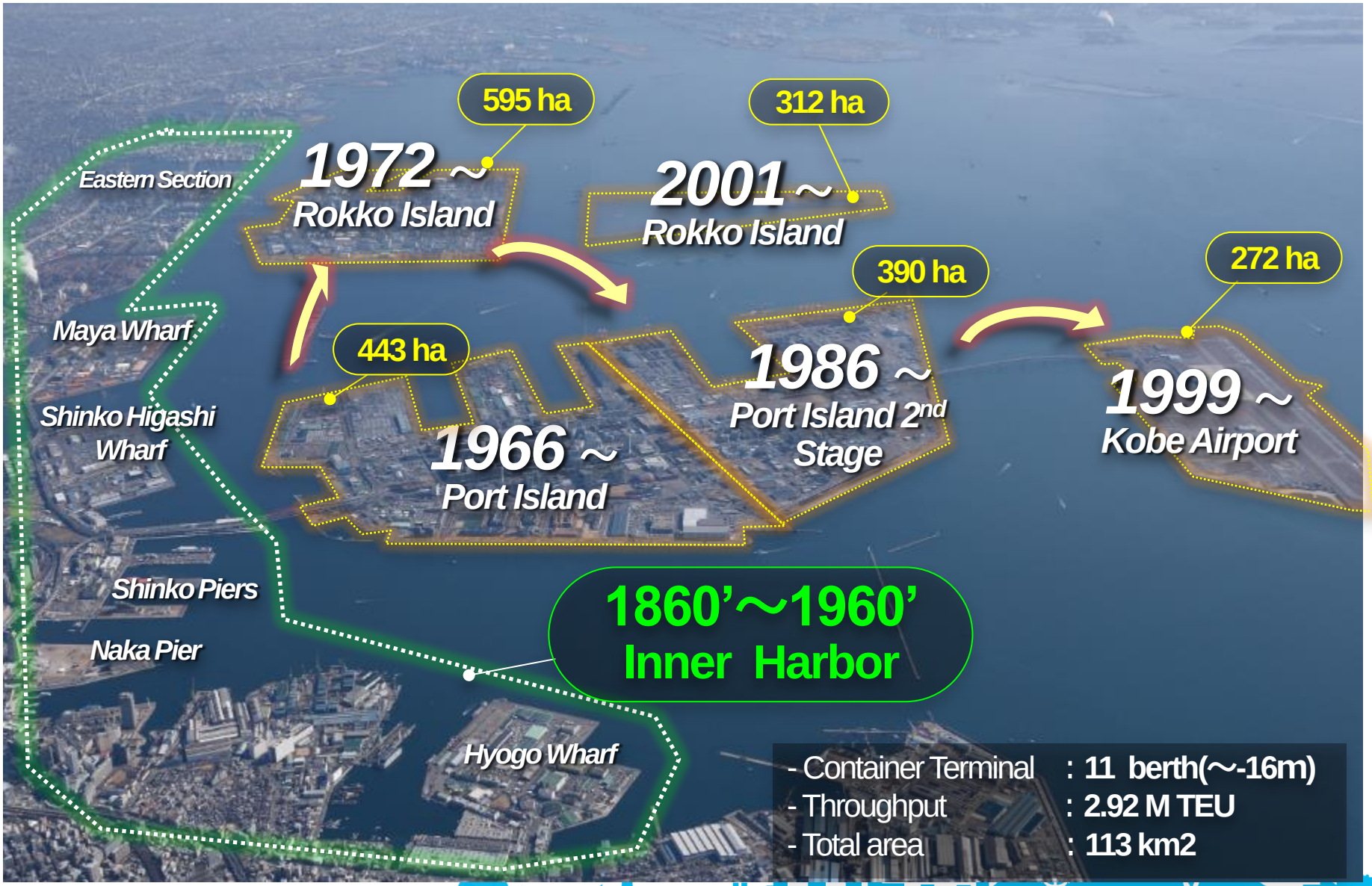


- Kobe / Baltimore

1. About "KOBE"
- Cruise Port

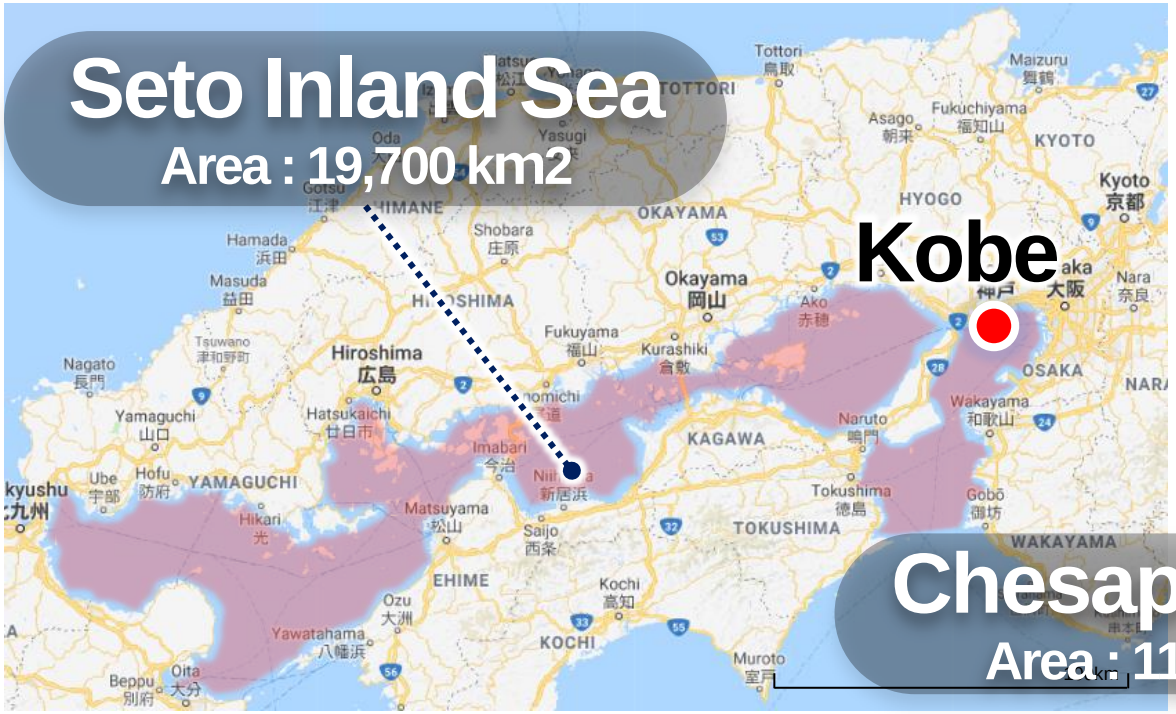


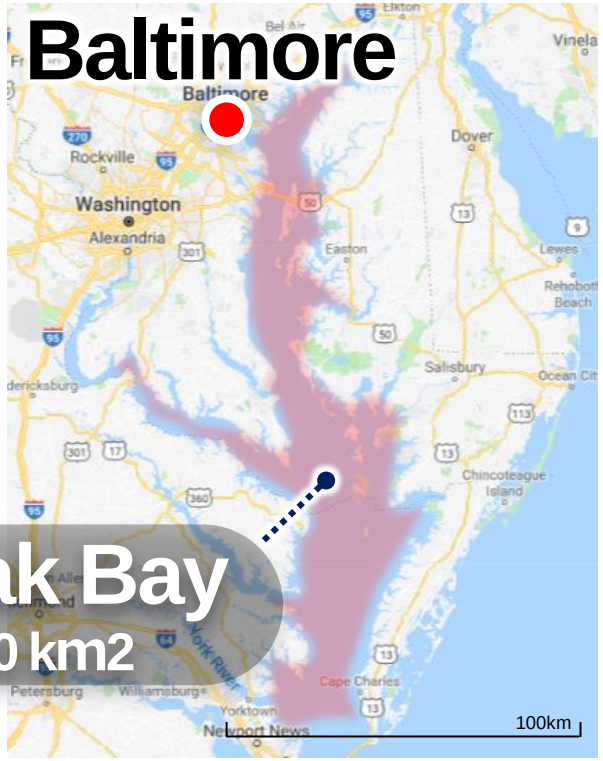
- Port Area


595 ha
312 ha
1972 ~
Rokko Island
2001 ~
Rokko Island
Eastern Section
390 ha
272 ha
Maya Wharf
443 ha
1986 ~
Port Island 2nd Stage
1999 ~
Kobe Airport
Shinko Higashi Wharf
1966 ~
Port Island
Shinko Piers
1860'~1960'
Inner Harbor
Naka Pier
Hyogo Wharf
- Container Terminal : 11 berth(~-16m)
- Throughput : 2.92 M TEU
- Total area : 113 km2

2. Environmental Issues at “KOBE”

Located along the ”Closed Sea”





Chesapeak Bay
Area : 11,600 km2

Fishery

Oysters

Oysters

crab

BE KOBE

- Environmental Assessment in Japan (Overview)

Projects

Waste disposal site	Area over 30 ha
Reclamation	Area over 50 ha
Airport	Runway length over 2,500m

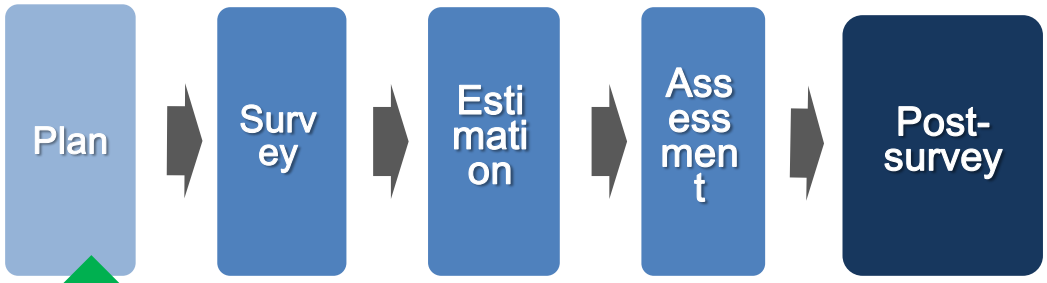
⋮

Evaluation Item

Air Quality
Noise
Water Quality
Bottom Materials
Biological Research

⋮

Flow



Mitigation(Ex)

▼Slope – Type Seawalls

▼ Artificial Lagoon

2. Environmental Issues at "Kobe"

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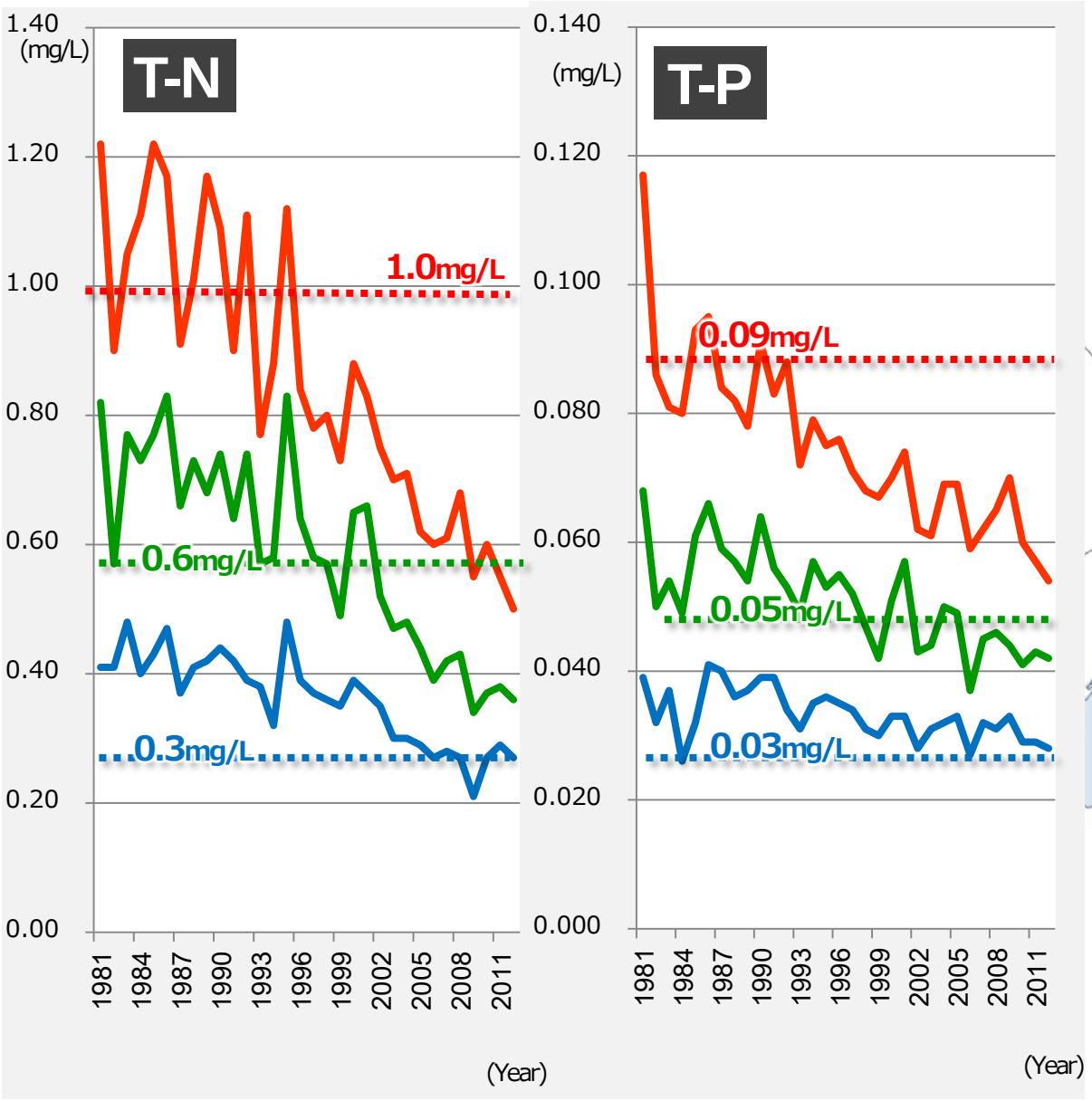
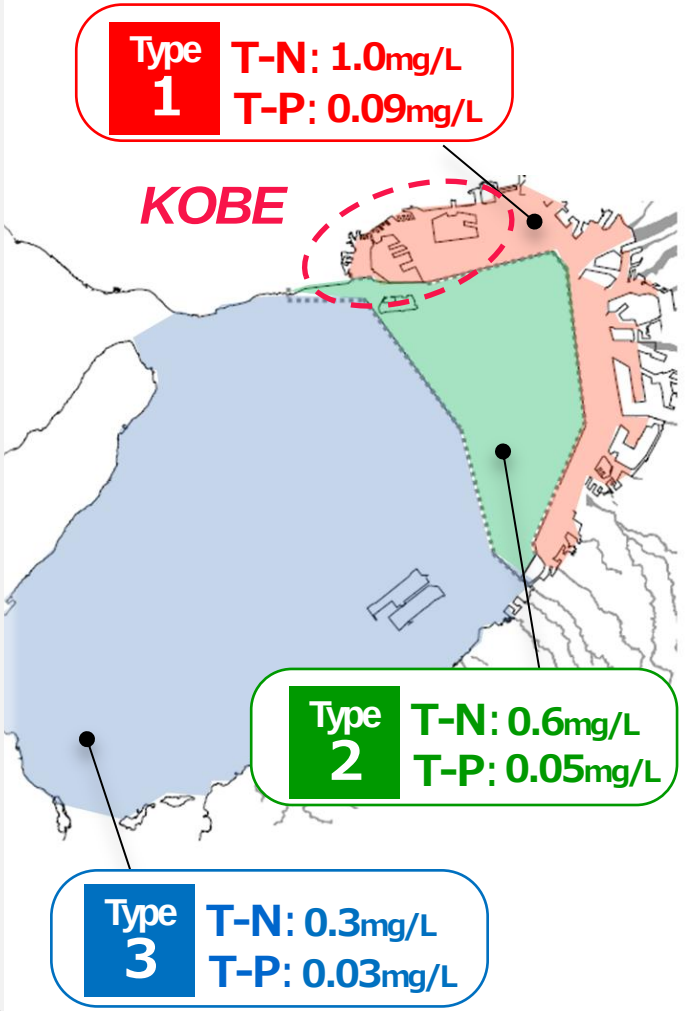
- Improvement of Sea-Water Quality in Offshore Kobe



T-N (Total nitrogen)
T-P (Total phosphorus)



3. Environmental Measures

3-1 Land Use Plan (Port Island & Port Island 2nd)

Buffer Green Zone

3-1 Land Use Plan (Rokko Island)

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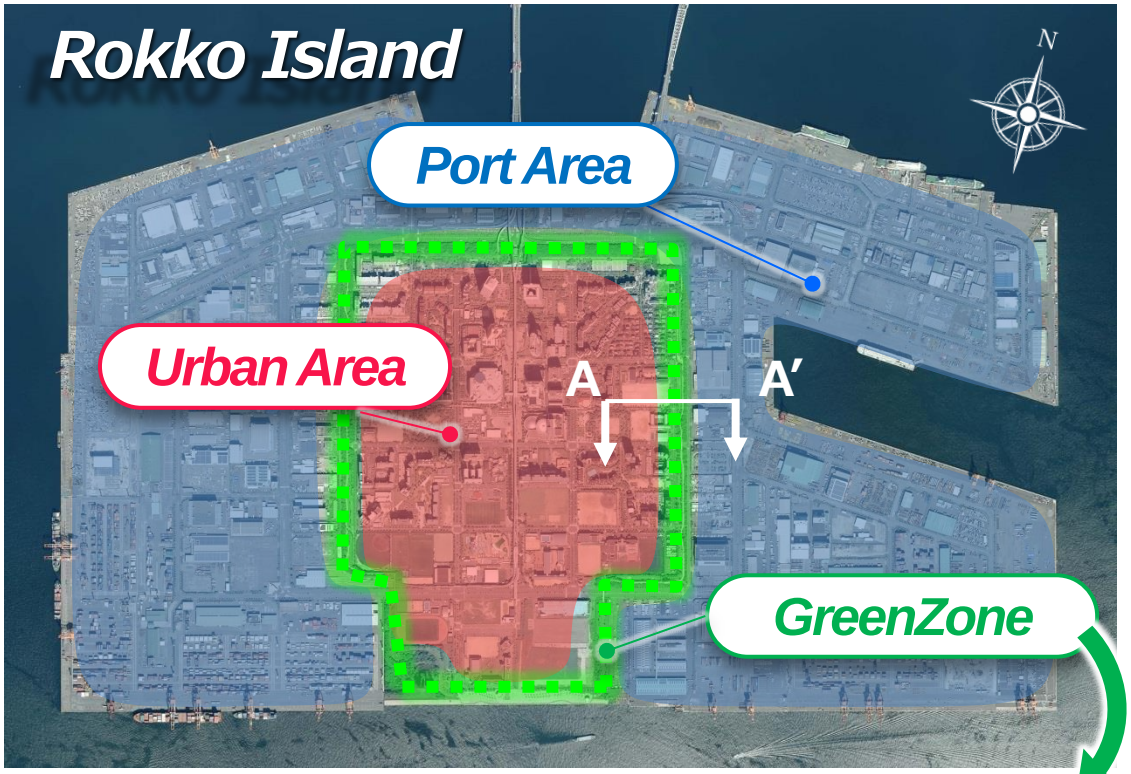
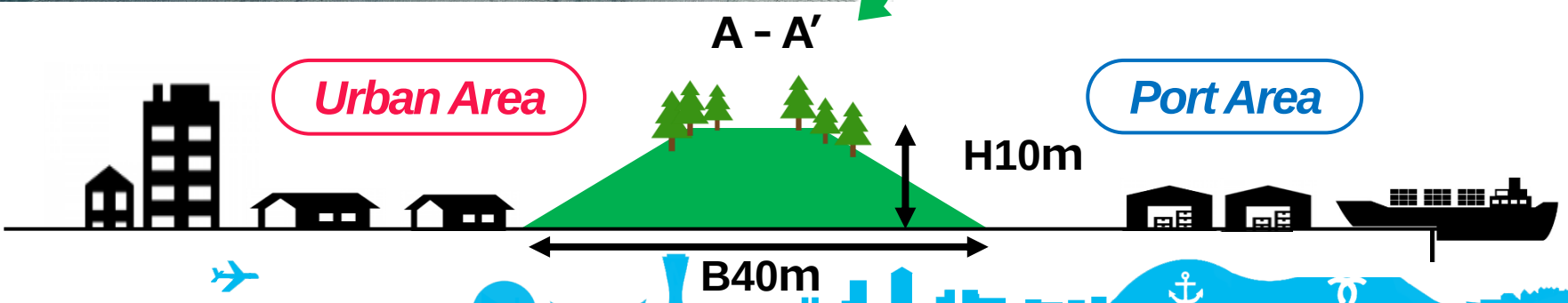
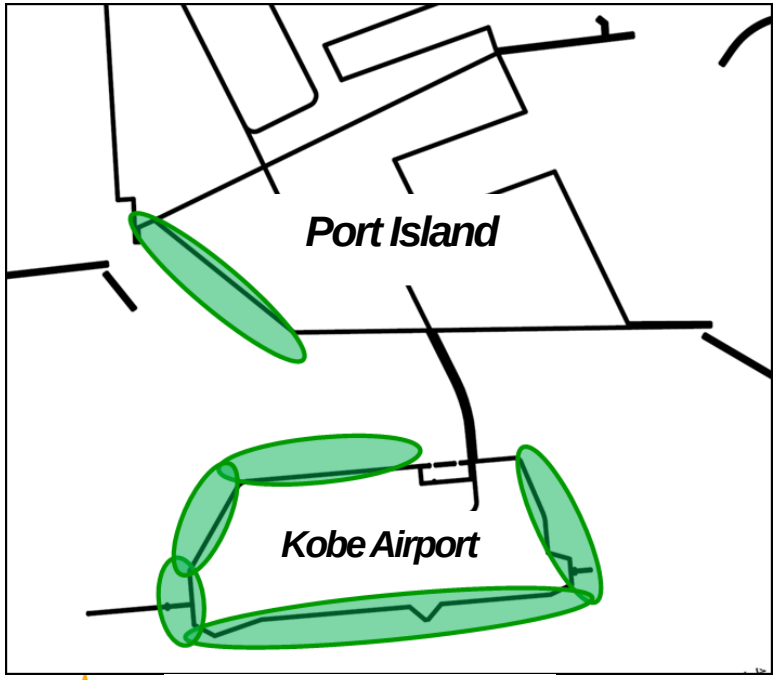
Buffer Green Zone

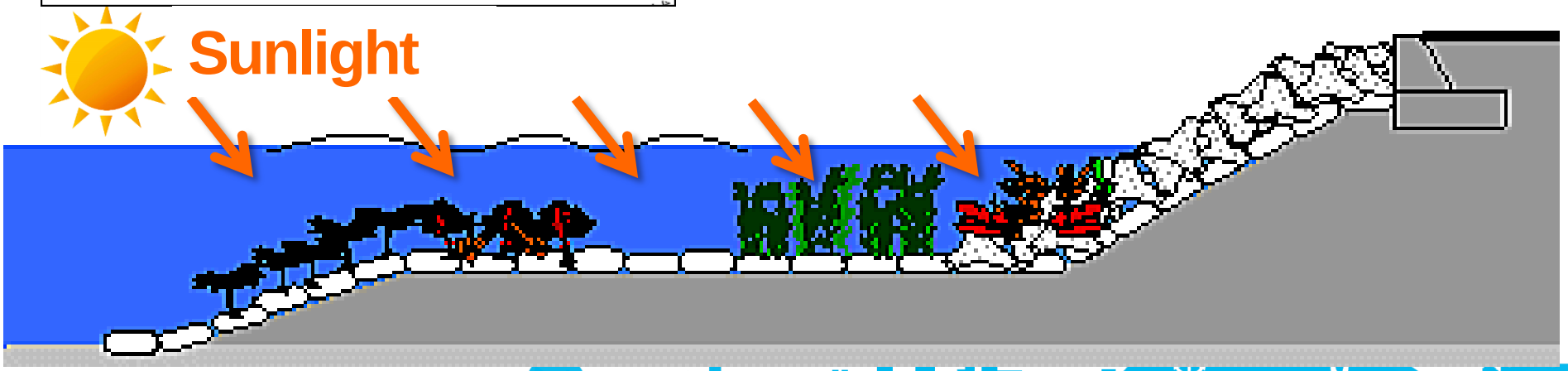




3-2 Marine Organisms

Slope – Type Seawalls





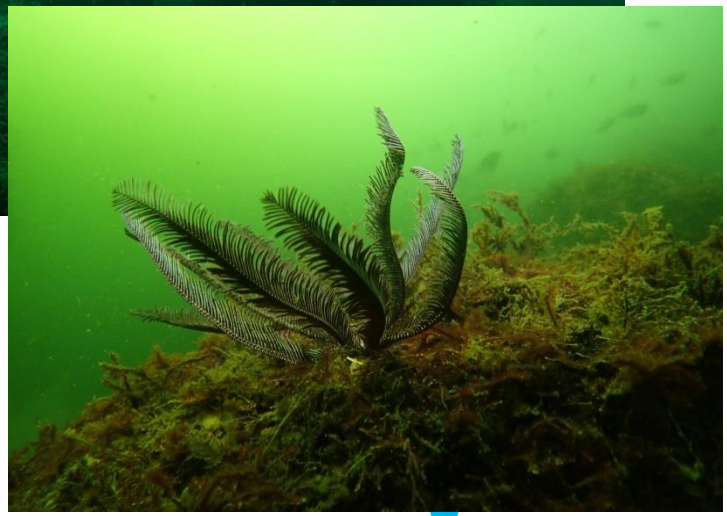
3-2 Marine Organisms

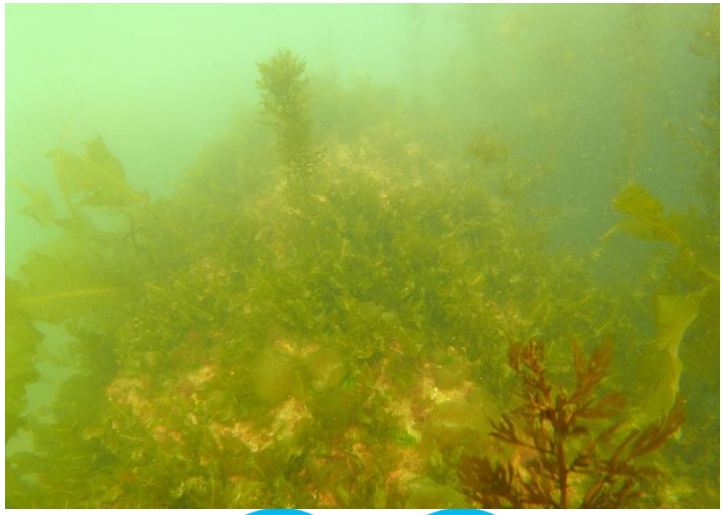
Algae grow and various marine organisms inhabit
(photo in 2016)

Damselfishes

Chromodoris orientalis

spotbelly greenling





3-2 Marine Organisms

Artificial Lagoon
(Kobe Airport)

3-2 Marine Organisms (Wild Life)

Bird－Watching Park
(Rokko Island)

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3-3 Reducing Carbon Footprint

Hybridization of RTG（Engine + Electricity）

Accumulate the energy accruing on lift-down in Capacitor (electrical storage device), utilize the energy on lift-up

- Decreases of load of engine and fuel consumption
- Reduction of engine capacity by half

38 RTG out of 92 hybridized now on Kobe port

transfer crane

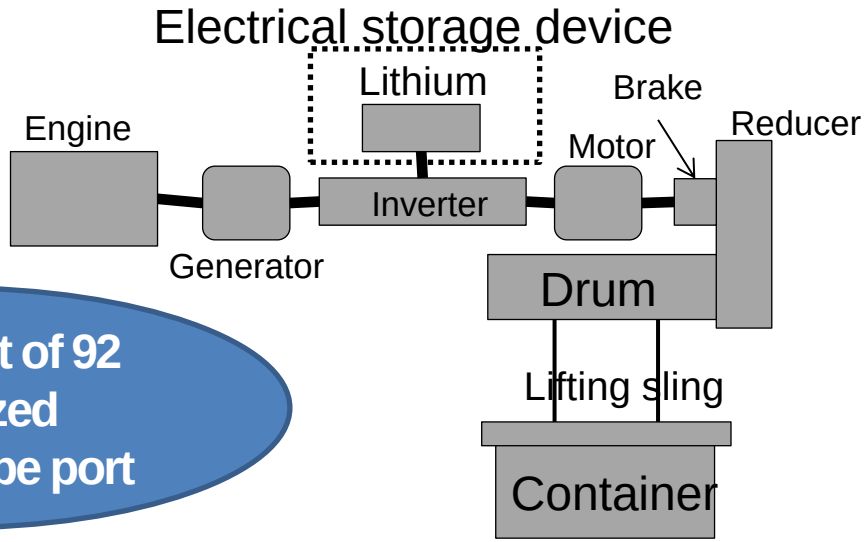

Image of hybrid system

3-3 Reducing Carbon Footprint

Onshore power supply

Electricity supply to Pleasure Cruisers from NAKA Pier Central Terminal

Electricity supply to various types of boats in Port Island such as Tugboats, Water supply boats, Police boats, Fireboats, Patrol boats in Port Island.

3-3 Reducing Carbon Footprint

Solar photovoltaic generation utilizing roofs on port facilities

Place [company]	Power generation	Annual power generation	start	
Rokko Island **[NORITZ]**	**1.2MW**	**1.2 milion kWh**	2013	
PortIsland PortIsland2nd **[KAMIGUMI]**	**2.4MW**	**2.5 milion kWh**	2013	

3-4 Offshore Disposal Site

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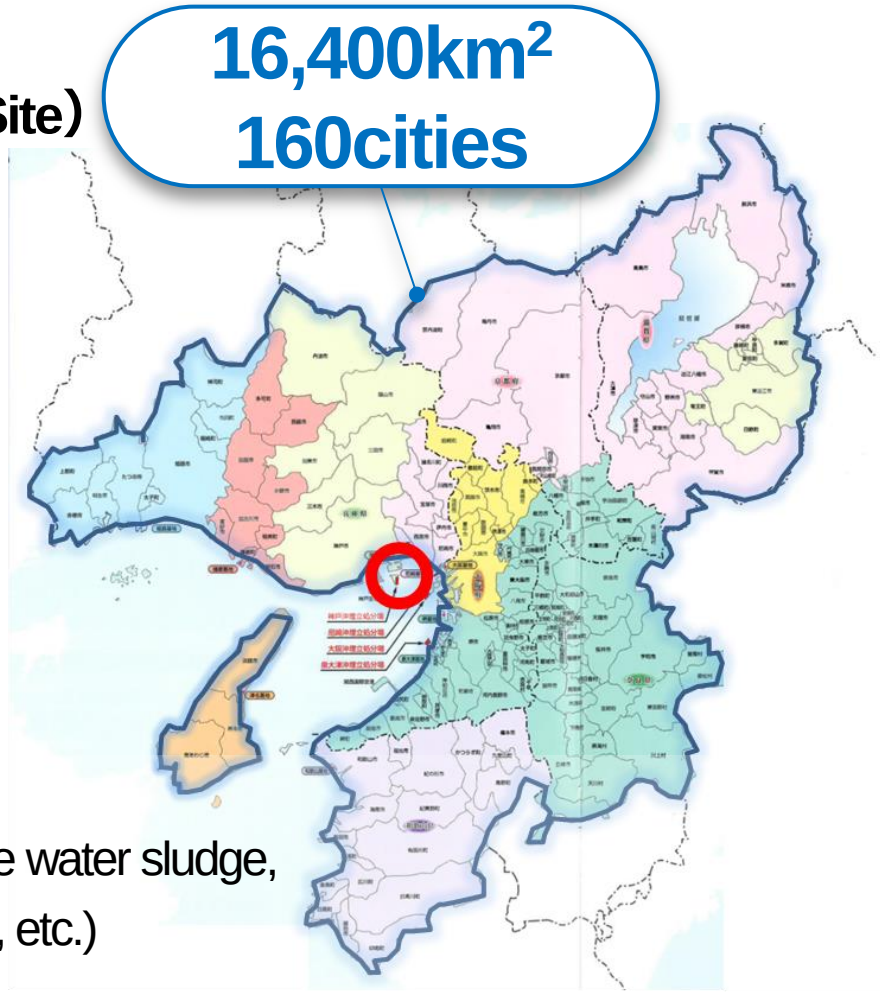
- **Phoenix Project**
  （Kobe Offshore Reclamation Disposal Site）



- **Outline**

Acceptance wastes：General waste, supply/sewage water sludge, cinders, industrial waste(slags, etc.)

Capacity ： 15,000,000㎥

Acceptance results ： 10,980,000㎥（March. 2017）

Duration ： Dec. 2001～Mar. 2030

4. Future Issues

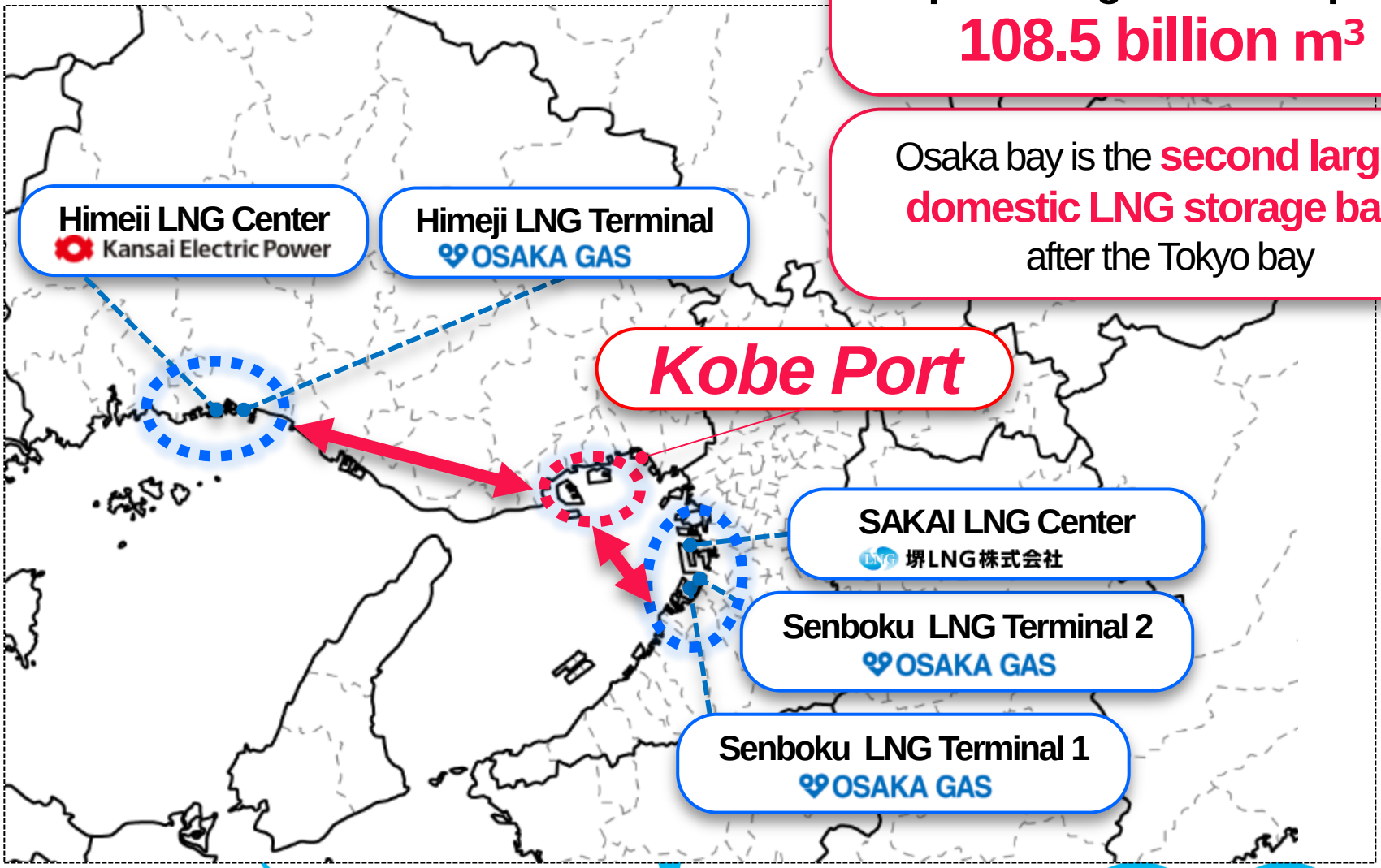
BE KOBE

4 -1 Emission Regalation of Sulfur Content

Formation of LNG bunkering

Japan is largest LNG importer
108.5 billion m³

Osaka bay is the **second largest domestic LNG storage base** after the Tokyo bay



4 -2 Hydrogen Project in Kobe

Kobe's initiative to introduce alternative energy

Introduction of
Hydrogen Energy

Introduction of
"Cogeneration"

4 -2 Hydrogen Project in Kobe

Hydrogen Supply Chain

2020～**Start**

Brown coal gasification technology → Gas refinement plant → Hydrogen liquefaction/Load base → Liquefied hydrogen transit technology → Liquefied hydrogen cargo handling technology → Hydrogen utilization

Australia

Kobe

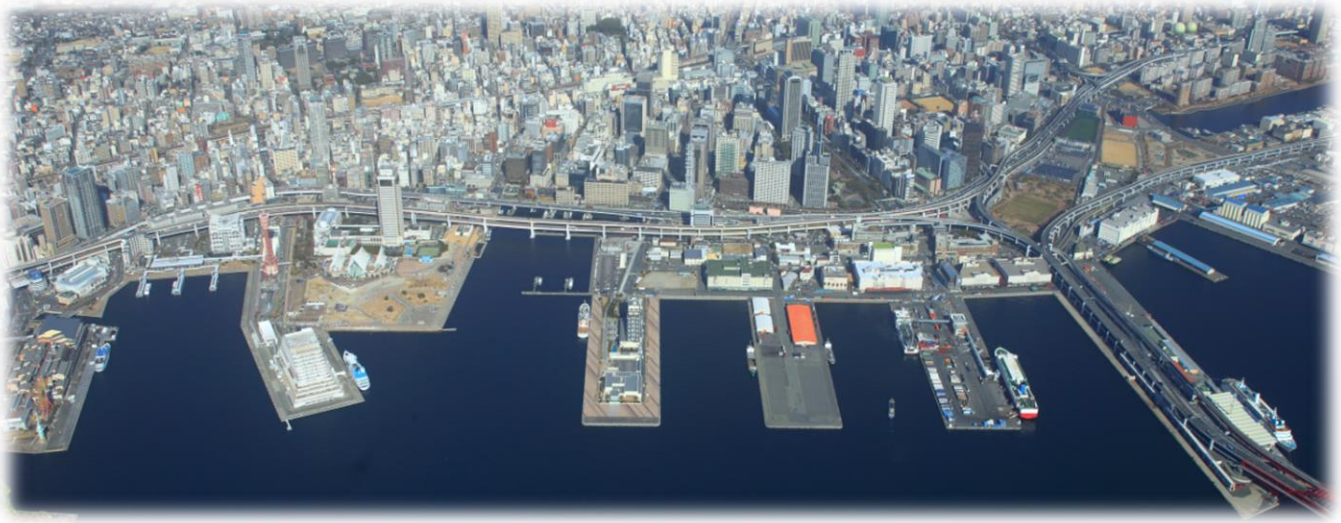
4 -3 Future Agenda

☐ Expansion of onshore power supply

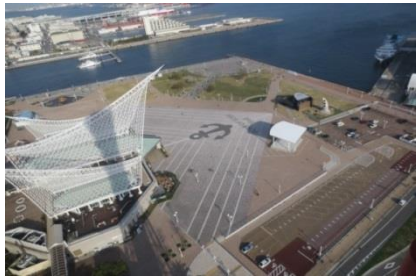
- Installation in waterfront area

☐ Correspondence to alternative energy

- Correspondence to LNG fuel ships
- Hydrogen supply chain



Please visit Kobe !



Meriken Park

Arima Hot Springs

Kobe Sanda Outlets Mart

Sake Museum

Kobe's Night View

Night Cruise

Kobe Sweets

Kobe Beef

Golf Course

Rokko Cable Car

Azur Kobe

Restaurant with Jazz Live

Thank you for your attention.

ご静聴ありがとうございました。