

International experience to better finance EPR systems

Yasuhiko Hotta, PhD

Area Leader

Sustainable Consumption and
Production Area

Institute for Global
Environmental Strategies

Outline

- EPR-based national policies in Asia and the Pacific
- Japan's Home Appliance Recycling Act
- Other countries' experience
- Conclusion

1. EPR-based national policies in Asia and the Pacific

| Status of Implementation | Name of the Policies |
|--|--|
| Fully Implemented | <ul style="list-style-type: none"> ● <u>Japan</u> (Container Packaging Law, Automobile recycling law, Home Appliance Recycling Law, Law for recycling of small appliances, Law for promotion of effective utilization of resources) ● <u>China</u> (WEEE regulation, recycling technology policy of automobile) ● <u>Korea</u> (Packaging, WEEE, ELV) ● <u>India</u> (WEEE, Lead-acid batteries) |
| Postponement period before full implementation | <ul style="list-style-type: none"> ● <u>Indonesia</u> (GP 101/2014)(packaging) ● <u>Viet Nam</u>: 50/2013/QD-TTg(WEEE, Chemicals used in industry and agriculture etc.) |
| Under preparation of specific legislations | <ul style="list-style-type: none"> ● <u>Thailand</u> (The draft act on the management of WEEE and other end of life products) (WEEE and some hazardous wastes such as dry cell batteries) ● <u>Indonesia</u> (Governmental regulation) (E-waste) |
| Existence of Provisions supporting EPR principle | <ul style="list-style-type: none"> ● <u>Japan</u> (Basic Act for Establishing Sound Material Cycle Society) ● <u>Malaysia</u> (Environmental Quality Act, Solid Waste and Public Cleansing Act, Master Plan of National Waste Minimization, 10th Malaysian Plan) ● <u>China</u> ● <u>Indonesia</u> (Law on Solid Waste Management) |
| Based on Voluntary Approach/Agreement | <ul style="list-style-type: none"> ● <u>Japan</u> (voluntary take-back under Law for promotion of effective utilization of resources) ● <u>Singapore</u> (Singapore Packaging Agreement) |

Status of implementation of EPR in Asia and the Pacific region (12 countries and regions are examined)

- Two major developed countries in the region; Japan and Republic of Korea leads implementation of EPR-based policy in the region
- Emerging economies such as China, Malaysia and Indonesia: Incorporating EPR principles to their basic waste management policy.
- China and India: Started to implement EPR-based take-back scheme of end of life products such as e-waste.
- Less developed economies such as Bangladesh and Cambodia: Not yet in the stage of EPR principle introduction to their waste management policies. Same for Pacific island countries. This maybe related to the non-existence of producers in the countries.

Key challenges for adopting EPR in emerging economies-1

- 1) **Interpretation of EPR**: The purpose of introducing EPR varies by country. Some interpret it similar to CSR.
- 2) **Difficulty of identifying producers**: When non-brand, secondhand or repaired products are common in the market, it is often very difficult to identify who the producers are.
- 3) **Infeasibility of take-back scheme**: Some products preclude the use of the physical responsibility take-back scheme due to the transportation distance between country of origin and sales.

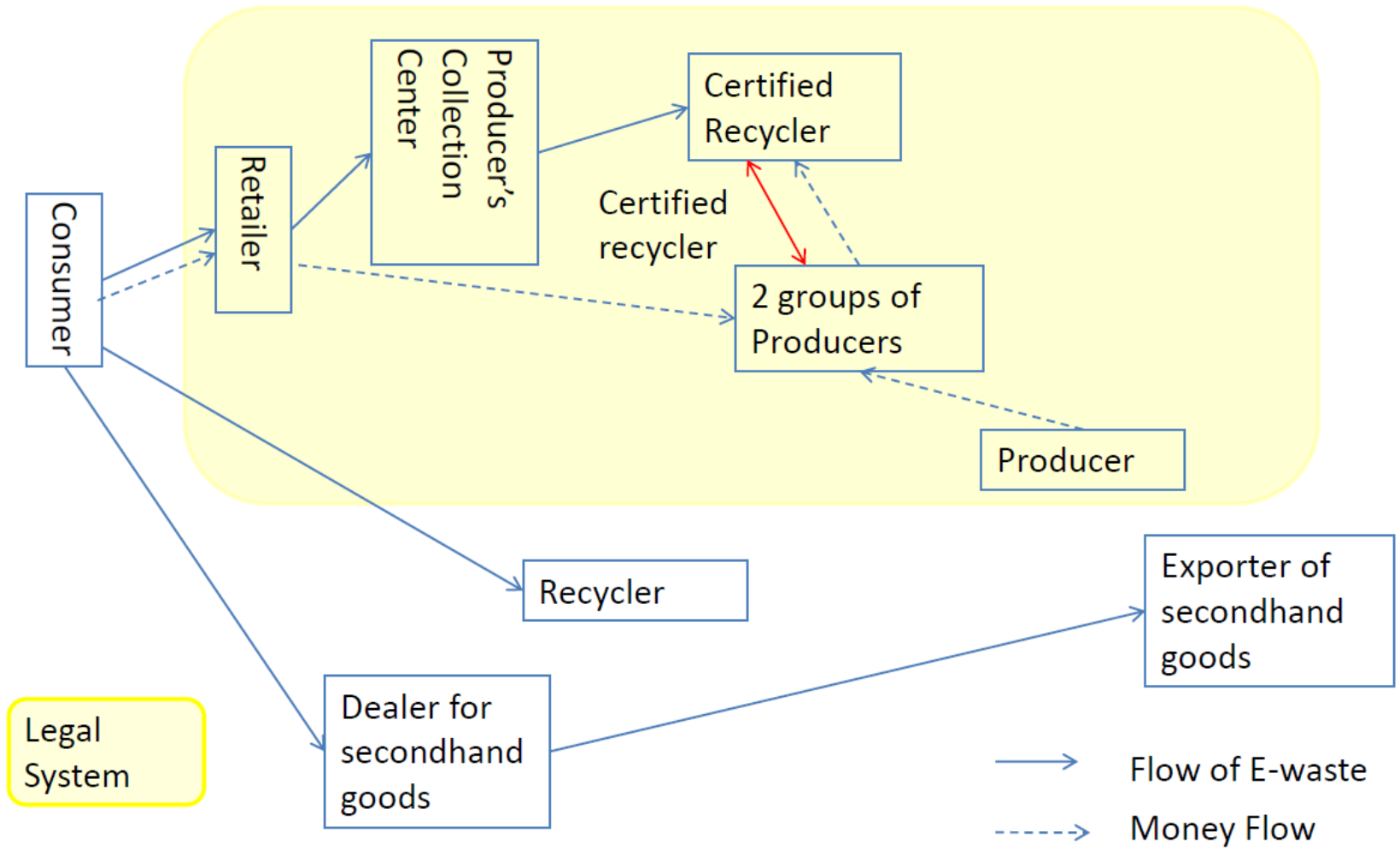
Key challenges for adopting EPR in emerging economies-2

- 4) **Competition with the informal waste management sector**: The informal recycling sector has low operating costs and can therefore offer higher cash payments for end-of-life products compared to formal government-approved recycling businesses.
- 5) **Infrastructure for waste collection and treatment**: Many cities have no established collection system for recyclables and are purely market-based. Thus, once EPR-based recycling mechanisms are up and running, substantial investments in physical infrastructure as well as human and institutional capacity for collection and treatment will be needed.
- 6) **Import and export of recyclables**: Policy intervention in the collection of recyclables would release a huge amount of recyclables on to the market. In combination with strong demands for resources outside the country, this would lead to an economic driver for export of recyclables.

2. Japan's Home Appliance Recycling Act

- Targeted products: Air conditioners, TV sets, Refrigerators and freezers, and Washing machines.
- Cost allocation: Consumers pay for the scheme (collection and transportation and recycling fee) when dispose.
- Usually, end of life appliances are collected and recycling fee are collected at the time of delivery of new/replacing products by retailers.
- Pros: Can collect recycling fee from products already on market. Does not need long-term product-based cost management system. Emitter and cost bearer are basically same. Physical responsibility makes incentive for DfE.
- Cons: May cause illegal dumping or sending to informal sector.

Japanese system (4 home appliances)



Source: Chung, S., Murakami-Suzuki, R. and Kojima, M. (2011), "Application of EPR to Recycling Policies in Japan, Korea and Taiwan", Hotta et. Al. (eds.) (2011), Extended Producer Responsibility in East Asia, IGES

Performance of system

Amount of collection × 1,000Unit)

| FY | | 2012 |
|------------------|-----|--------|
| Air conditioners | | 2,359 |
| TV sets | CRT | 2,282 |
| | LCD | 491 |
| Refrigerators | | 2,919 |
| Washing machines | | 3,145 |
| Total | | 11,196 |

Total weight of recycling: 468,000t (FY2012)

Per Capital weight for recycling : 3.7kg(FY2012)

Total amount of recycling (2001~) : 160million-unit

Recycling rate for collected items

| | | Target | | Achievement | Target |
|------------------|-----|-----------|-------|-------------|--------|
| | | 2001-2008 | 2009- | 2012 | 2015- |
| Air conditioners | | 60 | 70 | 91 | 80 |
| TV sets | CRT | 55 | 55 | 82 | 55 |
| | LCD | - | 50 | 87 | 74 |
| Refrigerators | | 50 | 60 | 80 | 70 |
| Washing machines | | 50 | 65 | 86 | 82 |

※Materials not recycled

Mixed plastics metals not suitable for recycling, urethane foam, CRT glasses, waste oil, CFCs/HCFCs

Target-setting and financing in home appliance recycling system in Japan

- **Recycling Target:**

- ✓ Set by government ordinance.
- ✓ Under regular review (every 5 years) by Joint Committee co-organized by Ministry of Economy, Trade and Industry and Ministry of the Environment of Japan.
- ✓ Target was revised in 2009 and 2014.
- ✓ Targets are set by recent portion of valuable materials in the recent products (decided by portion of iron, copper, aluminum, plastic, and other valuable parts and effectiveness in collection).

- **Collection/transportation fee:**

- ✓ Set by the retailers.
- ✓ Many major mass retailers charge 525 yen per unit.
- ✓ Directly charged to emitters during the delivery of new products and take back of old ones.

- **The recycling fee**

- ✓ **Set by the Manufacturers.**
- ✓ When the act was enforced, the fee was flat rate.
- ✓ Now, different manufacturers charge different fees.
- ✓ The act stipulates that the recycling fee shall not exceed the cost of recycling.
- ✓ **This is collected through recycling ticket paid by consumers at the time of disposal. Recycling ticket is attached to the used appliances.**
- ✓ **This fee is collected to PROs and distributed to certified recyclers.**

Some Lessons from Japanese System: Collaborative approach-1

- **Identification of/collaboration with producers/retailers:**
 - ✓ **Role of manufacturers association is large.**
 - ✓ **Before establishment of home appliance recycling act, industrial associations of appliance manufactures established voluntary associations for collection of used appliances.**
 - ✓ **Under recycling system of home appliance recycling act, manufactures are divided in to two groups: Group A and B.**
 - ✓ **Group A aimed to utilize and upgrade existing scrap recyclers with low cost.**
 - ✓ **Group B aimed to establish their own recycling facilities to have quality recycling.**
- **To optimize take-back scheme**
 - ✓ **Utilizing existing commercial habit of retailers to take back used appliances when they deliver new products.**

Some Lessons from Japanese System: Collaborative approach-2

- **Development of infrastructure:**

- ✓ In addition to efforts made by manufacturers, METI and MOEJ had a policy to nurture recycling industries and infrastructure through a separate policy called Eco-Town Programme.
- ✓ Also, the government utilized policy finance scheme to develop nation's recycling capacity.

- **Illegal trade:**

- ✓ When the system was introduced, leaking of collected items outside the system and eventually to foreign countries were not considered well.
- ✓ Stricter regulation of illegal dumping and improper export was imposed after the review of the system.

3. Target-setting and financing mechanism in other countries

| | Japan | Korea | Taiwan | China |
|----------------|--|--|---|---|
| Target-setting | Re-commercialization rate for collected items. Decided by governmental ordinance based on regular review (every 5 years) by joint committee of METI and MOEJ | Mandatory recycling target set by Ministry of the Environment. Manufacturers set their own targets and submit to KECO. | 70% of weight-based recovery for different items of recyclable products for certified facilities. | N.A. |
| Financing | Set by each manufacturer and regular review by PROs. Collected by recycling ticket at the time of disposal. | Producer pay for the scheme. If they cannot achieve targets set then they have to pay penalties. | Recycling fund committee decides the fee to be paid by producers. Advanced payment based on the product shipment. | The government decides the fee to be paid by producers. Advanced payment based on the product shipment. |

Conclusion

- Specific background for each country.
 - ✓ Developed countries usually introduce EPR systems for reducing financial burden for treating difficult-to-treat wastes for local governments(shift in financial burden as well as physical responsibility).
 - ✓ Developing countries usually introduce EPR system to establish proper treatment and recycling route.
- Governance mechanisms (planning, decision making, monitoring and reviewing)involving relevant stakeholders (manufacturers, retailers, recyclers, experts etc.) are the key.
- For financing, need to identify and collaborate with producers and importers before establishing mechanisms.
 - ✓ Subsidiary system may make strange incentive (for export or for over-statement of number of collections).
- Gradual expansion of items to be covered is recommended(be not so ambitious).
- Need to have some complimentary system to monitor data and statistics related to targeted items and actors involved in recycling (especially those informal and illegal ones.).

Thank you very much!

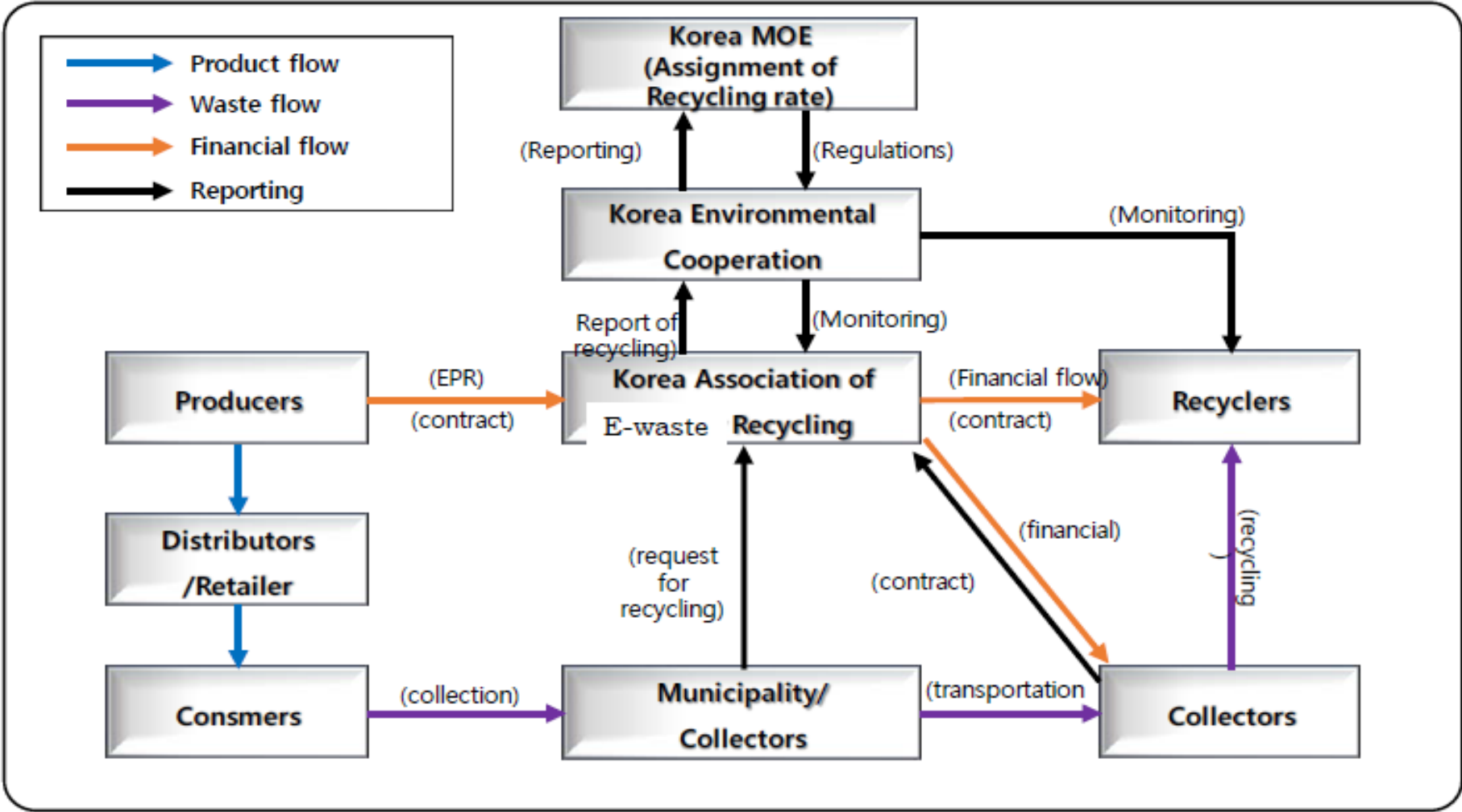
hotta@iges.or.jp

Annex: EPR system of other countries (Korea, Taiwan, China)

Korea's Resource Circulation Act for Home Appliances and Automobiles


- Targeted products: Large appliances (Refrigerators, washing machines, air conditioners, TVs, vending machines), ICTs (PCs, printers, copy machines, mobile phones), medium sized consumer equipment, and small-sized equipment (new mandatory items are introduced in 2014 and 2015)
- Cost allocation: Producer pay for the scheme. If they cannot achieve targets set then they have to pay penalties.
- Pros: Can motivate producers to collect end of life products.
- Cons: Export of used products are considered as recycling thus some incentives for export.

Korea's EPR system in E-waste management



Source: Yong-Chul Jang 2016, Current Recycling Practices of Electronic Waste by EPR in South Korea, 3RINCs 2016, Hanoi

Procedure of EPR system for e-waste in Korea

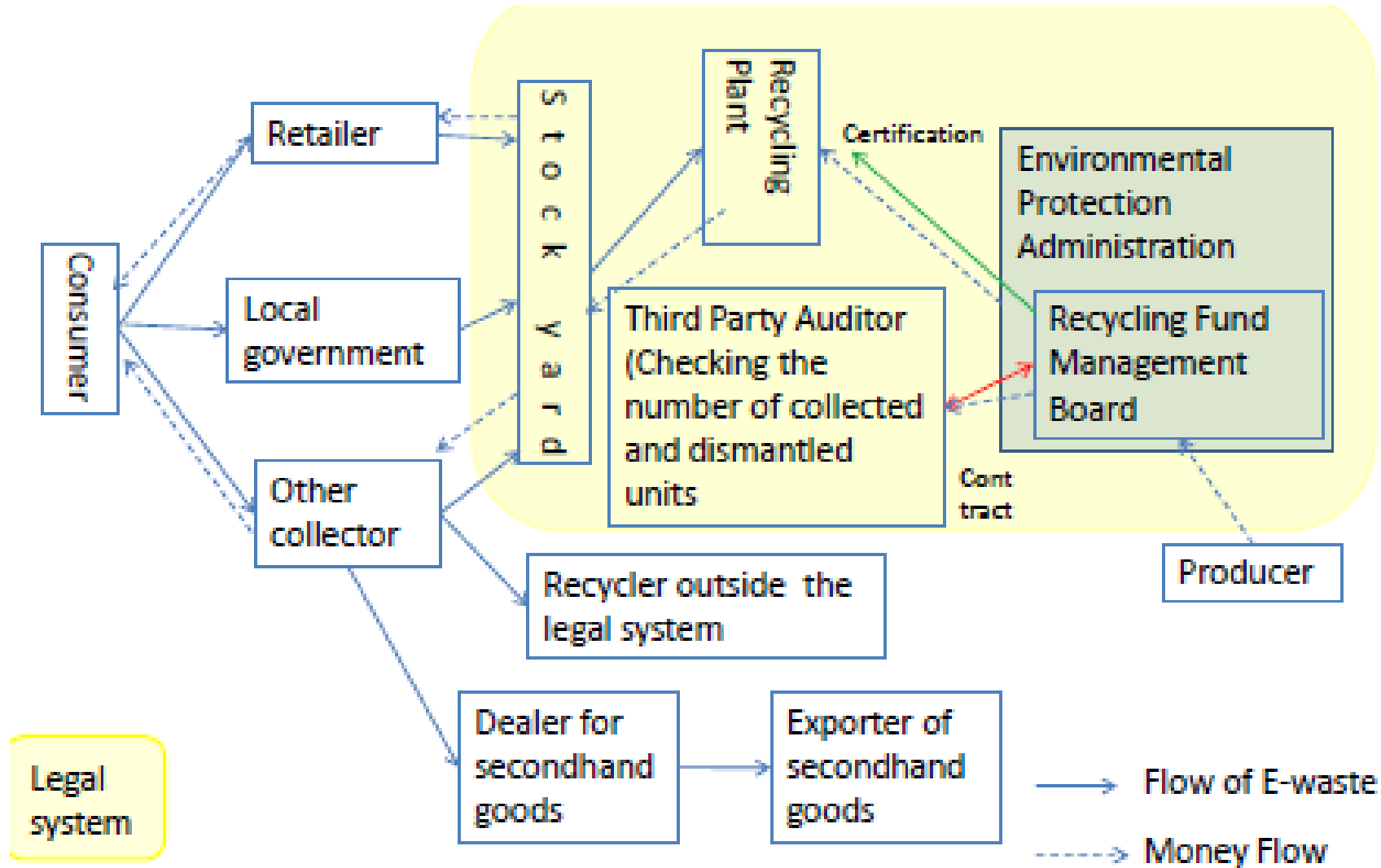


| Procedure | Actor |
|---|-----------------------------|
| Announcement of mandatory recycling target of items | Minister of the Environment |
| Submission of recycling plan | PRO and Producer → KECO |
| Fulfillment of recycling responsibility | PRO and Producer |
| Submission of Sales and Import Records | Producer → KECO |
| Submission of Recycling Reports | Producer → KECO |
| Notification and payment of recycling charges (if producers fail to meet recycling targets) | |

Taiwan's Recycling Fund System

- Targeted products: Home appliances, IT products, automobile, packaging and container
- Cost allocation: Manufacturer should pay recycling fee in advance to the fund, based on the sales in the market
- Pros: Able to establish financing scheme. Possible elimination of illegal/informal actors.
- Cons: No physical responsibility for producer thus less incentive for DfE. High administrative cost for monitoring. Pressure to use this fund for other purposes.

Taiwan



Source: Chung, S., Murakami-Suzuki, R. and Kojima, M. (2011), "Application of EPR to Recycling Policies in Japan, Korea and Taiwan", Hotta et. Al. (eds.) (2011), Extended Producer Responsibility in East Asia, IGES

China 's WEEE regulation

- Targeted products: Home appliances (TV, refrigerator, washing machine, and air conditioner) middle and small appliances (air duct, electronic water boiler, printer, gas water heater, fax, monitor, mobile phones, tablet) and PC
- Cost allocation: Fund is collected by ministry of finance and distributed to the certified recyclers.
- Pros: Collaboration with ministry of finance resulted in collaboration with tax and custom authorities (fee collection is relatively easy). Combination of subsidy and certification system.
- Cons: Cheating within the scheme. Relatively high administrative cost. Less incentive for DfE.

Chinese system

