

Session 4: Circularity and Electronic Waste (e-waste)
in Pacific Island Countries
Case Study Presentation 1

Role of EPR in Moving Towards Resource-efficient, Circular, and Zero-Waste Societies - Learning from e-waste Management in ASEAN +Japan

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Discussion Point

- 1. What role the Jaipur Declaration (2025-2035) could play in the context of transitioning to NetZero, zero waste and nature positive?*
- 2. What are the key policy changes or initiatives and institutional arrangements that would drive this transition at both the national and regional levels?*
- 3. What are the key challenges governments are likely to face in implementing the Jaipur Declaration on a national scale?*
- 4. How can we ensure effective collaboration between the public and private sectors towards better implementation of Jaipur Declaration?*
- 5. What role do extended producer responsibility (EPR) and eco-design play in fostering the circular economy in line with the Jaipur Declaration?***
- 6. What role could innovation and technology, including a strong science-policy interface, play in facilitating the implementation of Jaipur Declaration?*
- 7. How can emerging technologies such as AI, blockchain, and IoT contribute to better waste management, resource efficiency, and overall circularity?*
- 8. How can international collaboration and partnerships be strengthened to ensure that the Jaipur Declaration on the circular economy has a global impact?*

EPR mentioned in Introduction Section of Jaipur Declaration

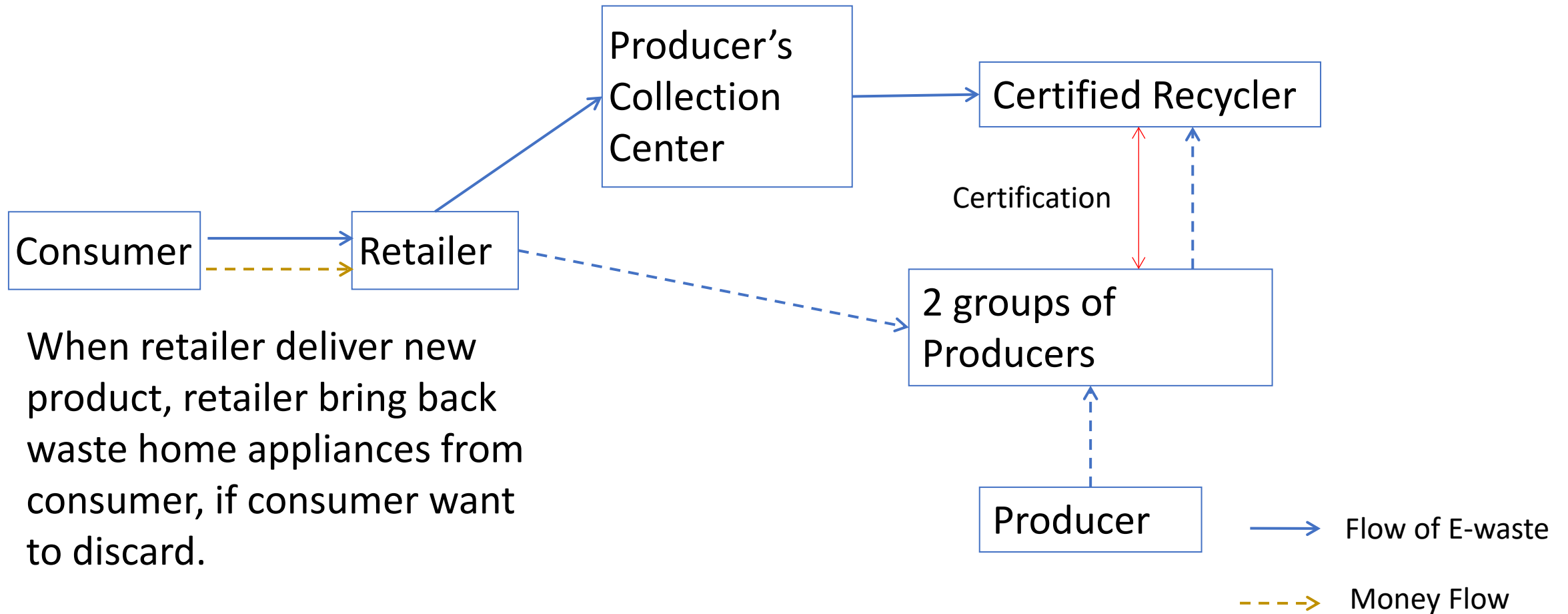
The achievements include enactment, elaboration and implementation of new policies and regulations, strengthening institutional arrangements, technological interventions, new and innovative financing mechanisms, development of dedicated 3R infrastructures (e.g., science parks, theme parks, resource recovery facilities, eco-industrial zones, among others), greening of MSMEs, increased public awareness, growing partnerships such as the PPPs, evolution of extended. **The achievements** include enactment, elaboration and implementation of new policies and regulations, strengthening institutional arrangements, technological interventions, new and innovative financing mechanisms, development of dedicated 3R infrastructures (e.g., science parks, theme parks, resource recovery facilities, eco-industrial zones, among others), greening of MSMEs, increased public awareness, growing partnerships such as the PPPs, evolution of **extended producer responsibility (EPR)** based recycling mechanisms, and proliferation of international collaborative research programmes, among others. While resource productivity is steadily increasing in many countries, the total waste generation and material consumption is also increasing across the region.

Extended Producer Responsibility: History

- Definition: An environmental policy in which a producer's responsibility for a product is extended to the post-consumer stage of a product's life cycle (OECD 2001)
- First five EPR policies were introduced by four states in the US and a state in Canada in 1970s, in the form of deposit and refund scheme (OECD 2013, and Kaffine and O'Reilly 2015).
- In 1991, German Packaging Ordinance apply EPR, which require producers to establish separate waste management and recycling of all types of packaging outside the public waste disposal system, to satisfy mandatory quotas for recycling.
- Some East Asian countries has applied EPR since 1990s. Recently, several Southeast and South Asian countries apply or are planning to apply EPR.

EPR on E-waste

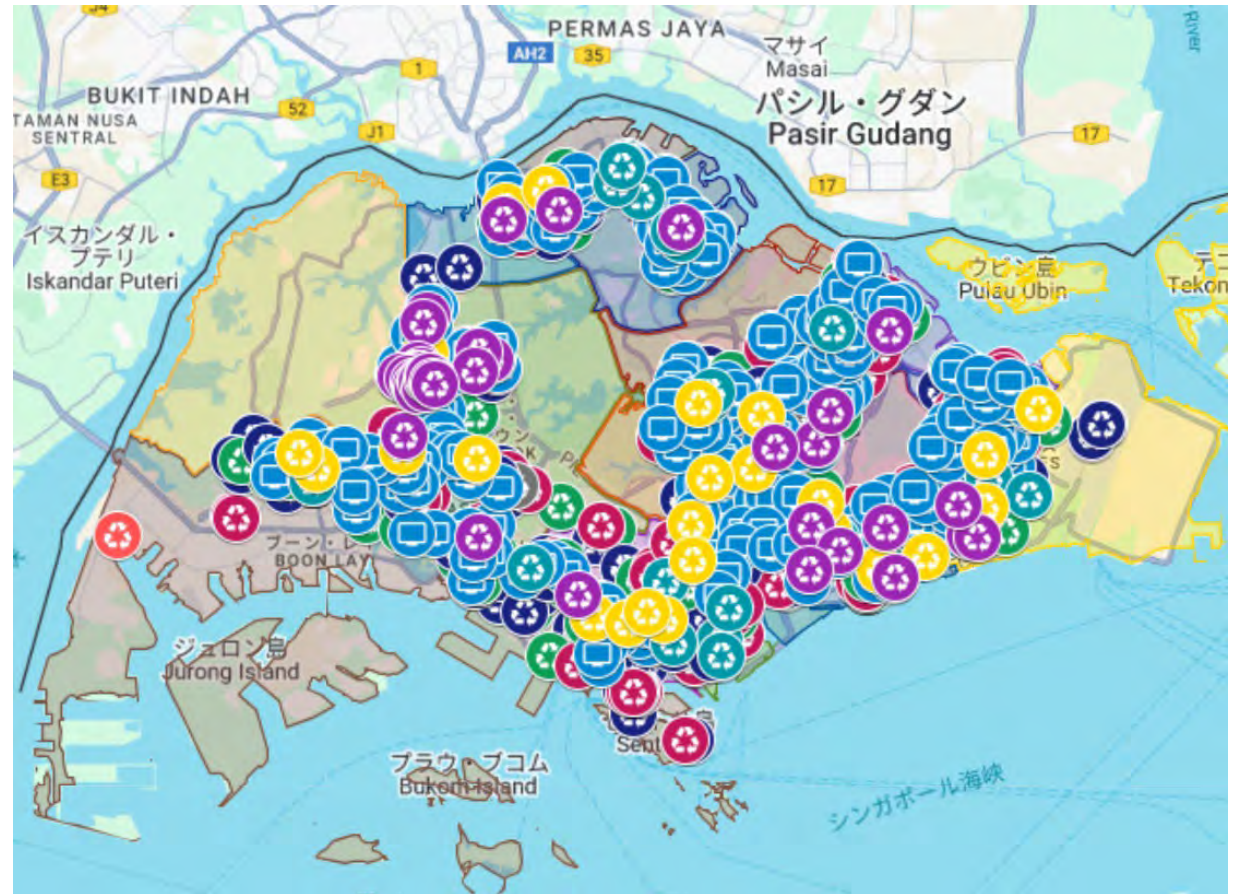
JAPAN: Big Home Appliances(TV, Air Conditioner, Refrigerator, Washing Machine)



When retailer deliver new product, retailer bring back waste home appliances from consumer, if consumer want to discard.

Singapore

- In 2021, National Environment Agency introduced the regulation on e-waste management, based on Extended Producer Responsibility.
- Responsibility of Producer
 - Collection and treatment of their products, when they reach end-of-life.



ICT Equipment and batteries, Lamps only



ICT Equipment and batteries only



All regulated consumer products



Batteries only



All e-waste (e.g, small household appliances.)

Viet Nam

- Based on Law on Environmental Protection, and related Government Regulation, Extended Producer Responsibility is implemented.
 - Battery: from January 1, 2024.
 - Electric and Electrical Products in 2025.
- On April 2, 2025, International Finance Corporation (IFC) and UNDP organized the third event in Ha Noi, to facilitate dialogue between Viet Nam government and the private sector on the EPR framework for E-waste.
- Vietnam Government plans to introduce EPR decree in the third quarter in 2025.

Secondhand Computers



A used computer, home appliances and parts imported from Japan were sold in secondhand market in Jakarta, Photo, by Michikazu Kojima in January 2014.



Secondhand computers exported from Japan to Malaka, Malaysia. Photo by M. Kojima, January 2009.

Informal E-waste Recycling

Some recycling process generated pollution, if pollution control is weak.



Collecting precious metal from IC-tips.
Photo by M. Kojima in Bandung
Indonesia, February 2011.



Using cyanide to precious metal from
electronic parts, January 2012, in the
suburb of Manila, photo by M. Kojima.

Copper Cables with Plastic Coating



Open burning of copper cables, to remove plastics by use of fire, January 2011, Photo by M. Kojima, in suburb of Hanoi, Vietnam. 。



Machines to shred copper cables to separate plastics and copper, in Viet Nam , November 2012, Vietnam. Photo by M. Kojima

Basics of EPR

Who is Responsible?

- Basically “Producer” in Extended Producer Responsibility is producer (Beverages: Coca-Cola, Pepsi, Suntory and others, E-waste: Apple, Panasonic, Sony and others), and importer.
- In case of small island countries, I assume there are no brand producer selling their products.
- I think Major flow of beverages and electronic and electrical equipment are import by shops.
- Another flow might be the import as personal belongings.
 - If the volume of EPR target item imported as personal belonging are significant, government should consider countermeasures.

Several Types of Responsibility under EPR

- Responsibilities
 - Physical Responsibility
 - Design for recycling
 - Develop collection scheme
 - Achieve collection rate
 - Achieve recycling rate
 - Financial Responsibility
 - Bear the cost of recycling program
 - Information Responsibility
 - Inform collection scheme to the public
 - Provide information on materials used in target item to the recycler
- Depending on EPR schemes, prioritized responsibilities are different.
 - In case of Japan
 - Packaging and Container
 - Local government organize source separation programs and collect packaging and container waste.

Who are Producers in EPR programs?

- Basically, producer, who put the products in the market.
 - PET bottles: brand owners put the PET bottles with contents.
 - Regrading the Imported items, responsibility of EPR bottles is not put on producer, but importer should take EPR.
 - EPR is not applied to producer of bottle, which is sold to beverage companies.
 - Producer of home appliances, computers and other electronic and electrical wastes have been required to recycle materials, under EPR regulation, but producer of parts do not need to take part in EPR system directly.
- But it may be difficult to have circulation of materials, due to economies scale may not work in small island countries, unless recycling fee should be put on.

Extended Producer Responsibility on E-waste

Right to Repair

- “Right to Repair” concept is gradually diffused to some countries.
 - China: In December 2012, the State Administration of Quality Supervision, Inspection and Quarantine of China established the "Responsibility Regulation for the Repair, Replacement and Return of Household Automobiles."
 - India: In July 2022, India's Ministry of Consumer Affairs, Food & Public Distribution announced the launch of a committee to create a comprehensive framework on the “right to repair.” The committee is chaired by the Deputy Secretary of the Consumer Affairs Department, and the committee members include government and university experts and representatives of business associations. In 2023, the ministry will also create a webpage called the Right to Repair Portal to provide various information. Examples of products covered by the right to repair include agricultural machinery (tractors, pumps, etc.), **mobile phones/displays/data storage devices (mobiles, tablets, laptops, servers, printers, etc.)**, consumer goods (water purifiers, washing machines, refrigerators, televisions, air conditioners, etc.), and automobiles (cars, motorcycles, etc.).

Challenges of Small Island Countries

- “Producer” in EPR scheme is basically brand owners or importer of products.
 - If brand owners have a branch in small island country and import their products, the branch should take role of EPR.
 - I guess almost all of e-wastes generated in small island countries were imported one (New or Used). Then importer should take a role of Extended Producer Responsibility.
 - But personal belongings are usually exempted.
 - Some used parts can be utilized in repair shops, if repair shops exists.
 - I hope “Right to Repair” movement may reduce generation of e-waste and others.
 - Economies of Scale is also work in some recycling of steel, copper, plastics, papers and others. Small countries may not be able to have recycling process, because economies of scale may not work.

References

- Michikazu Kojima and Amit Jain (2008) “Controlling Pollution in Small-scale Recycling Industries: Experiences in India and Japan” in *Promoting 3Rs in Developing Countries – Lessons from the Japanese Experience*, Institute of Developing Economies.
- Industries: Experiences in India and Japan
- Secretariat of the Pacific Regional Environment Programme (2023) Fiji National Waste Audit Analysis Report.