Hiroshima Prefecture

Inter-Regional Economic Exchange in the Area of Environmental Purification

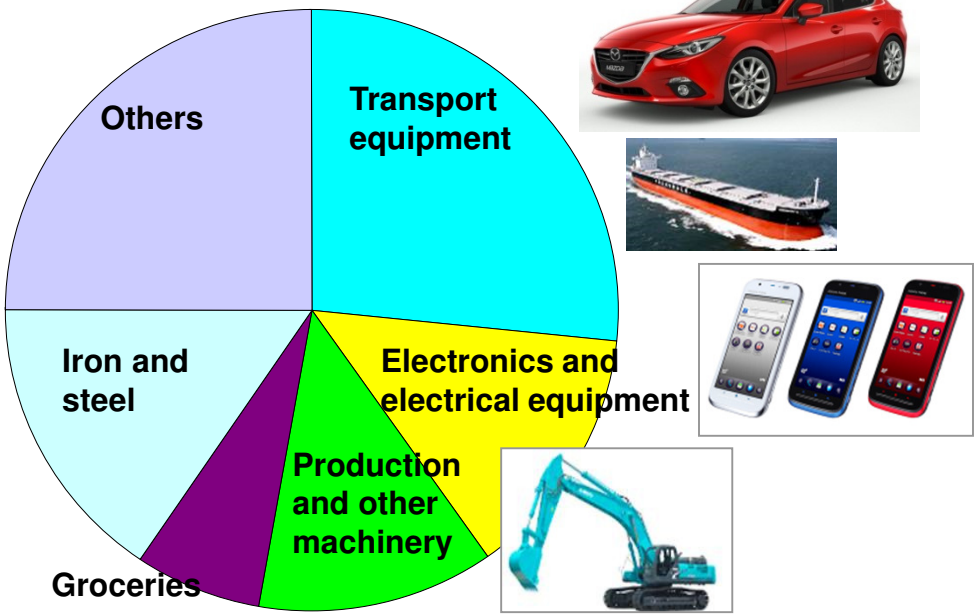
Innovation Promotion Team, Bureau of Commerce, Industry and Labor, Hiroshima Prefectural Government

Contents

1. Profile of Hiroshima Prefecture ① Industry

Statistics	Figures	Ranking in Japan
Population (as of October 2014)	2,833,673	12th place
Gross prefectural output (FY2012)	¥10.8536 trillion	12th place
Per capita income (FY2012)	¥3,004,000	8th place
Manufacturing shipment, etc., in value (2013)	¥8.5556 trillion	10th place (first place for Chugoku, Shikoku & Kyushu regions)

Breakdown of manufacturing shipment (value) by industry

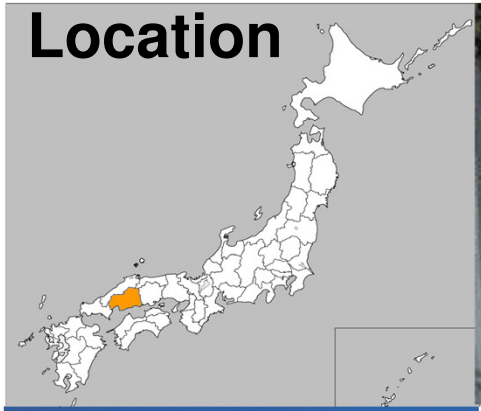


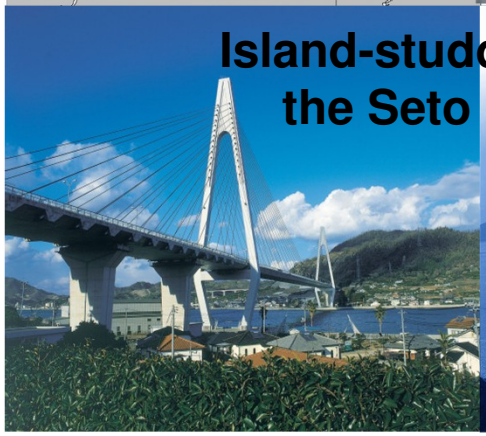
Large rice milling plants
Global market share: 90%
No. 1 in the world

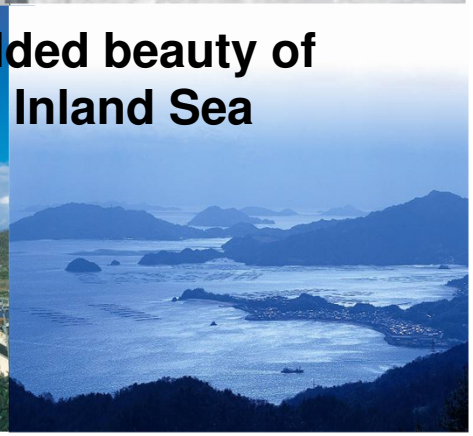
Athletic balls
Market share in Japan: 70%
Global market share: 13%
No. 1 in Japan

1. Profile of Hiroshima Prefecture ② Climate & Culture

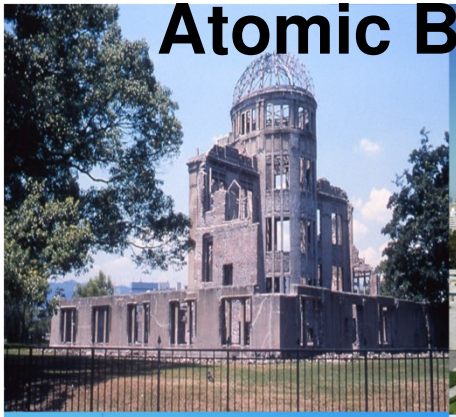
Climate







Culture



2. The Current State and Distinctive Characteristics of Waste management in Hiroshima Prefecture

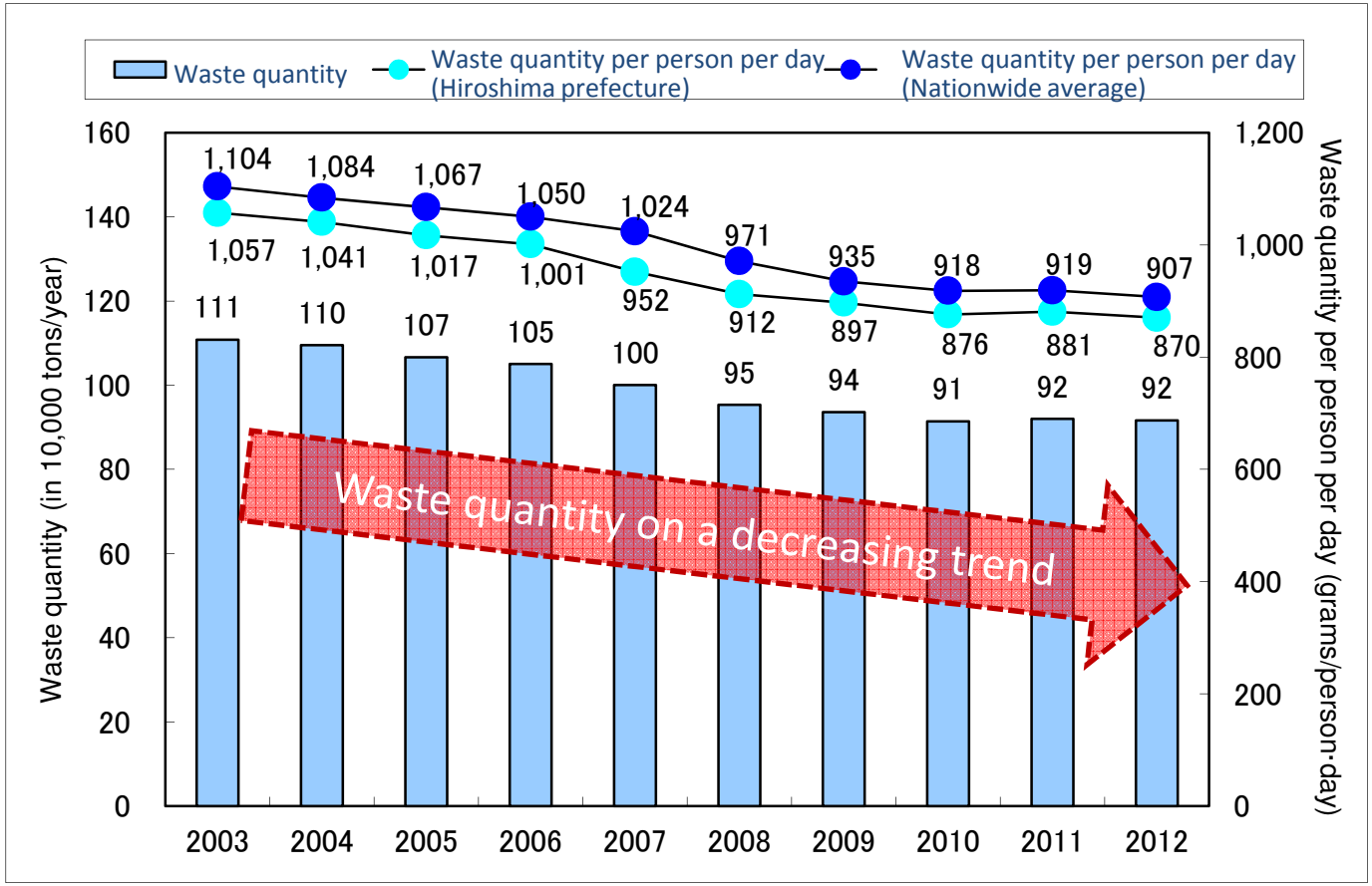
① Status of general waste disposed of by the public

○Status of disposal in 2012

Total quantity of disposal: 916,000 tons

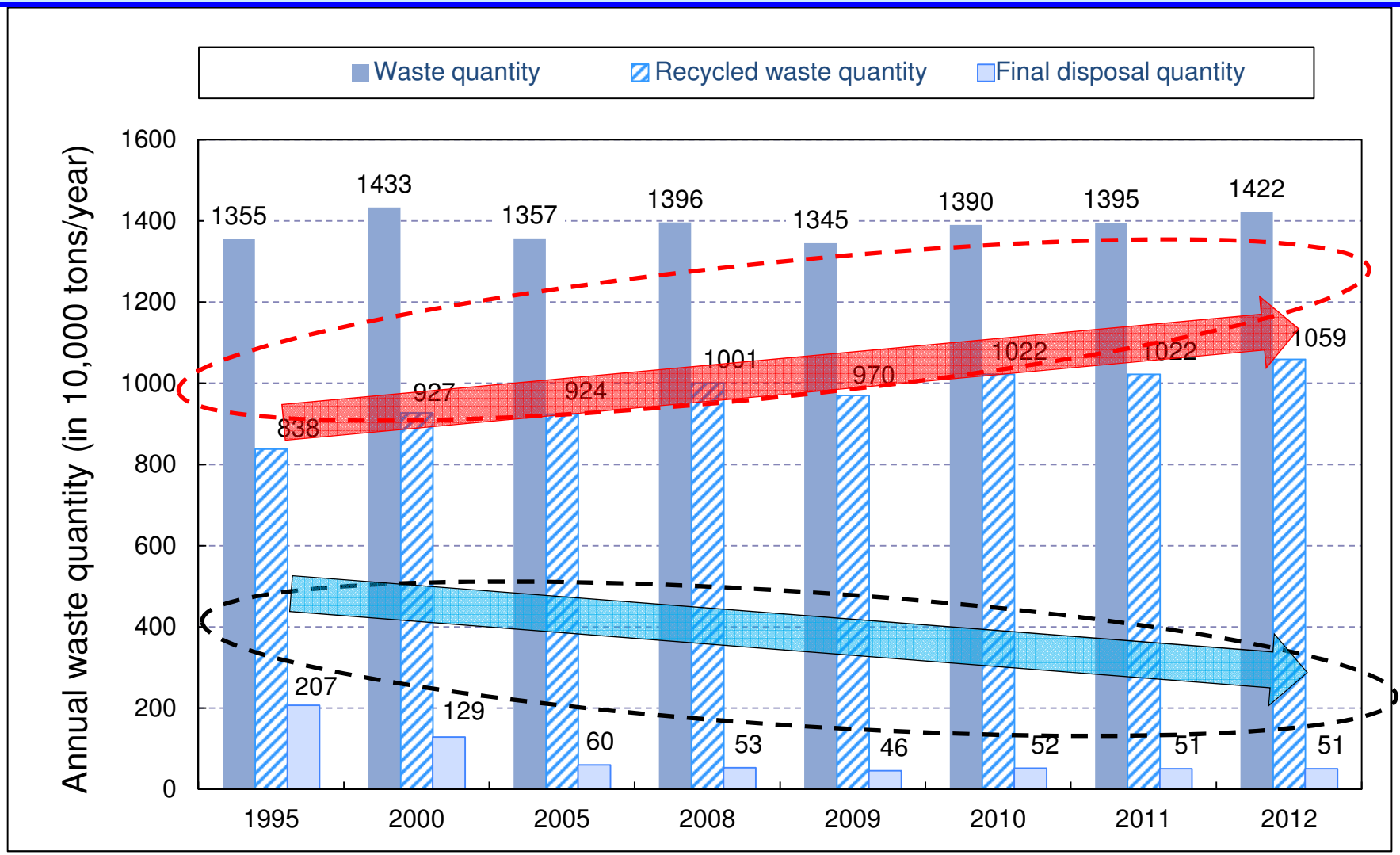
Quantity of disposal per person: 870 grams/day

○ Changes in quantity of waste over time in Hiroshima prefecture



2. The Current State and Distinctive Characteristics of Waste management in Hiroshima Prefecture

② Status of industrial waste disposed of by industries



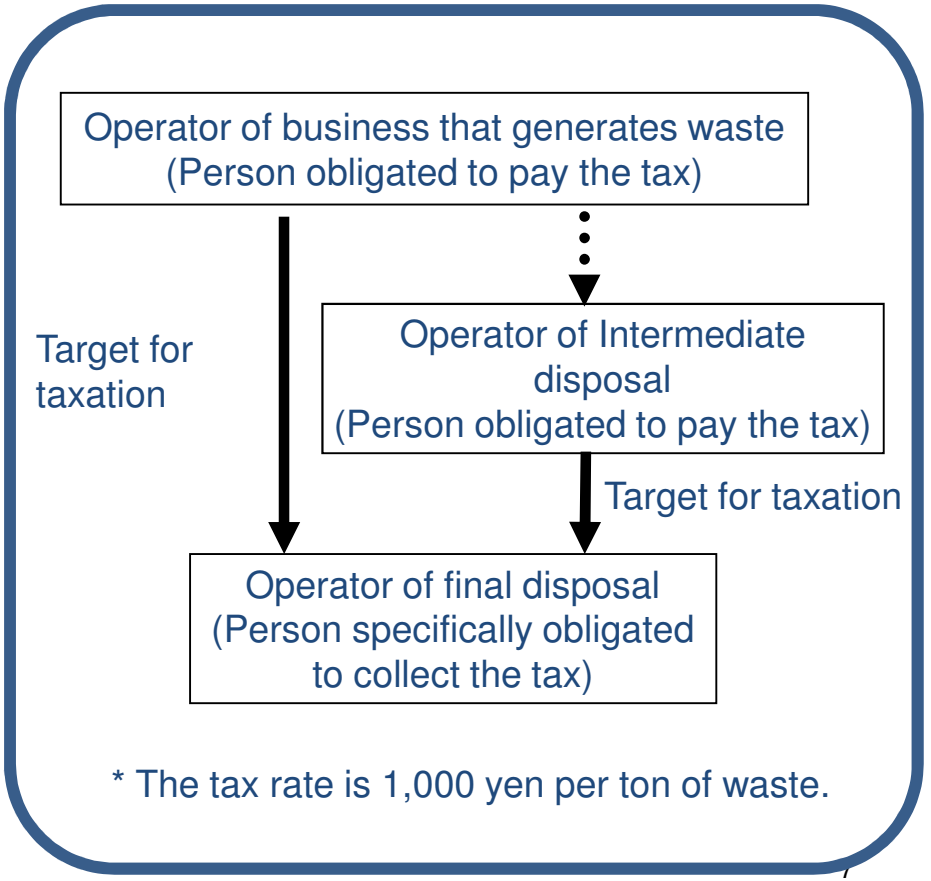
As a result of the advancement of initiatives to increase the percentage of waste which is recycled, the final disposal quantity is decreasing.

2. The Current State and Distinctive Characteristics of Waste management in Hiroshima Prefecture

③ landfill tax for industrial waste

Introduction of landfill tax for industrial waste
--Waste reduction measures utilizing economic incentives--

In fiscal 2003, a new tax was introduced on industrial waste that is transported to final disposal yards in order to provide an economic incentive for the operators of general businesses that generate waste and to promote prevention or reduction of industrial waste on a continued basis.
The revenue from this tax is used to implement measures for promoting recycling, for preventing or reducing industrial waste and the like.



2. The Current State and Distinctive Characteristics of Waste management in Hiroshima Prefecture

④ Registration system for recycled products

The purpose of registering information on recycled products is to make this information widely available to residents of the prefecture and promote their use.
Also, the system is intended for recycled use of resources, reduction of waste and nurturing of the recycling industry.
<Numbers of registered products thus far>

Recycled products registered with Hiroshima Prefecture

	2003	2006	2012
Number of registered products	57	367	471

<Example of registered products>

Worn-out iron lids → Manhole covers

Sustainably harvested wood → Construction site signs

Concrete waste, Asphalt waste → Recycled crushed stone
* Used in building construction, etc.

Sewage sludge, Food production residues → Organic fertilizer

2. The Current State and Distinctive Characteristics of Waste management in Hiroshima Prefecture

⑤ Research support initiative

Research and development projects that may lead to the prevention/reduction of waste, waste volume reduction or recycling are supported by the prefectural government to promote the creation and development of resource recycling industries.

<Example of research that led to a business>

Kakikesu ("wiping out" in Japanese): an adsorbent for oil on roads using oyster shells as the raw material

Oysters are a local delicacy of Hiroshima prefecture, and 180,000 tons of shells are produced every year as a result.

Although oyster shells are used as animal feed and fertilizer, about 50,000 tons of them remain unused every year.

New effective use of these is called for!

A product to absorb gasoline and/or oil spilt on a road surface in a traffic accident has been developed.

This product is used on expressways and other roads.

Oyster shells

Dried with hot air and crushed

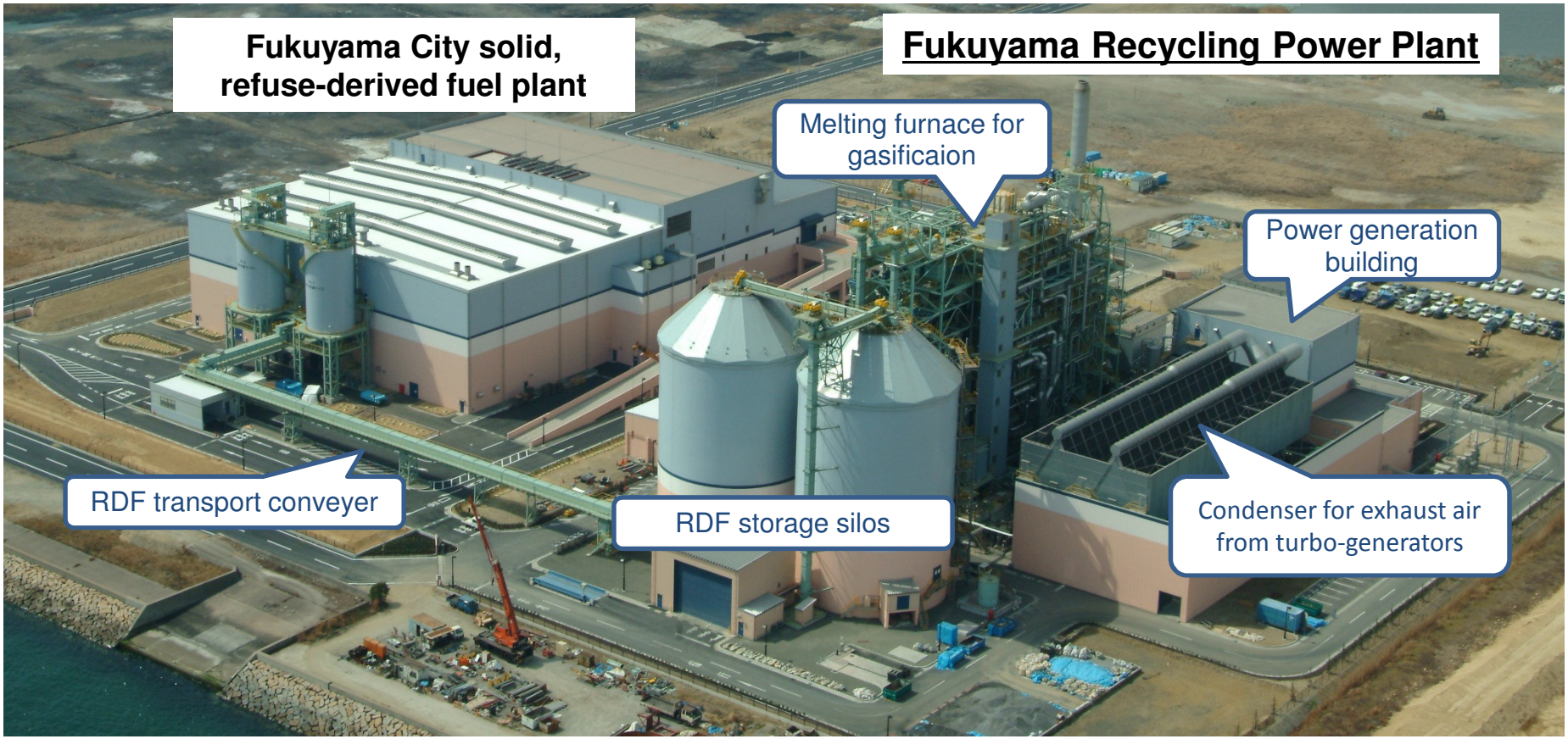
Product

2. The Current State and Distinctive Characteristics of Waste management in Hiroshima Prefecture

⑥ Disposal measure covering a number of administrative areas

Recycling power generation project in Fukuyama (refuse-based power generation)

After producing a solid fuel (refuse derived fuel or RDF) from general waste, this fuel is burned to generate steam, which is used to drive turbo-generators to generate electricity.



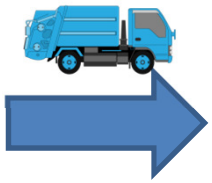
① RDF production

- ○ Number of participating municipalities: 9
  (Total waste quantity: Approx. 480 tons/day)
  * Approximately twenty percent of burnable waste in Hiroshima prefecture is turned into RDF.
- ○ Number of production facilities: 7

② Fukuyama Recycling Power Plant

- ○ Waste disposal capacity: 314 tons/day
- ○ Generated power: Approx. 20,000 kW

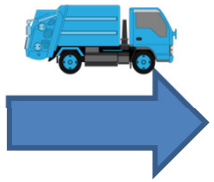
Kitchen waste,
plastic waste, etc.



Waste quantity
480 tons/day

RDF production plant

RDF is produced at 7 plants.



RDF quantity
260 tons/day

Fukuyama Recycling
Power Plant

Power is generated by burning RDF
that has been collected.

<Power>
For sale

<Slag>
For sale
For effective
use

3. Environmental Purification Industry Cluster
(Growth Strategy of Hiroshima Prefecture) ① **Project profile**

◆ Hiroshima Future Challenge Vision (developed in 2010 & revised in 2015)

◆ Hiroshima Industry New Growth Vision (developed in 2011)

The goal is Formation of Environmental Purification Industry Cluster as a next generation industry.

1. Goal

   Total sales: Approx. ¥100 billion (2011) to reach ¥150 billion (2020)

   Period: FY2012 – FY2020 (9 years)

2. Basic action policy

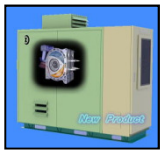
   (1) Business development mobilizing the outstanding environmental technologies and manufacturing power of businesses in the Prefecture

   (2) Business development focusing on Asian growth markets suffering from aggravating environmental problems

3. Environmental Purification Industry Cluster

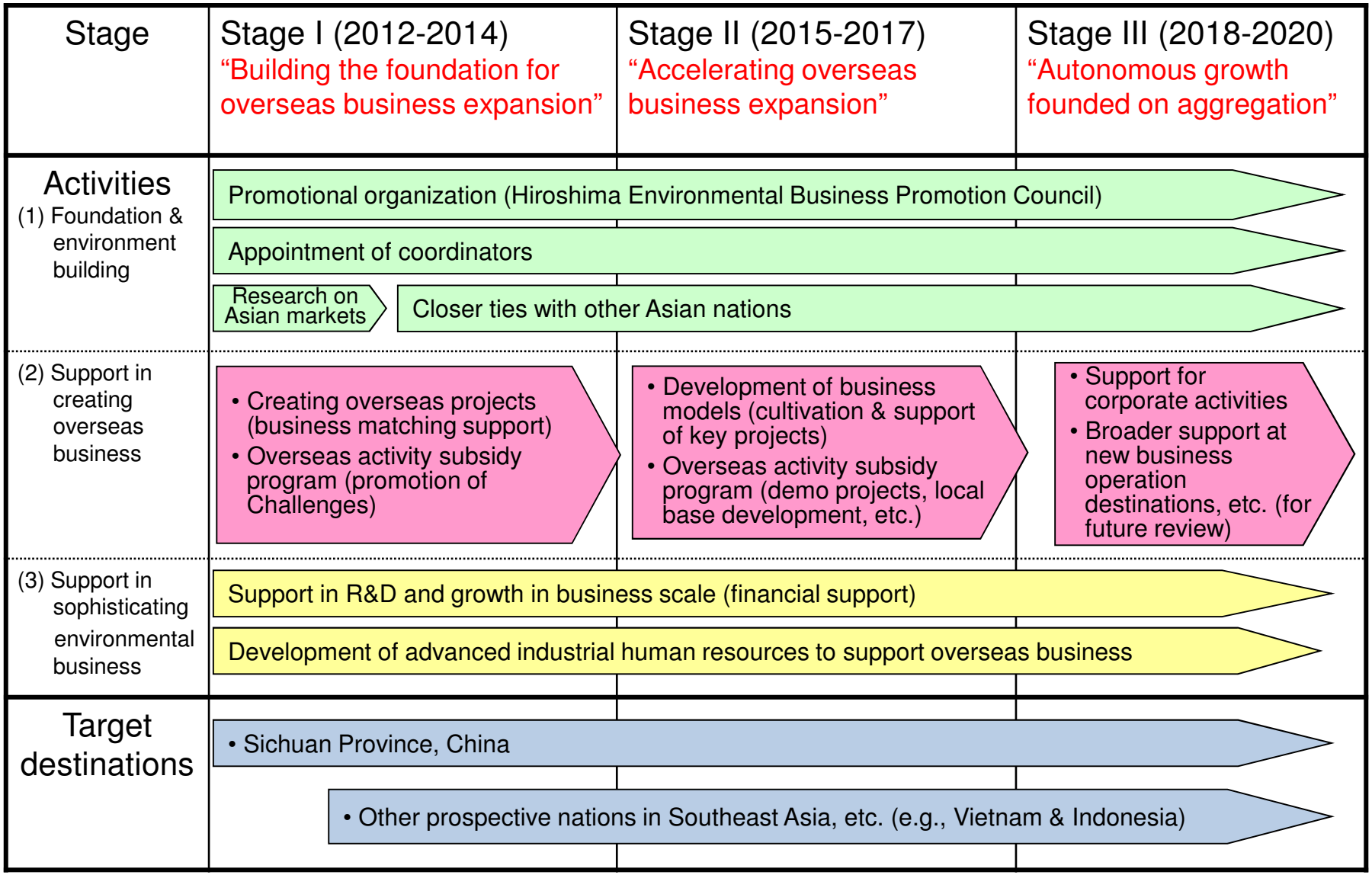
② Outstanding environmental technologies

Hiroshima Prefecture has accumulated excellent technologies, experiences, and expertise, all of which were fostered under its antipollution measures.
Hiroshima Prefecture can make an extensive contribution to environmental conservation measures, from effluent treatment to air & soil contamination, by using the excellent environmental technologies of companies in the prefecture.

Environmental challenges	Technologies of companies in Hiroshima Prefecture	Solutions
[Effluent treatment] • Sewage • Factory wastewater • Waste oil	• Aerobic/anaerobic water treatment • Membrane water treatment • Human waste treatment for small villages • Oil-water separation, etc.  	• Water purification • Reclaimed wastewater use • Sludge reduction, etc.
[Waste] • Sewage sludge • Garbage • Food factory waste • Livestock excrement	• Conversion of waste into biogas • Conversion of sludge into solid fuel • Conversion of waste into compost • Measures against asbestos, etc.  	• Power generation • Thermal energy • Alternative fuels (RPF, RDF) • Cement raw materials • Manure, etc.
[Air pollution] [Soil contamination]	• Flue gas desulfurization and denitration • Prevention of dioxin generation • Soil improvement, etc. 	• Measures against Co2 SOx/NOx emissions • Measures against heavy metal pollution, etc.

3. Environmental Purification Industry Cluster

③ Roadmap



3. Environmental Purification Industry Cluster
④ Action policy

1. Prioritized support centering on creating business matching opportunities

Development of a support organization for SME expansion into other countries, to generate business projects and promote solutions activities, as well as to boost success rate in business transactions.

[Actions]
(1) Management of Environmental Business Council (membership of 144 companies and other organizations, as of October 2015)
(2) Dispatch of business missions (trade talk meetings & participation in exhibitions)
(3) Invitation of potential businesses (trade negotiations support)
(4) Assistance to overseas business activities
(5) Hands-on support by coordinators

2. Creation of solution-oriented projects through coordination of local governments

Creation & proposal of projects founded on coordination among business enterprises, etc., while strengthening ties among local governments in order to present model solutions on environmental issues at target nations (ODA, national & public project development, etc.)

[Actions]
(1) Reinforcement of coordination among local governments (conclusion of MOUs, etc.)
(2) Research into environmental needs (detailed research into environmental issues and review into business development)
(3) Study group management & matching among business enterprises
(4) Creation & proposal of projects

3. Environmental Purification Industry Cluster
⑤ Activities

1. Support in cultivating business projects through creation of business matching opportunities

- Organization of trade talk meetings through coordination among local governments
  Trade talk meetings held in Sichuan Province, China, Mekong Delta area in Vietnam, etc.
- Participation in exhibitions
  Hiroshima Prefecture booth set up at Indo Water (Jakarta), Viet Water (Hanoi), etc.
- Development of projects through exchange among industry organizations
  Project development & matching through exchange with Indonesia's various industry organizations

* Subsidy support (subsidy for exhibition participation (up to ¥1 million))

Trade talks 2014 at Cần Thơ City, Vietnam

Singapore Water Week 2014

2. Prioritized support for promoting overseas activities

Prioritized support for activities starting with project cultivation and business negotiation activities to horizontal expansion to other businesses, provided by the Prefecture and coordinators

- Hands-on support by coordinators
- Prefectural government attendance of trade negotiations
- Subsidy
  * Subsidy for demo projects (up to ¥3 million); subsidy for preparations in setting up local base (up to ¥1 million)

3. Target destinations

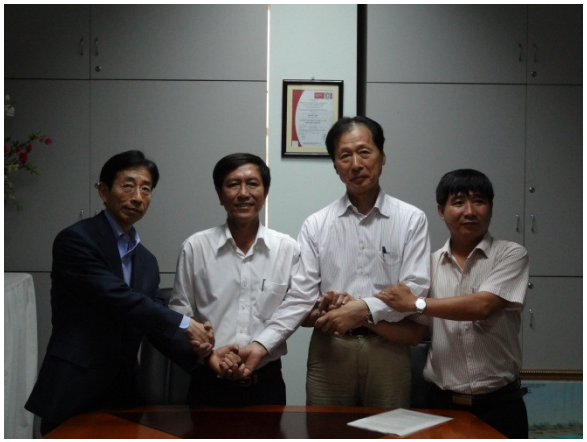
Name of country	Region	Principal field	Description
China	Sichuan Province	Environmental protection	Friendship ties concluded (1984) Environmental protection joint project (starting 1992)
Vietnam	Hà Nam Province	Sewage treatment facility	Cooperation agreement concluded (2013)
	Cần Thơ City Sóc Trăng Province	Rural sewage treatment Agriculture, fisheries	JETRO Regional Industry Tie-Up project (starting 2014)
Indonesia	Jakarta area West Java area	Wastewater treatment Recycled water development	Exchange with Indonesia's Environmental Pollution Management Association (starting 2014)
	Bogor City	Waste management	Unofficially selected as JICA Partnership Program (2015)

3. Environmental Purification Industry Cluster

⑥ Successful practices

Vietnam

MOU signing ceremony between Emax Co., Ltd., and Tỉnh Sóc Trăng on the introduction of small septic devices (November 2014)



Sales contract conclusion between Pipe Design Inc. and Vietnamese business enterprise (July 2013)

Indonesia

Technology transfer agreement concluded between Nissei Plant Co., Ltd., and Indonesian business enterprise (June 2015)

China

Sales dealership contract conclusion between Labo Tech Co., Ltd., and business in Sichuan Province (July 2012)

Canada

MOU conclusion on joint demo project between Chugai Technos Corp. and Canadian business Corporation (October 2013)

Malaysia

Sales contract conclusion between CFP Co., Ltd., and Malaysian business enterprise (September 2014)

4. Exchange with Bogor City ① Background

Date	Description
February 2014	Bogor City recommended by Indonesia's Ministry of the Environment and Forestry as candidate for exchange in environmental Purification
April 2014	Visit with Bogor City Mayor and agreement on cooperation in environmental purification
June 2014 and later	Talks held on areas and projects for cooperation
February 2015	Invitation of Bogor City's environmental department officers to Hiroshima for talks & inspection tours
June 2015	Unofficial selection as JICA Partnership Program
September 2015	Agreement on main directions of JICA Partnership Program proposal
November 2015	Invitation of Bogor City environmental department officers to Hiroshima (scheduled)
2016 and later	Start of exchange program (scheduled)

4. Exchange with Bogor City

② Outline of the exchange project (tentative)

1. Project name

General waste management improvement project in Bogor City, Indonesia

2. Purpose

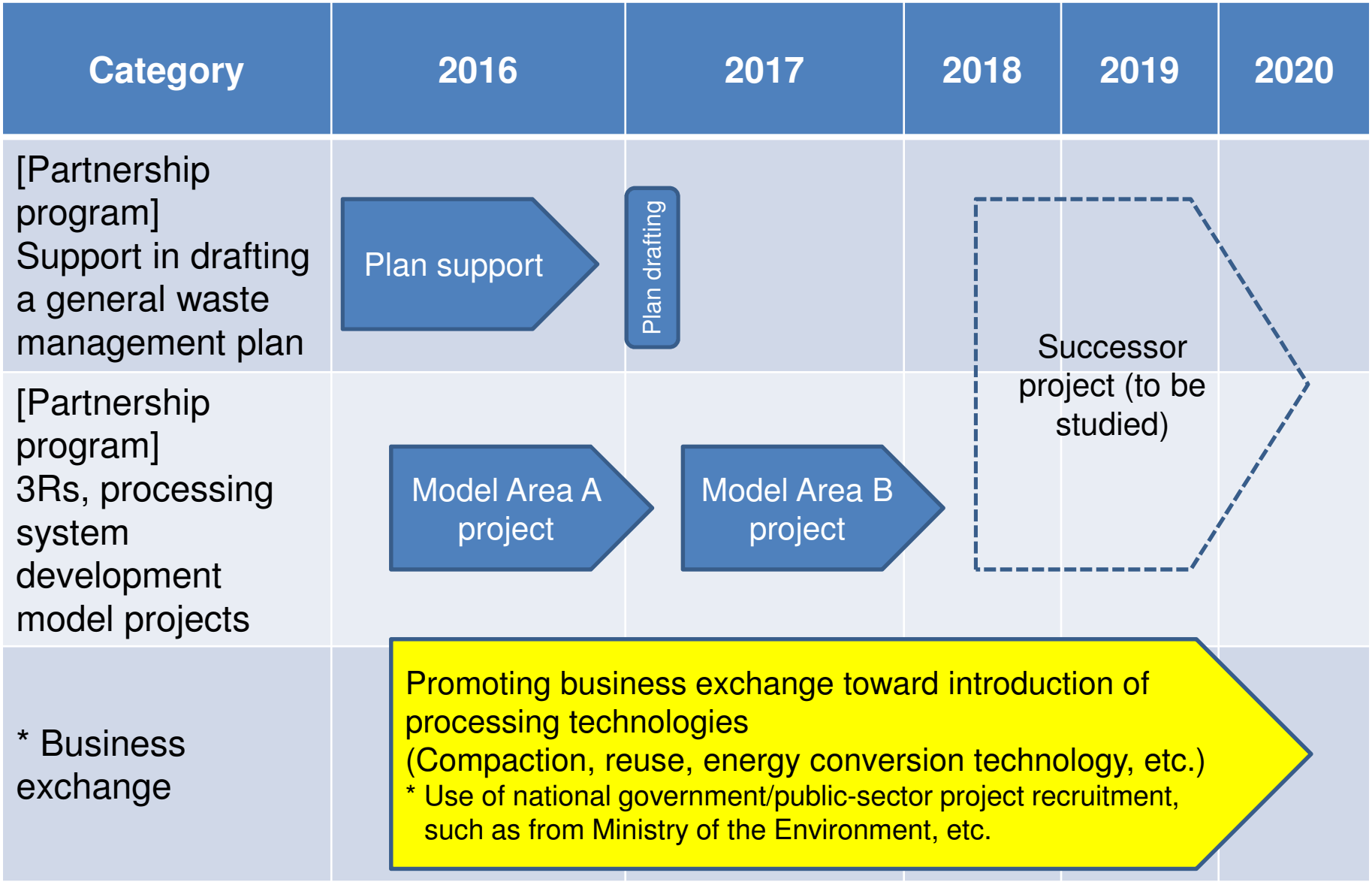
Landfills currently being used for general waste management at Bogor City are approaching full capacity, and reduction in landfill disposal volume has become an urgent issue to be addressed. With the use of technologies and know-how found in Hiroshima Prefectural Government, as well as municipalities and businesses in the Prefecture, the project is aimed that building a waste management system and contribution to future reduction in general waste management, through capacity building among Bogor City officials, community leaders, etc., and dispatch of experts from Hiroshima Prefecture.

3. Activities

(1) Support in drafting Bogor City's general waste management plan

(2) Promotion of the 3Rs and creation of an efficient general waste management system (sorted waste disposal, collection and transport and intermediate processing) at 2 model areas in Bogor

4. Exchange with Bogor City ③ Schedule (tentative)



4. Exchange with Bogor City ④ **Future action policy**

- ○ Action to begin with environmental improvement in Bogor City, in the field of waste management and processing centering on JICA Partnership Program.
- ○ Alongside, business exchange activities are to take place in the field for mutual promotion of environmental business.
- ○ In the future, the scope of exchange is to expand beyond waste management.
- ○ In implementing action, the goal is to build a win-win relationship, founded on actual conditions and needs in each region observed from the medium- and long-term perspectives.

Thank you very much
for your kind attention.

Contact Address

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