Japan's Future Measures Toward The Construction Of A Global "Sound Material-cycle Society"（SMS）

－To Realize The East Asia SMS Vision based on the 3R concept －

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1. International trends and Japan's issues concerning circulative resources

Conceptual view of SMS

From realization of an SMS to sustainable development

Realization of an SMS

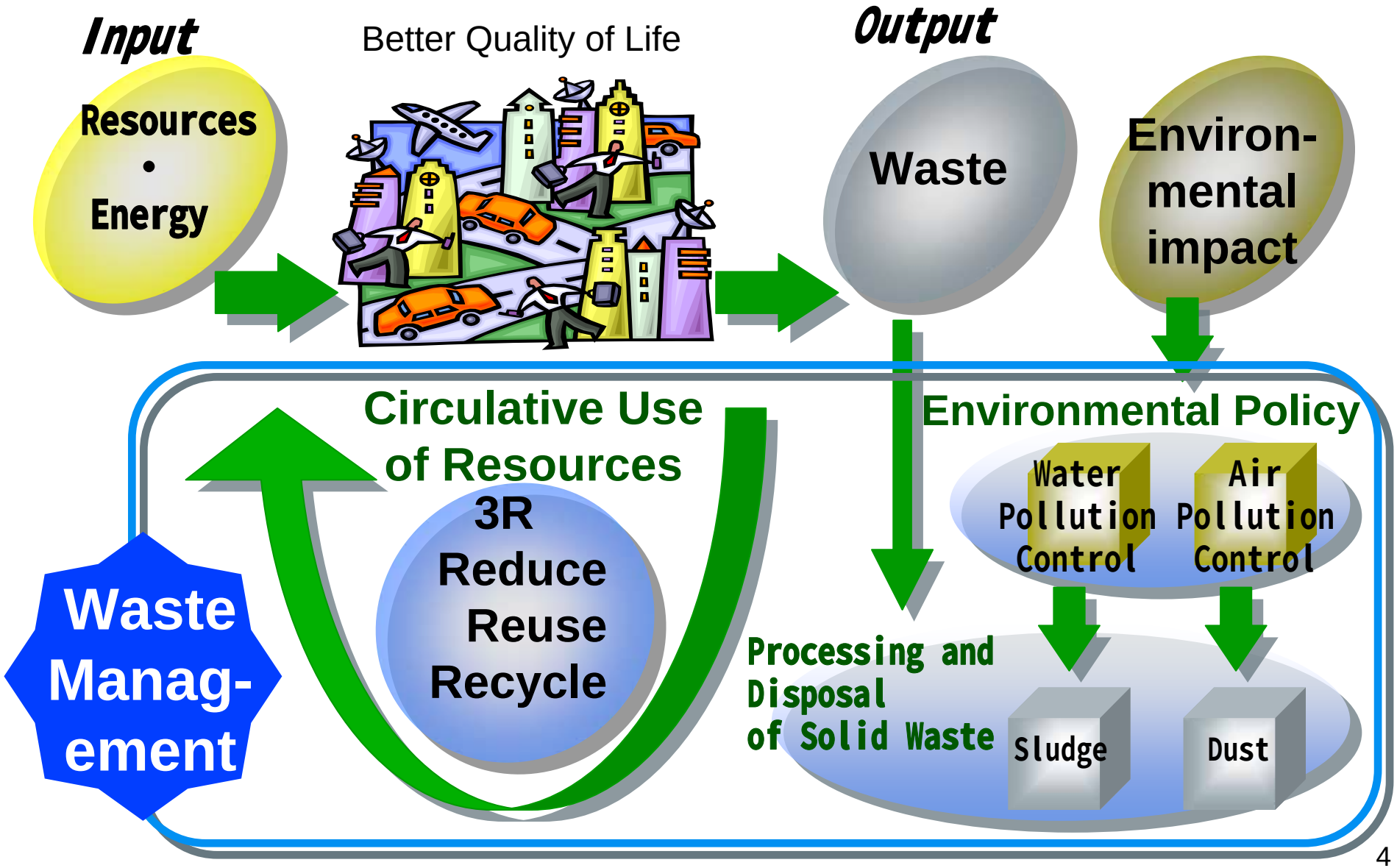
SMS

- ○The consumption of natural resources is minimized
- ○The environmental impact is reduced as much as possible
- ○Established by promoting reduction, reuse, recycling, heat recovery and appropriate disposal.

Realization of "sustainable development"

An SMS is a desirable socio-economic system that will realize "sustainable development", the world's common goal of environmental policies.

SMS and Waste Management



Current state of waste issues in developing countries

Environmental pollution caused by waste in developing countries

◯Environmental pollution through land fill and open dumping and incineration
◯Concerns about health hazards posed to waste pickers and residents who live near to disposal sites

[Current state of final disposal site]

Source: Ministry of the Environment

[Situation of open incineration]

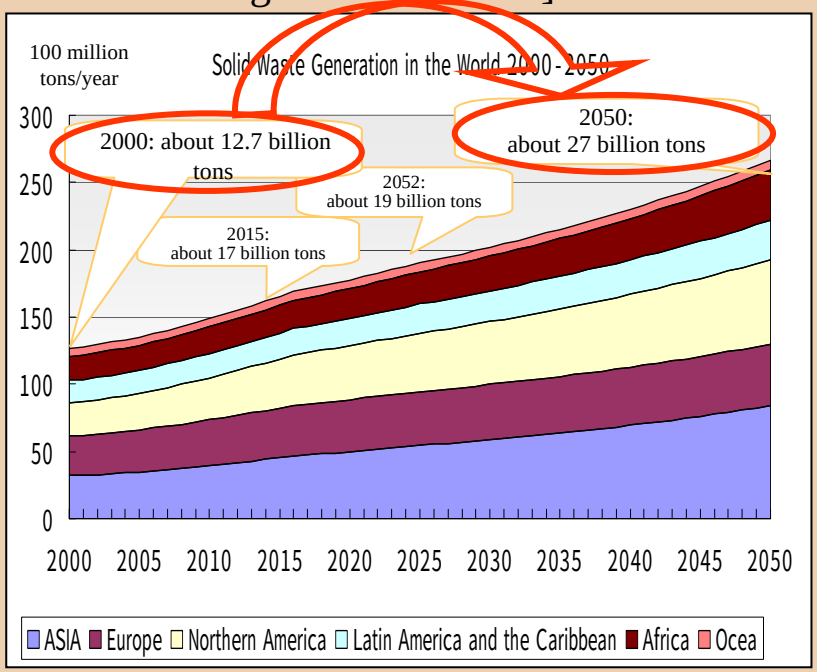
Source: Kojima, member of committee

Future prospects of waste generation

Predictions regarding the increasing generation of waste in developing countries

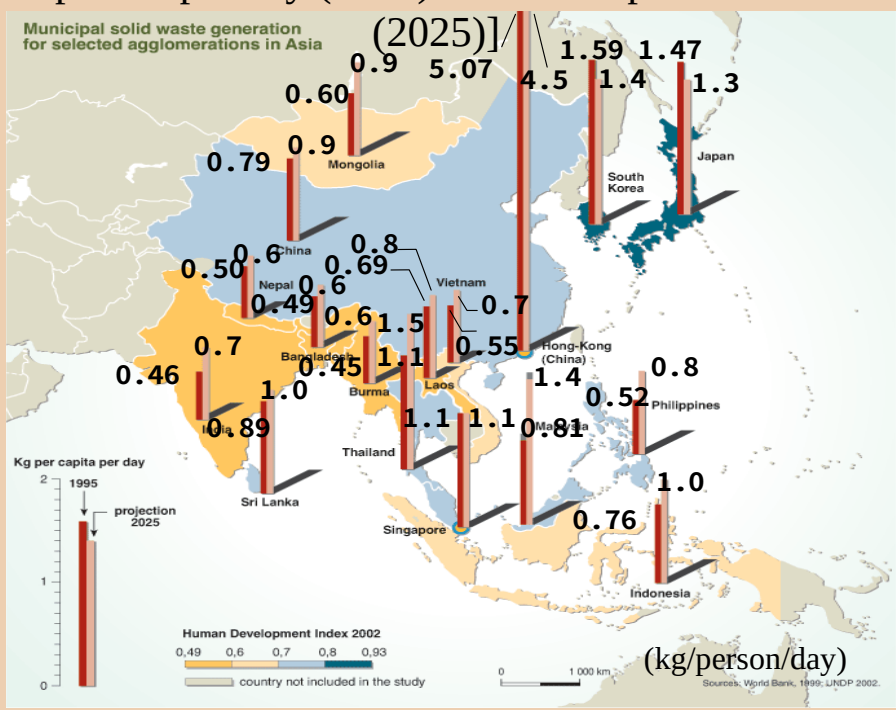
- Increase of waste generation in the world (2000: 12.7 billion tons →2050:27 billion tons)
- Especially in developing countries, waste generation will drastically increase according to future economic growth

[Future predictions for global waste generation levels]



Source: Yoshizawa, Tanaka, et al. *Research on estimation of the world waste generation amount and future prospects*

[Municipal solid waste generation amount per person per day (1995) and future predictions (2025)]



Source: the Secretariat of the Basel Convention

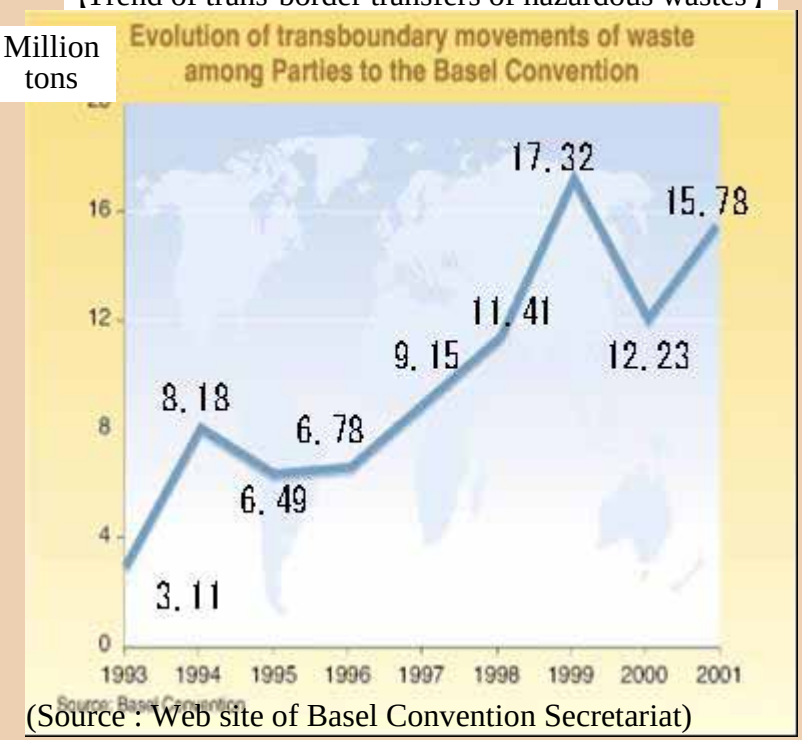
Current condition of transboundary movement of circulative resources

Increase of the transboundary movement of "circulative resources" (CRs)*

○Increased quantity of international transfers of hazardous wastes
(increased by 5 times in eight years)
○Increased quantity of CRs exported from Japan
(increased by 9 times in ten years)

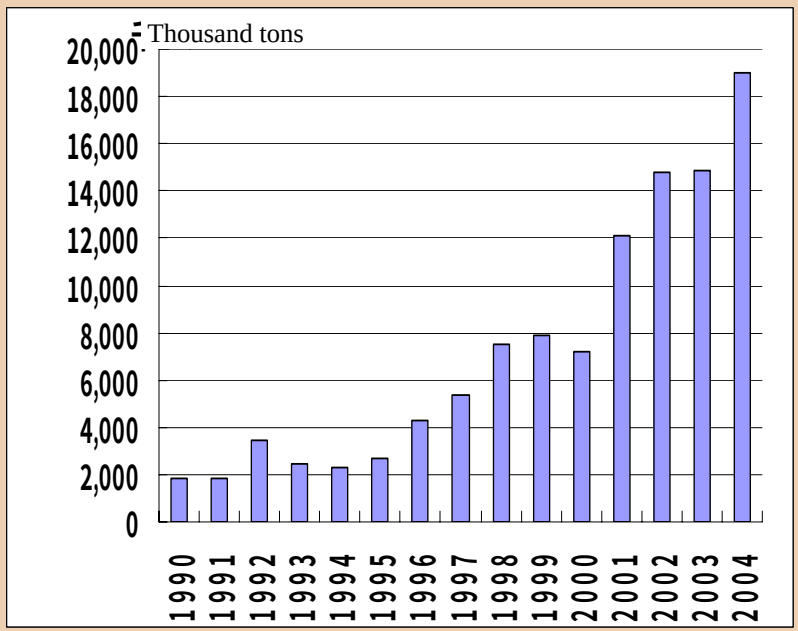
***circulative resources (CRs) : includes waste and other used products that are usable as resources.**

【Trend of trans-border transfers of hazardous wastes】



(Source : Web site of Basel Convention Secretariat)

【Quantities of CRs exported from Japan】



(CRs include waste plastics and slugs, etc.)

(Source : Documents of recycling-oriented society planning division of the Central Environmental Council)

Discussion on the construction of an international SMS

- CRs, including solid waste, are moving internationally. While transboundary 3R activities have become possible, there is a rising concern about environmental pollution in countries which import CRs.
- Due to the increasing demand for natural resources, their prices are rising and there is a resource shortage.

Necessity to ensure appropriate use and disposal of CRs from the stand point of the entire East Asian region

Realize good circulation between environmental conservation and economic development through preventing negative environmental impacts and securing sound international movement of CRs.

Consideration of concrete policy measures in the Central Environmental Council (Discussion started in November, 2005)

2. Japan's experiences in waste management and 3R policies to be shared with other Asian countries

Japan's past waste issues

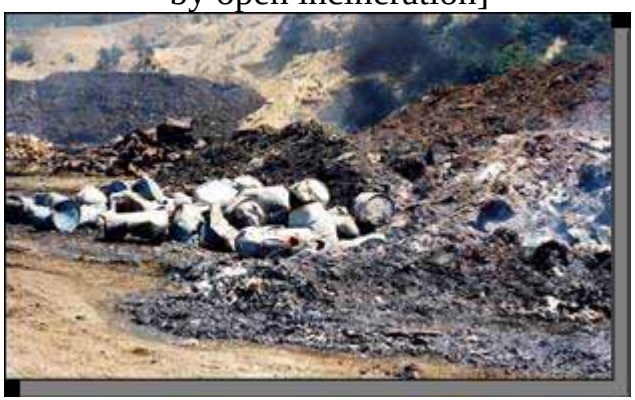
- Past policy measures of waste management were far from being fundamental resolutions; "Sweep the trouble under the carpet"
- Unfortunately, "the chapter, the better" style prevailed in waste treatment.

Such insufficient management resulted in;

Huge-scale illegal dumping of waste, as in the case of Teshima

Accumulation of hazardous waste such as PCB

[Improper waste management by open incineration]



[Huge-scale illegal waste dumping]

[Improper storage of PCB waste]

Source: data by Ministry of the Environment

Progress of waste treatment

- Introduction of continuous-type furnaces in waste incineration facilities contributed to reducing gas emissions.
- Liner sheet and effluent treatment facilities are utilized in sanitary landfill sites.

1960s

Present

1970s

Present

Reforms concerning waste management and 3R policy in the last 10 years

Sweeping policy reform of waste management/recycling measures

- Reinforcement of generator's responsibility by the amendment of the Waste Management and Public Cleansing Law
- Establishment of various recycling laws such as Law for the Promotion of Sorted Collection and the Recycling of Containers and Packaging and the introduction of Extended Producer Responsibility
- Establishment of a legal system for waste management and 3R, based on the Fundamental Law for Establishing a SMS
- Proper disposal of PCB, etc./ reduction of dioxin emissions

Advancement of collaborative efforts through the involvement of various stakeholders

- Collaboration between central and local governments
- Efforts by the private sector
- Participation of NGOs and NPOs

Legislative framework for establishing an SMS

Basic Environment Law

Basic Environment Plan

Fundamental Law for Establishing an SMS (Basic Framework Law)

Securing SMS, Restraining the consumption of natural resources, Reducing environmental impacts

Fundamental Plan for Establishing an SMS:

Principles for other basic plans of the state government

<Appropriate treatment of waste>

<Promotion of recycling>

Waste Management and Public Cleansing Law

Law for the Promotion of Effective Utilization of Resources

Regulations according to the characteristics of individual items

Law for Promotion of Sorted Collection and the Recycling of Containers and Packaging

Glass, bottles, PET bottles, etc.

Home Appliance Recycling Law

Air conditioners, refrigerators, freezers, TV sets, washing machines

Foods Recycling Law

Food residues

Construction Waste Recycling Law

Timbers, concrete, asphalt

End-of-life Vehicle Recycling Law

Vehicles

Law on Promoting Green Purchasing (the central government takes leadership in promoting procurement of recycled goods)

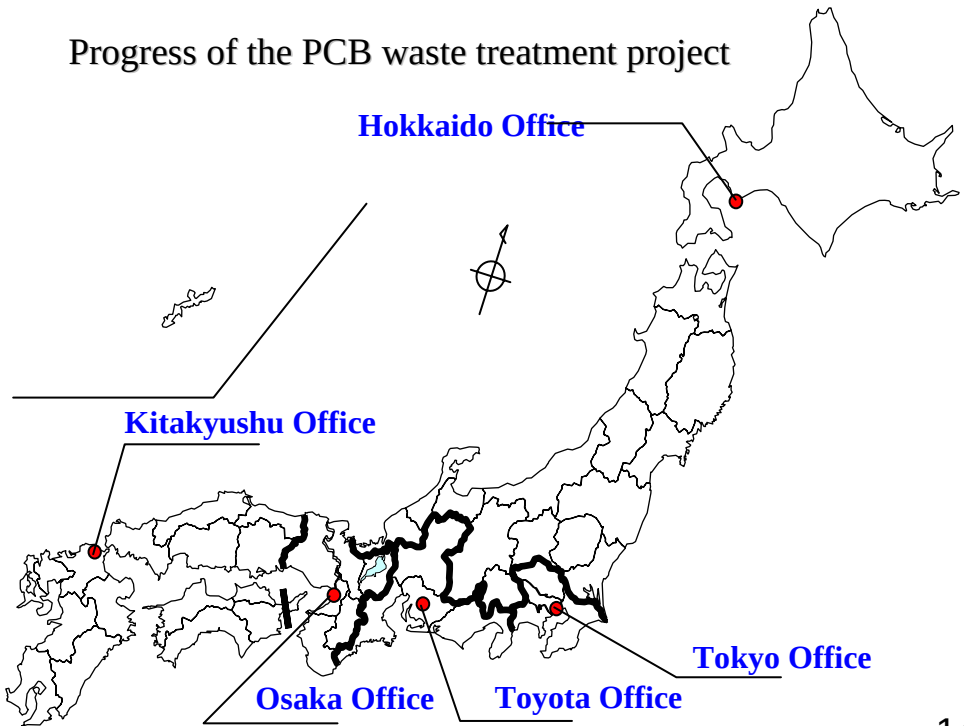
Proper disposal of accumulated hazardous substances by the leadership of the central government

Polychlorinated biphenyl (PCB)

- Establishment of a legislative system for the purpose of the proper disposal of PCB waste
- Japan Environmental Safety Corporation (JESCO) prepared facilities (in 5 places (Kitakyushu, Toyota, Tokyo, Osaka, and Muroran)) to treat High-pressure transformers which contain a high density of PCB. Among them, 3 facilities have already started PCB treatment.

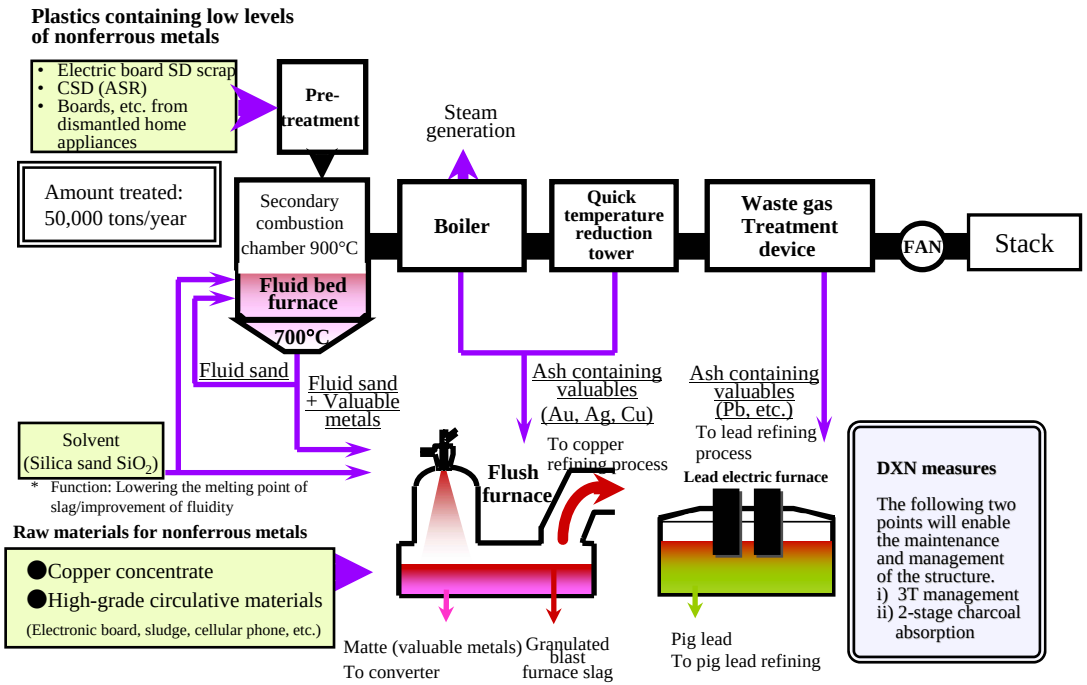
Kitakyushu Office

Progress of the PCB waste treatment project



Development of 3R promotive technology

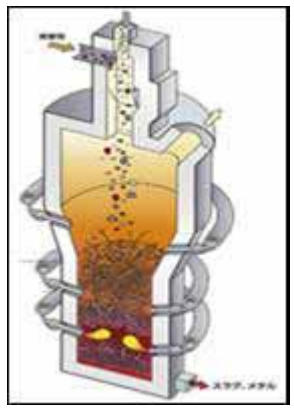
[Recycling technology]



Plant for recovery of rare metals

○Nonferrous metal refining plants enable the efficient and sanitary recovery of rare and valuable metals, such as gold, platinum, and indium.

[Incineration technology]



Gasification melting furnace

Melting slag

○Gasification melting furnace incorporates technology that excels in the quality of recovered metal and of the reduction of melting slag.

Collaboration between central and local government

In order to construct an SMS, one of the most effective policy measures is to develop, with collaboration between central and local governments, regional plans with numeric targets for 3R activities. Conforming to the actual situation of the region, these plans guide the development of the necessary infrastructure for the formation of an SMS at a local level.

Facilities using biomass

Biomass methanation facility

Production facility

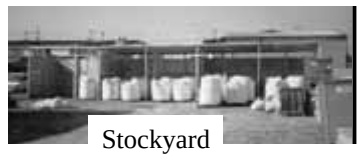
Charcoal dust stove

Charcoal dust production facility

Final disposal site

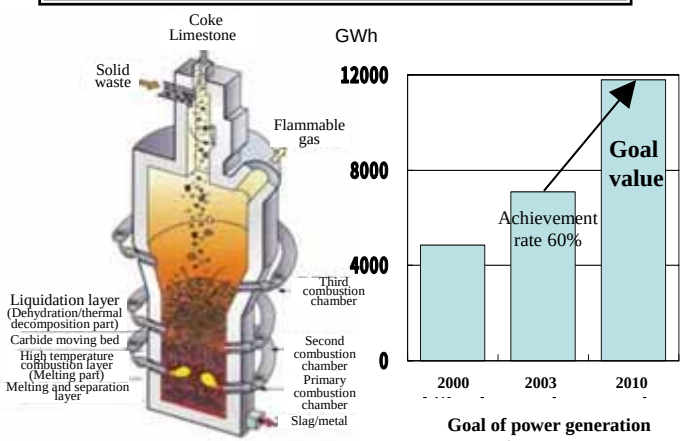
Recycling facility

Recycling center



Stockyard

Power generation facility by refuse incineration



Goal of power generation with refuse incineration

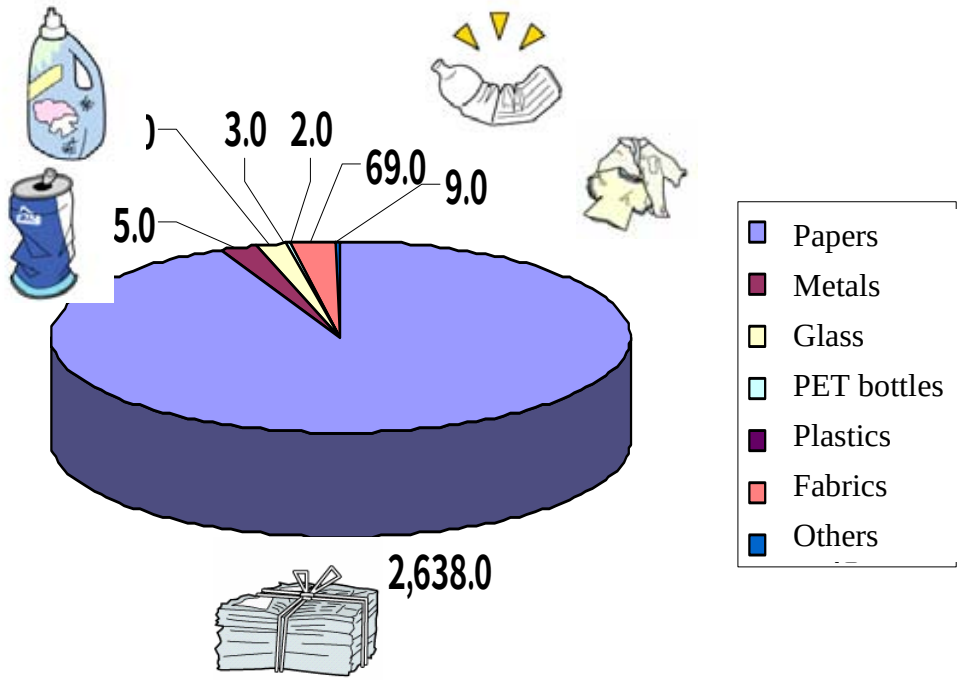
Asbestos melting facility

Promotion of a regional SMS by the collaboration of local governments and NGOs/NPOs

Group collection of recyclable waste

- ○ Local governments support activities to collect used papers, used magazines, used clothing, etc. which are conducted by citizens' groups, NGOs/NPOs, etc. (group collection)
- ○ 1～4 yen/kg of collected recyclables are subsidized.
- ○ About 3,000 tons/year of solid waste are recycled through this group collection

[Details of waste by group collection in Japan (thousand tons)]



3. Realizing appropriate cyclical use and disposal of CRs throughout East Asia

Principles concerning the domestic treatment and transboundary movement of CRs

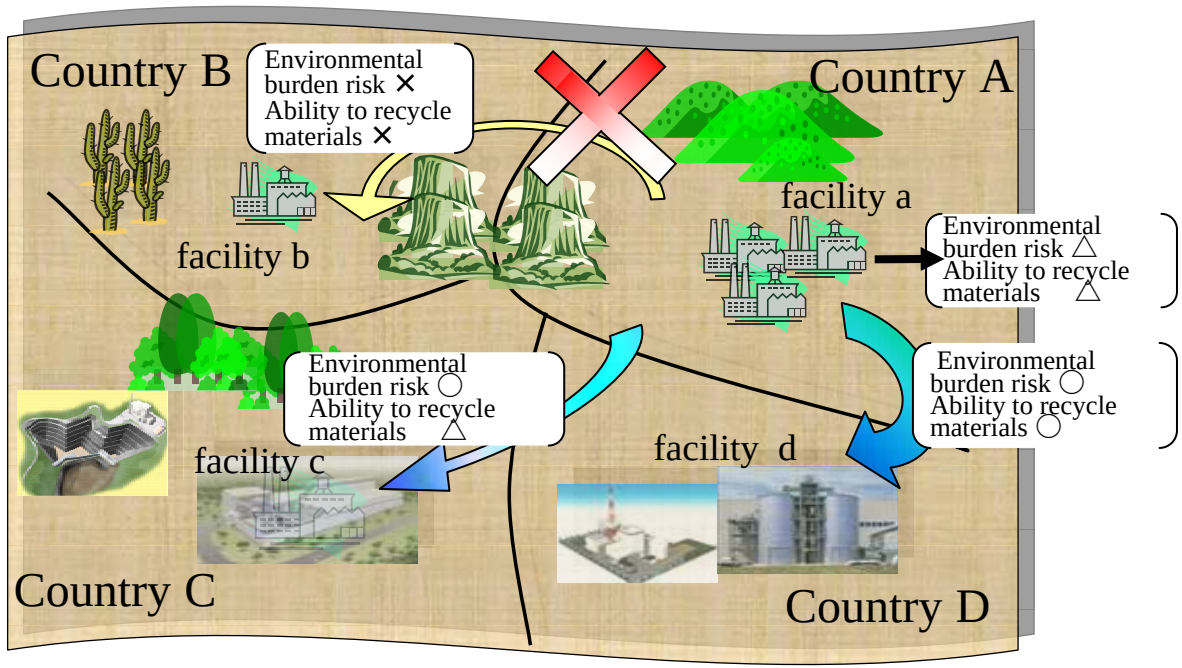
i) The top priority should be given to promoting the proper management of CRs within each country, and to improving the capability of promoting 3Rs, in line with national regulations.
ii) It is also essential to prevent the illegal export/import of CRs.

If the above two measures are properly implemented, it is also important to facilitate the transboundary movement of CRs in a contributive fashion to ensure the reduction of environmental impact and the effective use of resources.

[View of transboundary movement]

○Compare the ability of the country where CRs are generated and the country which they are moved to.
→The movement that will raise the risk of generating environmental burden in the latter country (Environmental burden risk) shall not be allowed.
○When the prevention of environmental pollution in the country that accepts CRs securely conducted, the movement is also evaluated from the perspective of effective use of resources (Ability to recycle materials).

A country: country where waste is generated,
B - D countries: countries which CRs are moved to



Since it is impractical to fully understand an individual country's environmental burden risk and its ability to recycle materials, these movement should be judged case by case according to the characteristics of CRs, and the ability of the facilities and waste disposal management contractor.

Basic policy for constructing an international SMS

[Improvement of each country's capacity to treat waste inside its own borders]

i) Reduction of environmental impact in the whole of Asia through the improvement/reinforcement of efforts in each country

ii) Promotion of the related entities' active participation based on proper role sharing

[Ensuring proper transboundary waste movement]

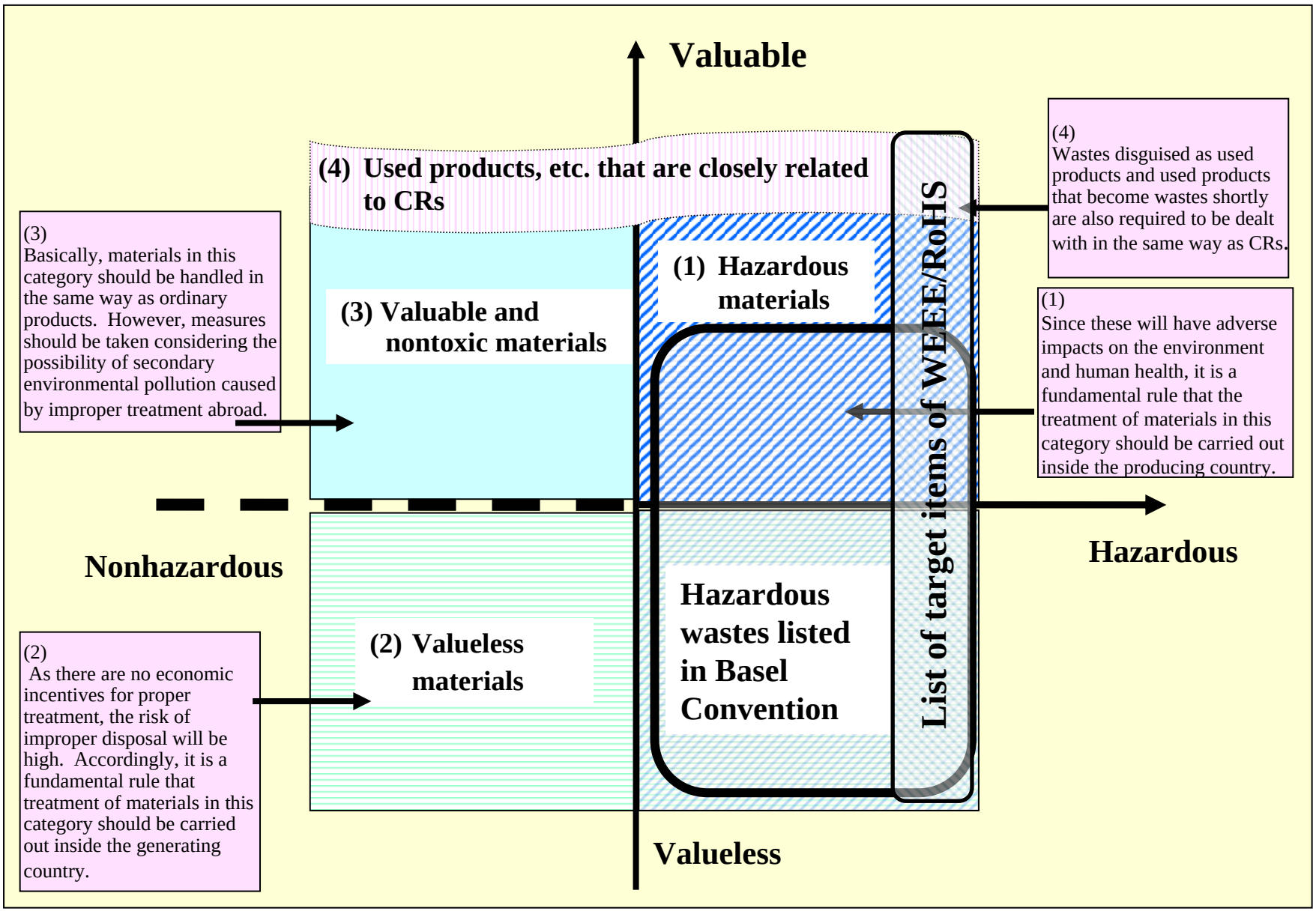
iii) Construction of a transparent and secure international environment conservation system based on accurate information

iv) Promotion of coherent/integral efforts based on the international policy forum

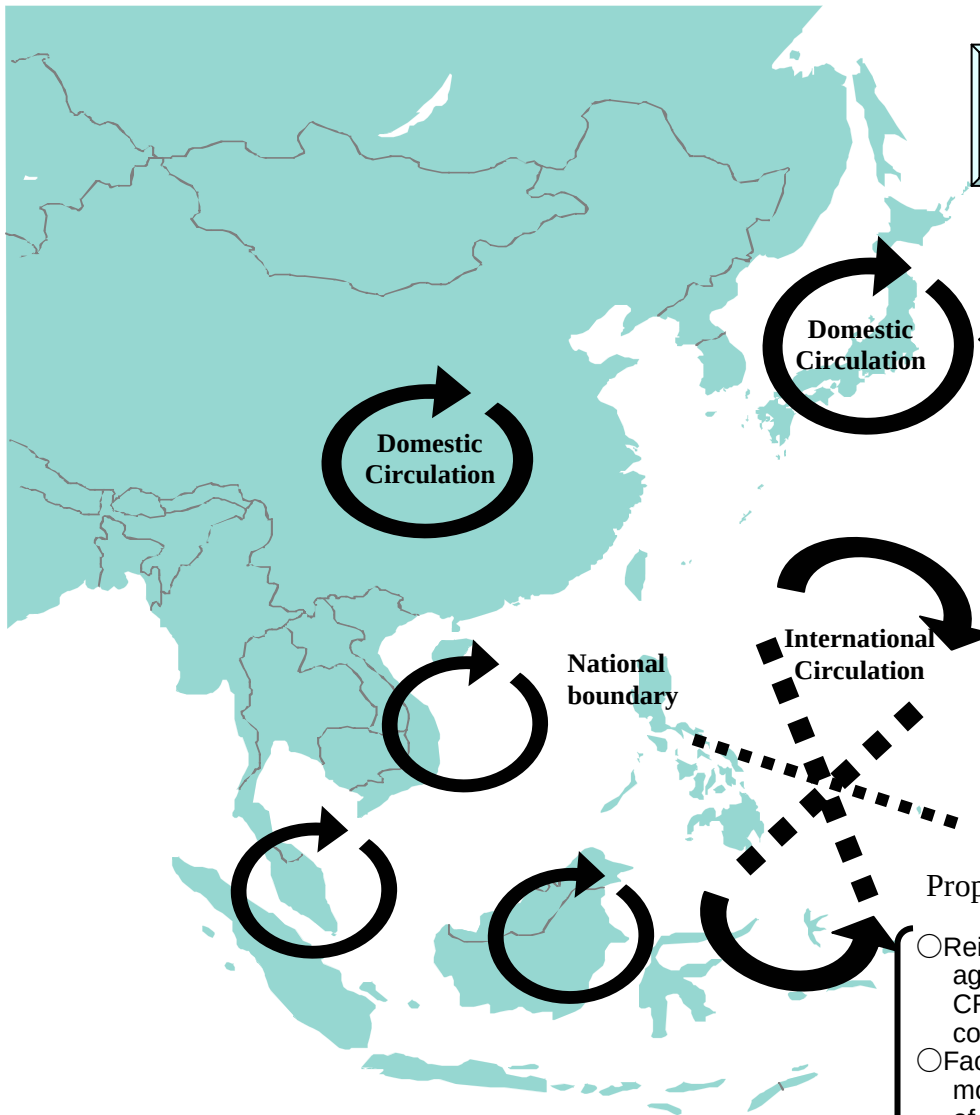
[Appropriate response to the trends of efforts taken inside and outside of Japan]

v) Necessity to respond flexibly and appropriately to the change in the conditions

Directions of practical measures taken according to the characteristics of CRs



Images of The East Asia SMS Vision based on the 3R concept (East Asia 3R vision)



Taking measures according to the characteristics of each CRs

Improve national 3R capacity

International circulation to compliment domestic circulation

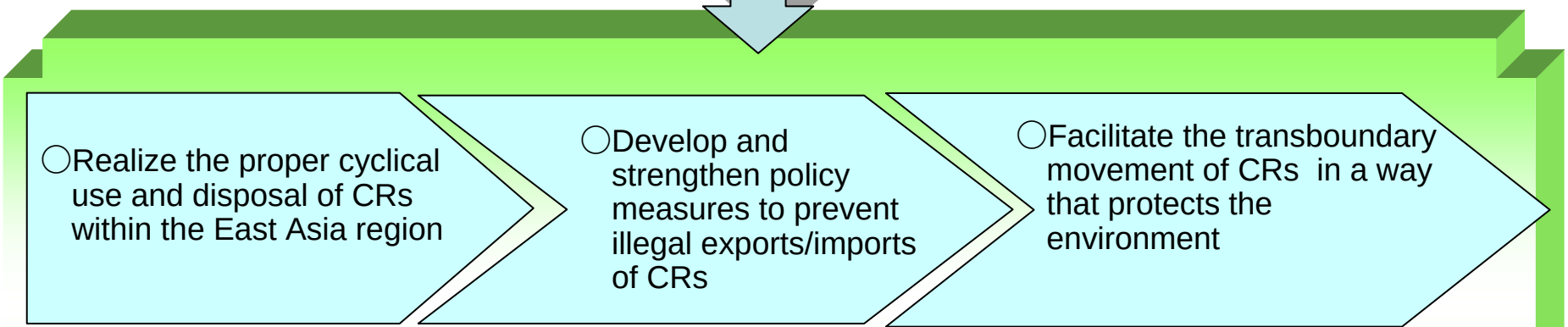
- ○Reduction of the environmental burden on the whole of East Asia, through taking various measures including the management of hazardous substances
- ○Developed countries should use their advanced technology for effective utilization of CRs that other countries are not able to recycle.
- ○Regarding materials that require a labor-intensive recycling process, developing countries are able to recycle them at a lower cost.

Proper Control at the border

- ○Reinforcement of measures against the improper transfer of CRs in the international community
- ○Facilitation of the transboundary movement of CRs from the point of generation for the effective use of resources

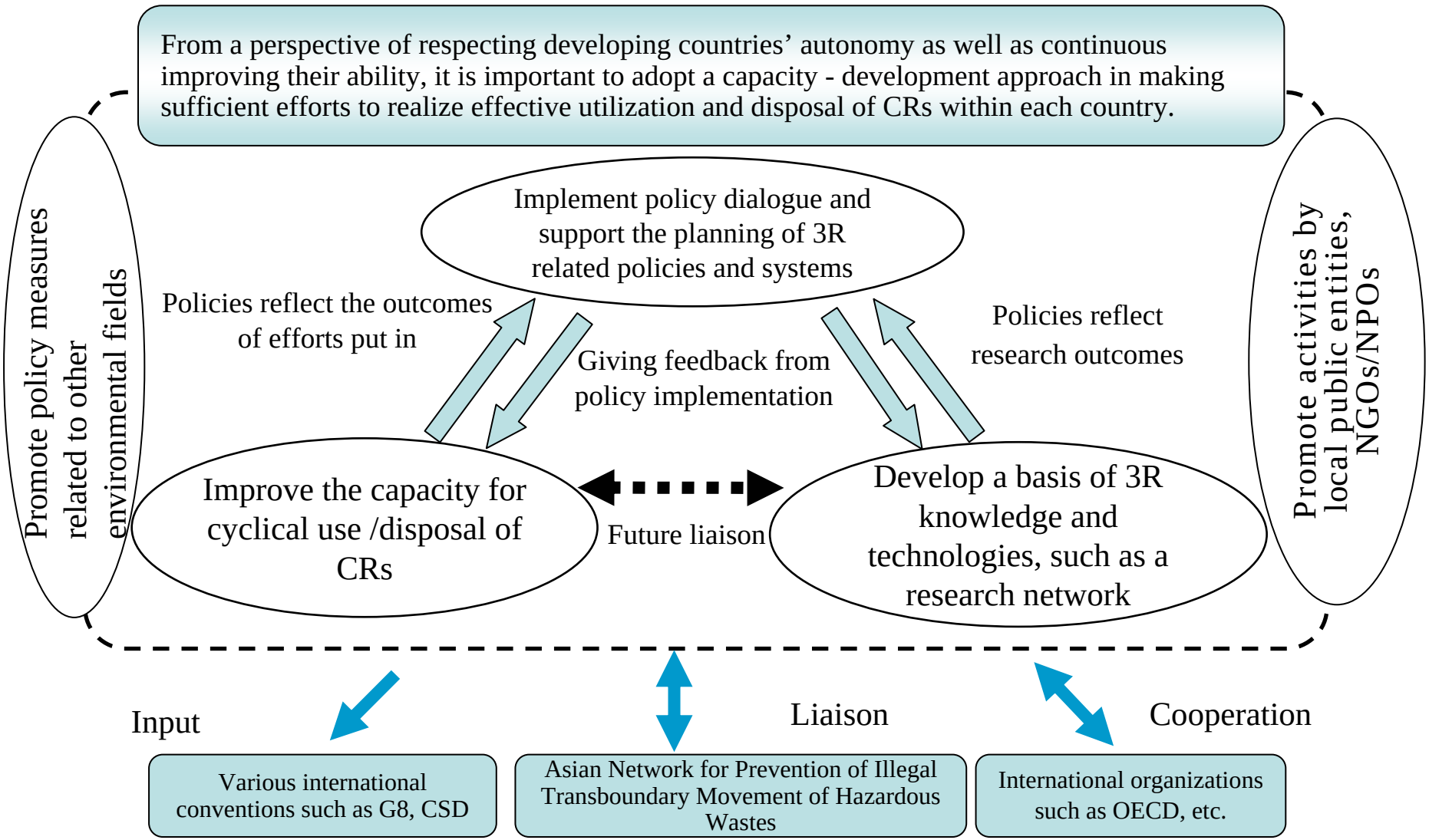
Contents of Japan's prospective concrete measures

Following the afore-mentioned basic policy, in order to concrete policy measures should be implemented according to the characteristics of CRs.



Integral implementation of the above 3 policy measures is important

Realize the proper cyclical use and disposal of CRs within the East Asia region



Develop and strengthen policy measures to prevent illegal exports/imports of CRs

The 2nd workshop, The Asian Network for Prevention of Illegal Transboundary Movement of Hazardous Wastes

Inspection at the customs post

Collect current and reliable data on the transboundary movement of CRs and develop its analytical methods

Further develop a networks for the prevention of illegal export/import

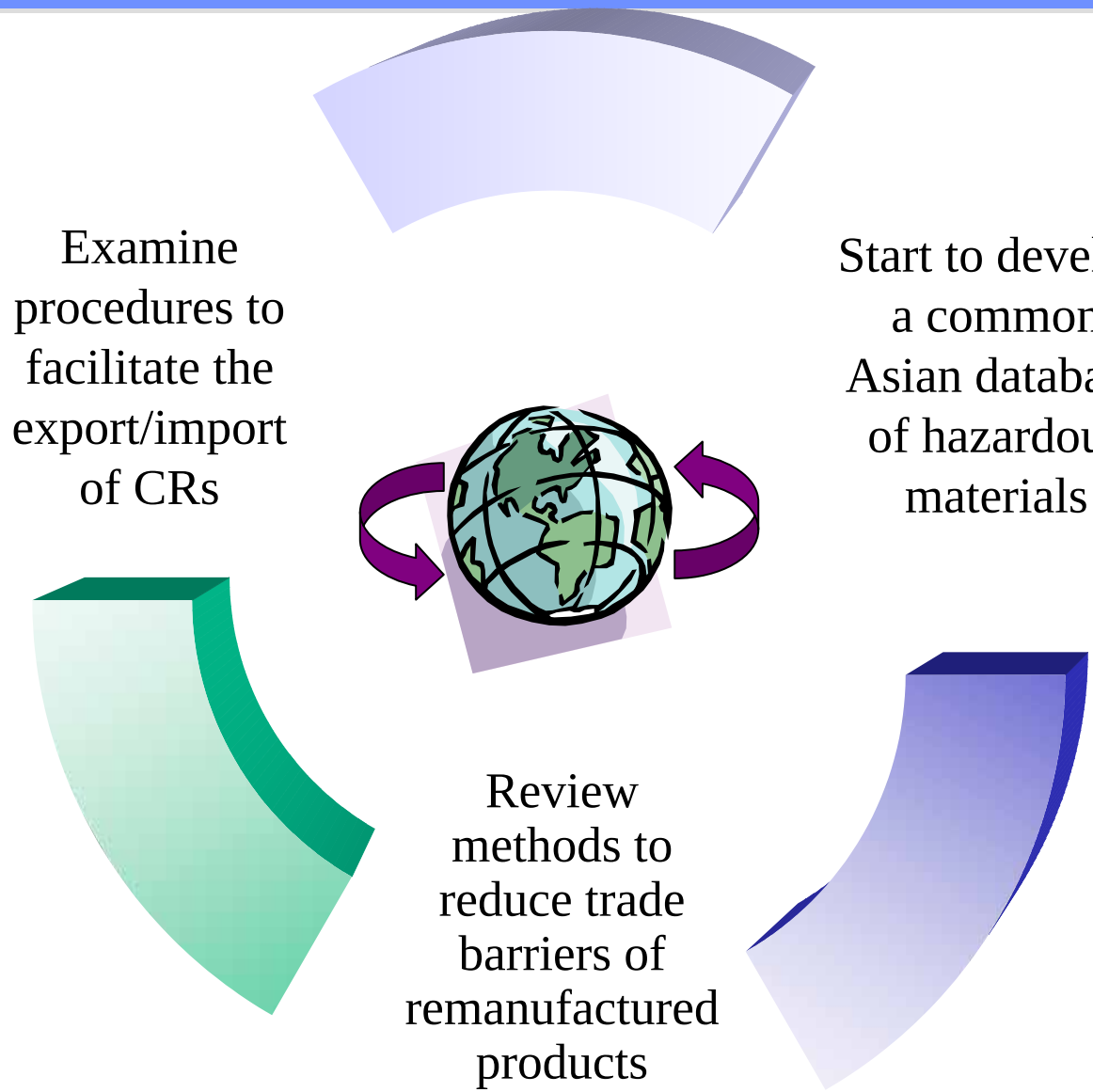
Prevent the infringement of intellectual property rights of Japanese stakeholders

Improve the traceability of transboundary movement of CRs

Cargoes (waste TV sets)

Cargoes (waste PCs)

Facilitate the transboundary movement of CRs in a way that protects the environment



4. Future efforts

Vision for East Asian SMS (East Asia 3R Vision)

Basic concepts to be shared in East Asia

Sharing the concept of 3R promotion

Dissemination of basic knowledge about final proper disposal

Participation of individual citizens and mutual learning among the related persons

Establishment of Asian standards

East Asia SMS vision based on 3R concept (East Asia 3R Vision)

Toward appropriate circulation of material resources in the entire region through policy reforms in socio-economic systems

Realization of an SMS in East Asia