

Yokohama's Solid Waste Management and further challenges with Smart Technologies



Development Cooperation Division, International Affairs Bureau
City of Yokohama

City of Yokohama



Population	3,731,096
Households	1,661,002
Area	435.29 km ²

(as of 1st January, 2017)



City of Yokohama

Healing and Stimulating



Sankeien Garden



Yokohama carnival



Triathlon (c)Delly CarrITU



Port opening memorial hall



Hikawa-maru



Minato Mirai 21 area

Embracing “New” and “Old”

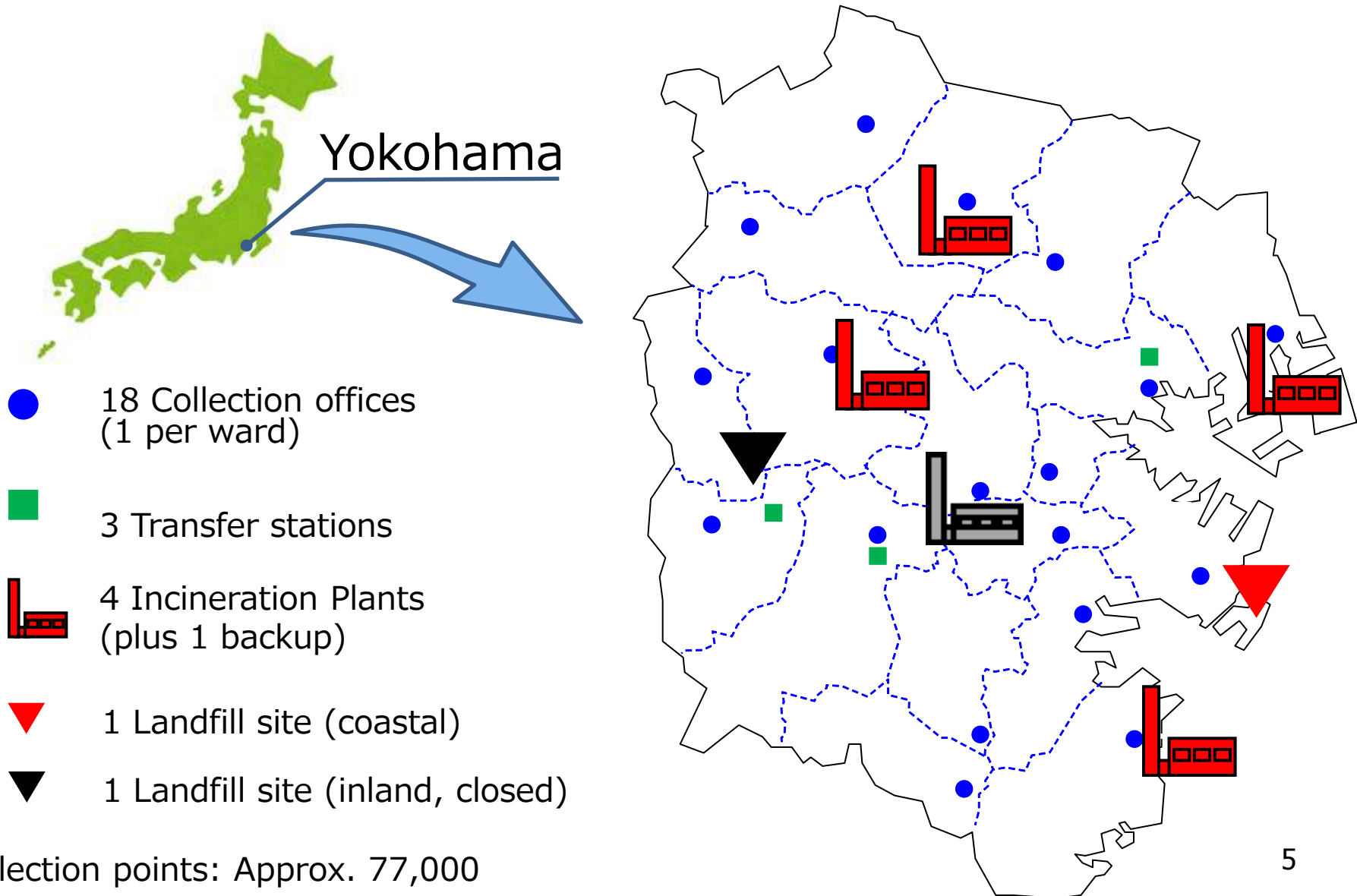
Our Efforts in Waste Management

- G30 Project and Further Challenges -



Overall of the Facilities

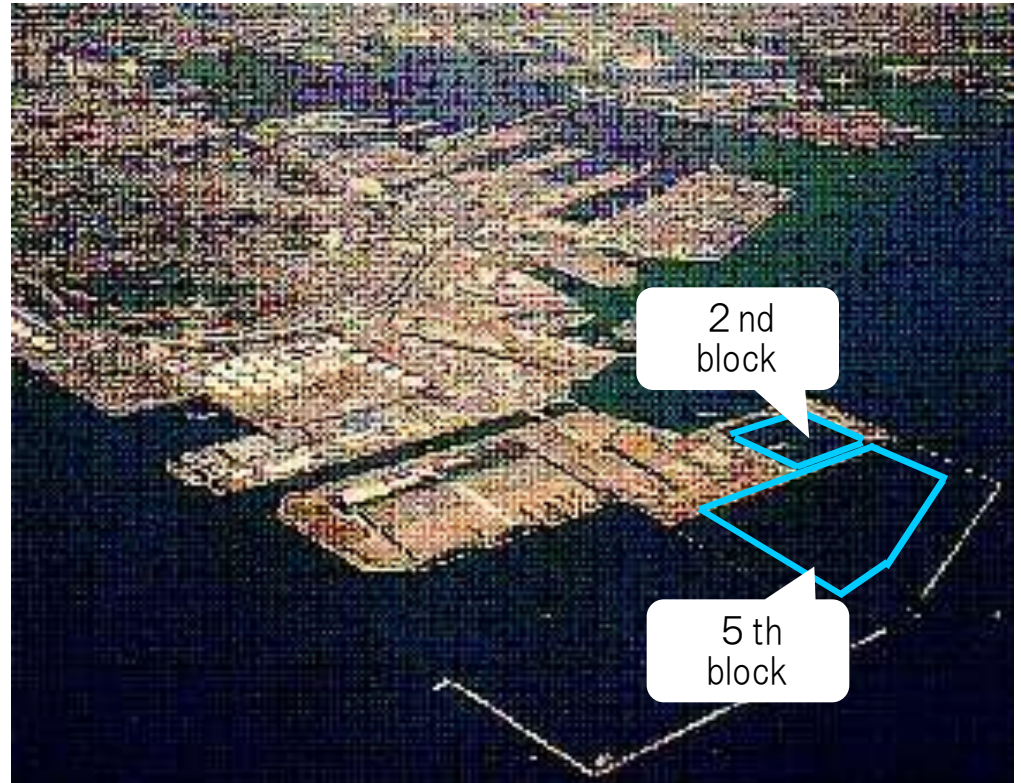
~Facility Location~





Shinmeidai Disposal Site

(~Mar. 2011)



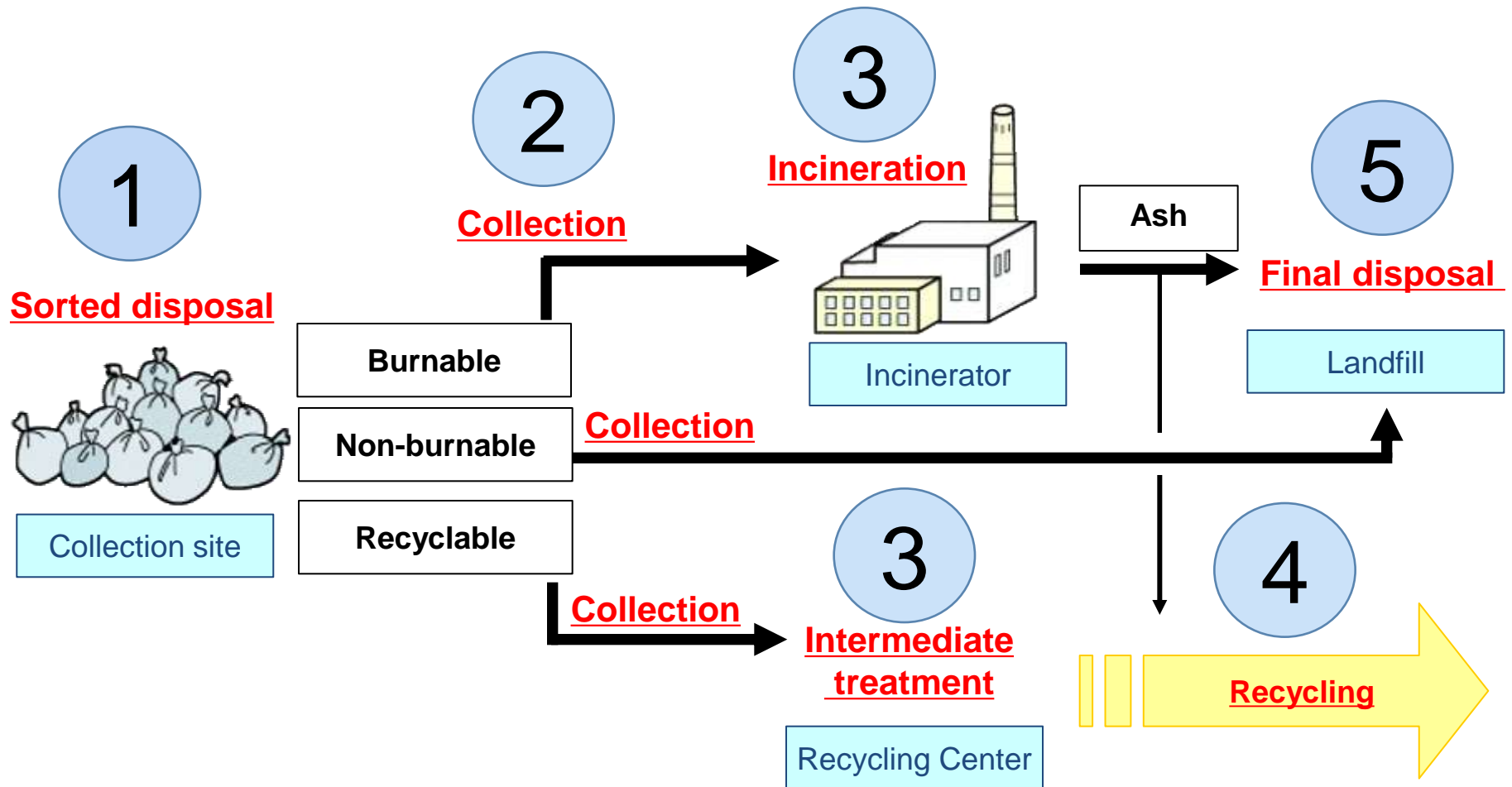
Minami Honmoku Final Disposal Site

2nd block ~2017

5th block Oct. 2017~

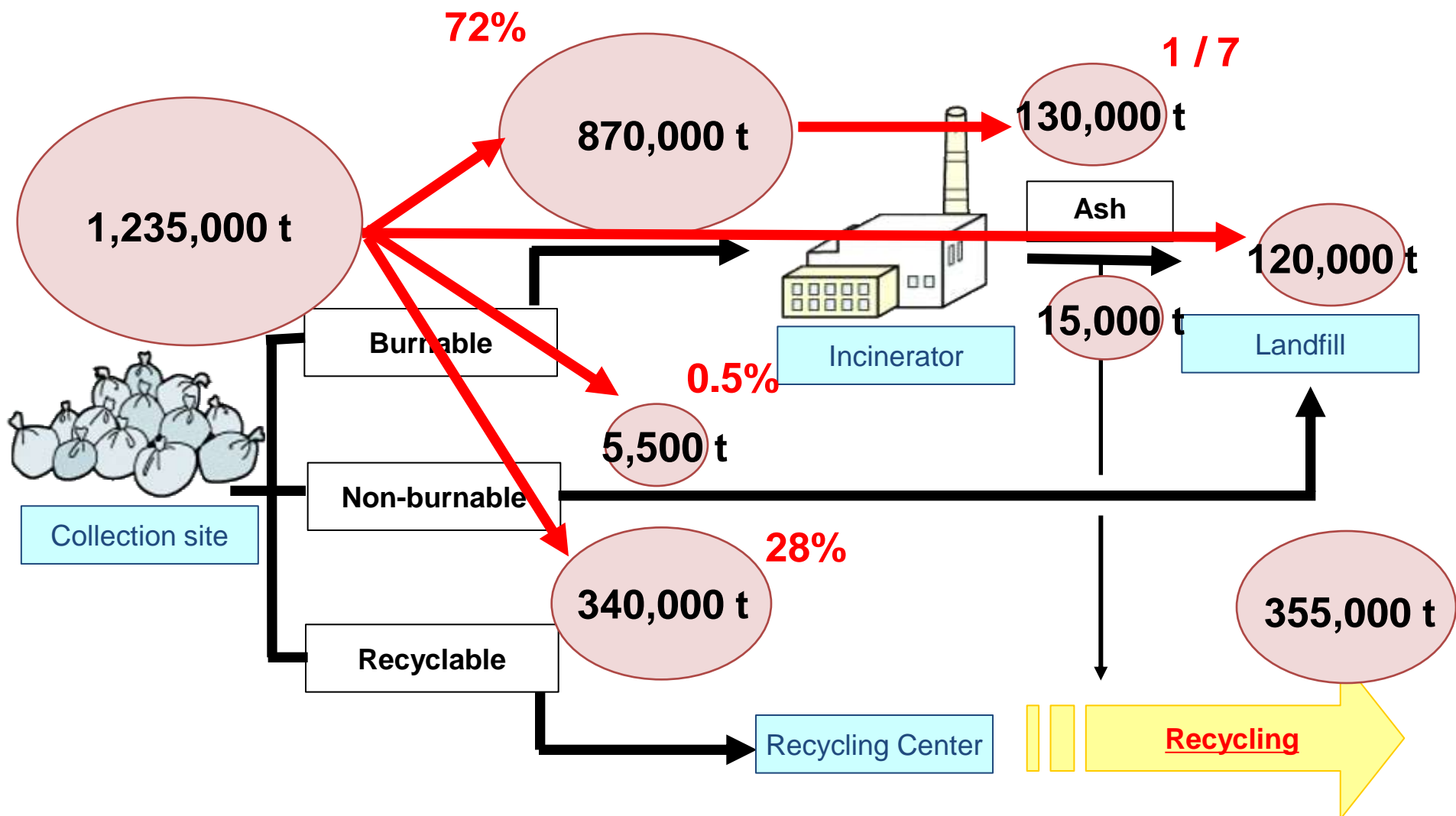
Flow of Waste & Resources

~ Domestic waste ~



Amount of Waste & Resources

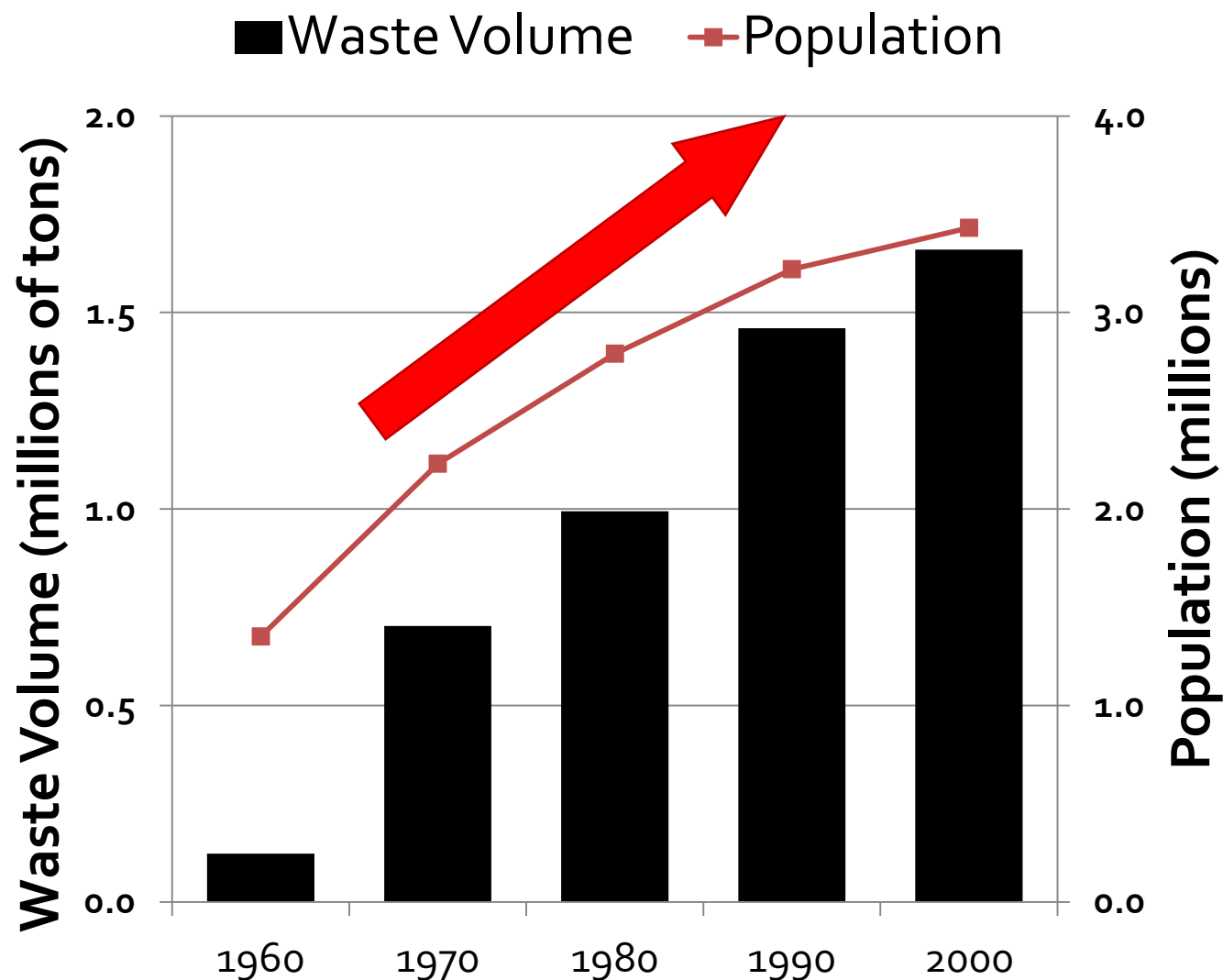
~ Domestic waste ~



Annual amount in 2015 (Japanese Fiscal Year)

Yokohama's History

~Increase in Waste Production~



Population:
× 2.5

Amount of
Waste: × 16

During 40 years
1960- 2000

Our challenge to the significant increase in waste

~ during rapid population expansion ~

Construction of
Incineration Plants



Landfill of
Incineration Ash



Our further challenge to the increase in waste



～G30 Project～

Separating 「Waste」 and 「Recyclables」



The Yokohama Strategy

～Waste Sorting by Citizens～

Before G30 Plan : 7 types



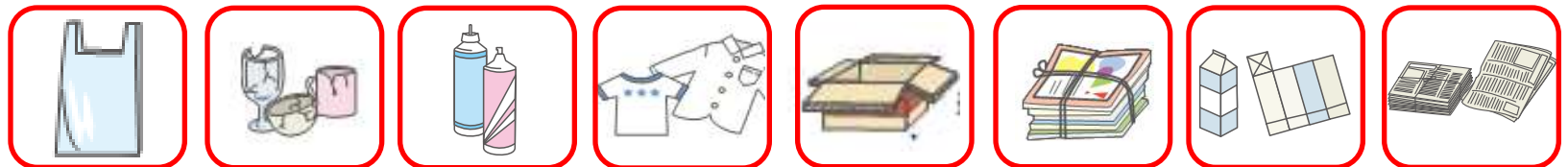
Burnable waste



Basing on G30 Plan: 15 types



Burnable waste



New categories

The Yokohama Strategy

～Raising Citizen Awareness～



Briefing Sessions
About 11,000

Early-Morning Instructions
About 3,300

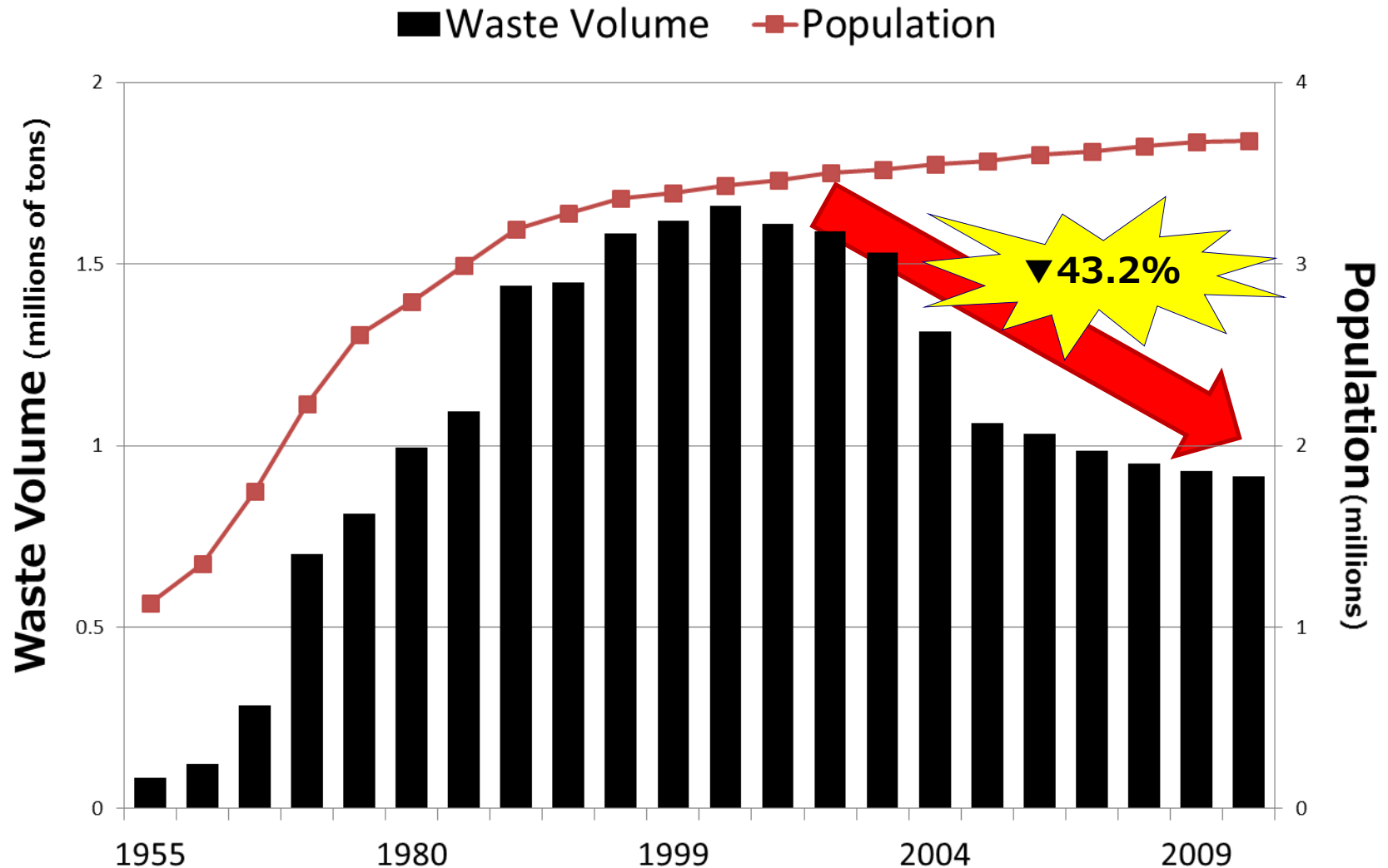


Environmental Awareness Classes



The Yokohama Strategy

~Results~



The Yokohama Strategy

~Results~

Incinerator Cessation/Suspension

Out of 7 incinerators,
2 closed down,
1 temporarily suspended



4-incinerator system

US \$ 1 billion saved
in repurposing two
incinerators

Landfill Site Lifespan Extension

Large reduction in
production of incineration
ash



Landfill life expectancy
greatly increased

Initially expected
to last until FY2007
⇒ Now expected to be
used until FY2017

Yokohama's Further Challenges ~Beyond the waste sorting~



Sort household waste even further

Use reusable bags instead of plastic shopping bags



Reduce food waste

Reduce leftovers at cooperating restaurants



Drain kitchen waste before throwing it out

Dry chopped wood and cut grass



【Yokohama 3R Dream Plan】



Our Efforts in Waste Management

- Smart Technologies to improve quality of waste collection -***



How to complete garbage separation with 3.7 million citizens? (1.6 million households)

Household Waste Sorting Categories: 10 categories, 15 types

Burnable waste



Oversized waste



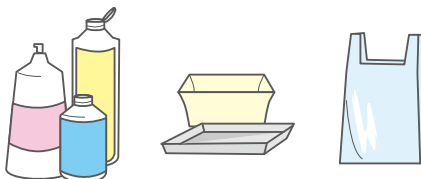
Cans, glass bottles, plastic bottles



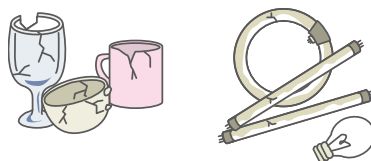
Small metal items



Plastic containers/wrapping



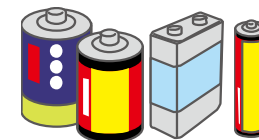
Non-burnable



Spray cans



Used batteries

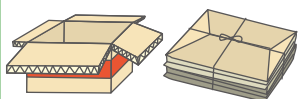


Paper

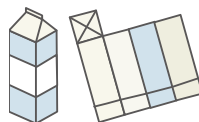
Newspapers



Cardboard



Cartons



Magazines/other paper



Clothes/Fabrics



Better quality of waste collection ~Web and Smartphone guidance~

“Mictionary” is a search and retrieval system that answers all your questions on garbage separation



“Mictionary” encourages to enter simply the name of the garbage and to know the separation method.

Search collection days for each item and each district

Better quality of waste collection

～Big data and AI technologies～

Co-Creative Pilot Project with Private Companies

Interactive guidance by “Chatbot”

- Big data : More than 20,000 words of retrieval keywords provided by the City
- AI technologies provided by NTT Docomo



イーオのごみ分別案内(実証実験中) —

powered by Repl-AI

CDケースの捨て方を教えて

CDケースは、CD等(ケースも含む)、収納ボックスのどれ？

CD等(ケースも含む)

捨てたいものが、CD等(ケースも含む)なら、捨て方は、燃やすごみだよ。
紙製のジャケットは古紙(雑誌・その他の紙)に出してね。

「CDの大きさはベートーベンの第9が一枚で入る容量(約74分)に」って決められたんだって。ほんとな。

クイズ出して

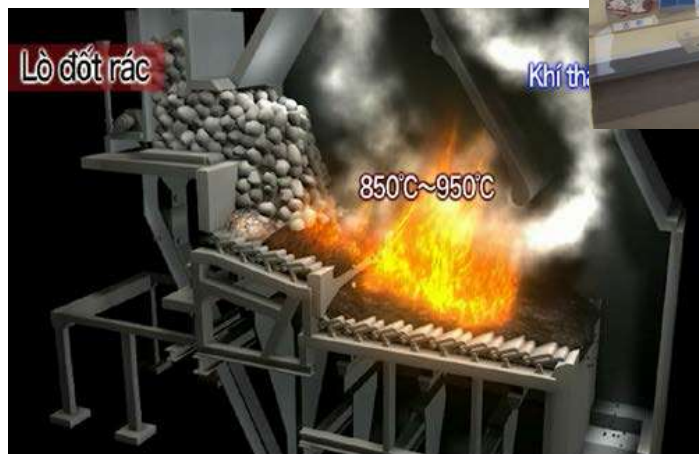
メッセージを入力してください

送信

Environmental Awareness

~ Raising Citizen Awareness ~

Multilingual and visual guidance with smart pads



WtE plant	Tsurumi Plant	Asahi Plant	Kanazawa Plant	Tsuzuki Plant	Total
Number of Visitors	7,762	8,691	10,242	11,587	38,282

City to City Collaboration

-Transferring Yokohama's Experiences -

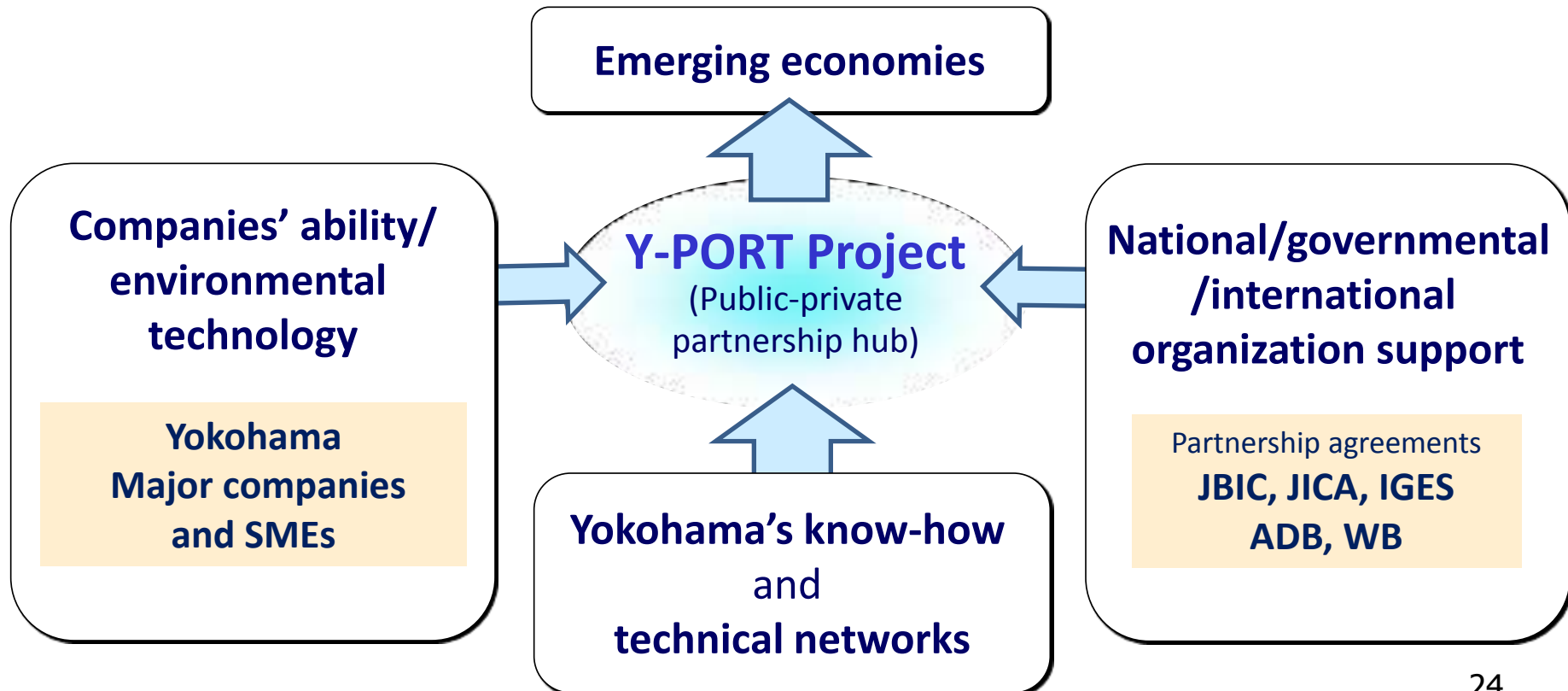


Yokohama's Contributions Abroad

~Y-PORT Project~

Y-PORT Project Yokohama Partnership of Resources and Technologies

To Support for sustainable urban development in emerging economies
and to expand the business of Yokohama's companies



Master Plans which the City of Yokohama has worked together with Four Cities under City-to-City collaboration

Bangkok, Thailand

- Bangkok Master Plan on Climate Change



JICA

- JICA Report
“ Technical cooperation project on the Bangkok master plan on climate change 2013-2023 in the Kingdom of Thailand “

(1)<http://libopac.jica.go.jp/images/report/P1000025878.html>
(2)<http://libopac.jica.go.jp/images/report/P1000025879.html>

Da Nang City, Vietnam

- Da Nang Urban Development Forum (Making Urban Development Plan)



JICA

- JICA Report
“ Data collection survey on sustainable and integrated urban development in Danang final report “

<http://libopac.jica.go.jp/images/report/P1000026544.html>

Yokohama City

Batam City, Indonesia

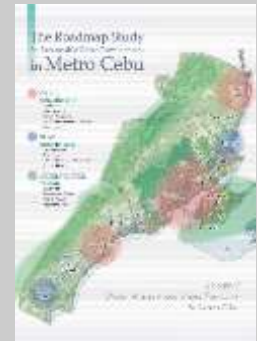
- Project Mapping (planned) based on Batam Green Cities Program



JCM
METI

Cebu City, Philippines

- Mega Cebu Roadmap 2050



JICA

- JICA Report
“The Roadmap study for sustainable urban development in Metro Cebu final report “
<http://libopac.jica.go.jp/images/report/P1000022002.html>

Flagship Projects by City to City Collaboration in Four Cities

Da Nang City, Vietnam



Introduction of high efficiency pumps in the water purification plant by Yokohama Water Co., Ltd.

JCM

JICA

Energy-saving consulting services for factories, hotels and other buildings by Osumi Co., Ltd.



Bangkok, Thailand

JCM



Rooftop solar power systems and advanced EMS for power supplies in Factories by Finetech CO. Ltd.

Yokohama City

Cebu City Philippines



JICA

Efficient septage sludge dewatering process by Amcon INC.

MOEJ



Commercial plant for waste plastic recycling by GUUN Co., Ltd.

Yokohama's Contributions in Cebu City

Commercial plant for waste plastic recycling inaugurated in May 2017 by GUUN Co., Ltd.



Yokohama's Contributions in Da Nang City

JICA Partnership Program (2016-)

Solid Waste Management Project for Promoting Segregation and Recycling in Da Nang City

Project purpose:

To promote sorting and recycling in Da Nang City



Expected Outputs

- 1) Development of **action plans** toward 3R promotion in targeted model area
- 2) Improved **citizen environmental awareness** of waste management and **understanding of how to sort waste** at the source
- 3) Preparations to introduce **waste management and recycling systems** for 3R implementation

Asia Smart City Conference organized by Yokohama



These pictures were taken at 5th ASCC 2016

The 6th Asia Smart City Conference

October 27, 2017 in Yokohama

- Leaders of Asian cities
- International Organizations
- Japanese Government
- Private companies

ASCA (Asia Smart City Alliance) Facebook

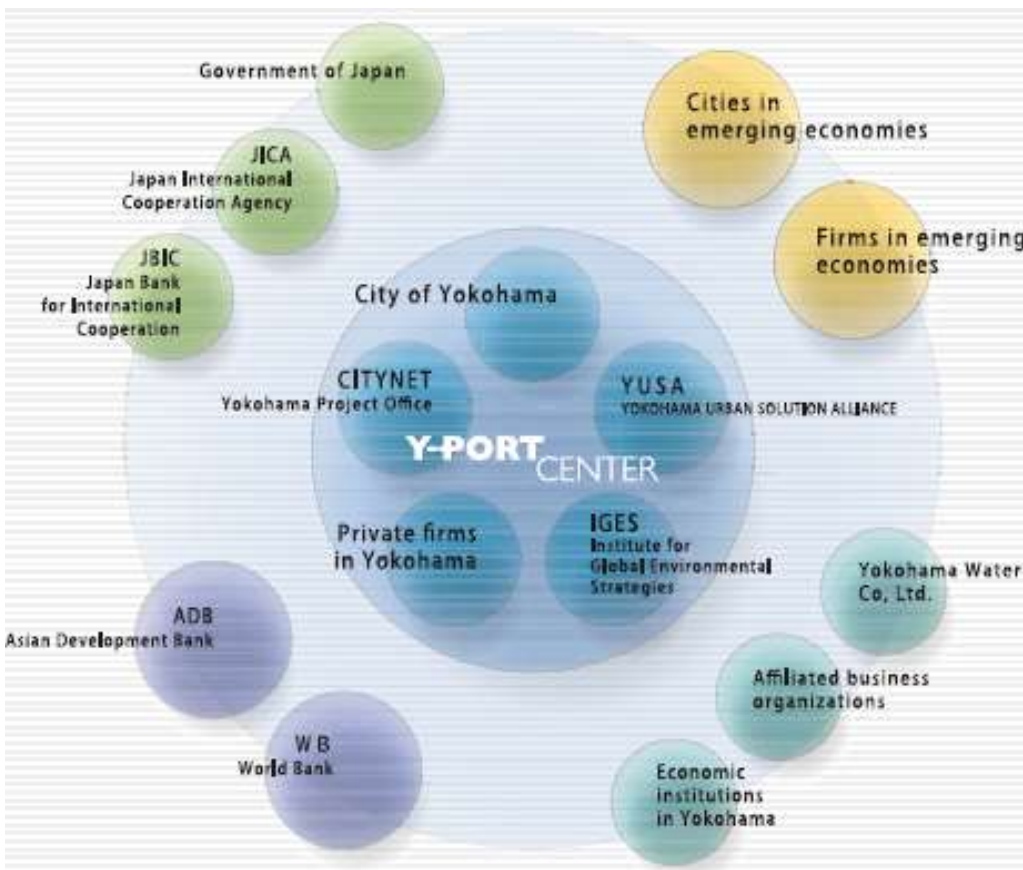


Y-PORT CENTER – Knowledge hub for smart city management

Please visit our web site:

<http://www.city.yokohama.lg.jp/kokusai/yport/en/>

Development Cooperation Division,
International Affairs Bureau
City of Yokohama, Japan
Email : ki-yport@city.yokohama.jp



Thank you for your attention