ERIA Research Report FY 2023, No. 18

Circular Value Chains of Electrical and Electronic Equipment in ASEAN

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ERIA Research Project Report FY2023 No. 18

Published in December 2023

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Executive Summary

This study is a response to a request from the Association of Southeast Asian Nations (ASEAN) and Japan for the ASEAN–Japan Circular Economy Initiative. The focus is on addressing urgent issues related to electrical and electronic equipment (EEE) waste, which is one of the fastest-growing waste streams, and presenting policy recommendations for future collaboration on this matter between ASEAN Member States (AMS) and Japan. The study highlights the importance of establishing circular value chains for EEE in ASEAN to maximise resource efficiency and to minimise negative environmental impact.

EEE refers to equipment that is dependent on electric currents or electromagnetic fields to work properly as well as equipment for generation, transfer, and measurement. EEE contains valuable precious metals and raw materials such as gold, silver, palladium, and copper, with a value of approximately $57 billion in 2019. However, despite its value, e-waste is not effectively managed.

The United Nations Institute for Training and Research (UNITAR) predicted that e-waste generation will increase from 53.6 million tonnes in 2019 to 74.7 million tonnes in 2030, with 47.0% generated in Asia. However, only 11.7% is collected and properly recycled. ASEAN faces challenges in treating uncontrolled used EEE and e-waste generated locally as well as those imported from East Asia due to regulatory and sector-specific obstacles.

In ASEAN, the informal sector – such as waste pickers and recyclers who have no licenses to treat waste – plays a significant role in waste management. Since EEE includes hazardous materials, the improper treatment of used EEE causes environmental pollution and health damage. In many cases, environmental considerations are lacking in ASEAN, even in small recycling companies. Moreover, the informal sector does not usually have the technologies and knowledge for environmentally sound treatment due to a lack of opportunity.

Japan has extensive experience in environmentally sound e-waste management infrastructure and treatment capacity. This experience can be a valuable reference for ASEAN in establishing circular value chains of EEE.

The global momentum towards a circular economy is driven by concerns over resource and energy constraints, climate change, and waste issues. A circular economy promotes the efficient and cyclical use of resources while maximising added value and is linked to the idea of creating sustainable systems. Investment in environmental goods and services supports circular economy businesses throughout the value chain, including sourcing and production stages. Given the growing urgency for achieving carbon neutrality and uncertain supply of natural resources and energy, there is a need to accelerate circular economy initiatives through resource, environmental, and industrial policies.

ASEAN and Japan are both pursuing circular economy policies, with ASEAN adopting the *Framework for Circular Economy for the ASEAN Economic Community* in 2021 and publishing the *ASEAN Sustainable Consumption and Production Framework* in 2022. Japan, likewise, has a comprehensive policy package for a growth-oriented, resource-autonomous economic strategy. The ASEAN–Japan Circular Economy Initiative is also expected to enhance mutually beneficial economic relations.

In the transition towards a circular economy, international trade and trade facilitation for second-hand goods play crucial roles in closing the loop on cross-border activities. The use of raw materials in a cascading manner and incorporation of secondary resources in the production process are integral to achieving a circular economy, prolonging product life, and enabling cleaner product cycles. However, existing regulatory regimes and arrangements focus on ensuring the safety of new EEE and do not adequately extend to second-hand, refurbished, or remanufactured equipment.

Three key recommendations are proposed. First, Japan should exchange specific experiences and capacity building in establishing and enforcing legal systems, focussing on the progress made by each AMS. For example, Viet Nam and Singapore have enacted laws for used EEE and e-waste management, including extended producer responsibility (EPR) and recycling fee systems. However, the enforcement of these laws appears to be inadequate. By exchanging experiences, Japan can share its expertise in establishing and enforcing laws, such as its Home Appliance Recycling Law. Workshops can also facilitate the exchange of experiences and promote cooperation in human resources development amongst government officials.

Second, business collaborations between AMS and Japan should be fostered. This collaboration can take various forms, such as technical cooperation, joint ventures, and international resource circulation involving the trade of used EEE, remanufactured goods, and scraps. Promoting business-matching opportunities and establishing joint ventures in AMS can encourage business collaborations. Creating conducive circumstances for the global trade of used EEE, reused goods, remanufactured goods, and scraps will further facilitate international resource circulation. Notable examples of successful business cases, such as Reuse Mobile Japan, Dowa Holdings, JX Metals, Mitsubishi Materials, Jaring Metal, FUJIFILM Business Innovation, Wongpanit, and EcoBatt-Energy Cambodia, demonstrate how collaboration could address specific challenges outlined in this study.

Lastly, closer alignment with international rules and standards and advancement of trade openness between AMS and Japan are recommended. To ensure the enforcement of e-waste trade regulations and smooth trade of used EEE, closer alignment with international rules and standards to distinguish between used EEE and e-waste is important. As for promoting remanufacturing, standardisation of the definitions of remanufactured EEE and origin of remanufactured goods and harmonised standards for quality and safety assurance for remanufactured goods amongst AMS and Japan would be helpful.