

Executive Summary

Electrical appliances and electronic gadgets are pervasive in our lives, and their number and use is still on the rise, impacting our professional and personal lives daily.

These devices, typically powered by a battery or a power supply, are used in all parts of the world and across all strata of society. In 2012, an estimated 56.56 million tonnes of Electrical and Electronic Equipment (EEE) were put on the global market.

Asia is both the world's largest manufacturer of and market for EEE, consuming 26.69 million tonnes in 2012 of what was put on the global market, or about half the global amount. In 2014, Asia generated 16 million tonnes of e-waste, which equals 3.7 kg per inhabitant compared to 15.6 kg per inhabitant in Europe. As Asian countries rapidly industrialise, and their citizens enjoy higher income and living standards, the consumption and disposal of EEE will continue to increase.

Properly handling end-of-life products is not only an environmental benefit, but it also protects the public's health, which is negatively impacted by improper recycling practices that emit hazardous substances. Proper handling also preserves limited resources essential for the production of high-tech products.

With a focus on the national jurisdictions of Vietnam, Thailand, Taiwan, Singapore, the Philippines, Malaysia, South Korea, Japan, Indonesia, Hong Kong, China and Cambodia, this Monitor covers nearly 30 per cent of the world's population across a wide range of socio-economic parameters.

This report uniquely presents a summary of the regional e-waste statuses, and it is arranged so as to allow direct comparisons where possible that can help further the development of e-waste management systems based on other countries' experiences.

Japan has been at the forefront of digital technology developments and is home to some of the largest EEE manufacturers on Earth. It has also been an early mover and global leader in implementing an Extended Producer Responsibility (EPR)-based system for e-waste, largely building on its strong existing framework for solid waste management.

As part of international commitments towards better environmental management of e-waste, Japan has been technically and financially supporting various kinds of e-waste activities through international programmes. It is under the aegis of this program that this report is developed as a compilation of knowledge and experience gathered over 10 years

through various MoEJ sponsored activities in the region through workshops, desk studies, pilot projects and a review and synthesis of relevant reports, studies and academic papers.

Successful and environmentally sound e-waste management needs a holistic approach to waste management, taking into account many factors, such as a country's socio-economic development, governance structures, geography, trade links, infrastructure, psychological considerations that reflect consumer attitudes, legal frameworks, collection mechanisms, recycling and recovery facilities, environmental awareness and health and safety standards. To simplify these variables, four main pillars are identified, namely the legal framework, the collection mechanism, the processing infrastructure and the environmental health and safety standards, along with a country's e-waste management systems. For each pillar, three stages were identified, ranging from basic to advanced. We consider "prevention" as a common theme across all pillars, in line with prevention ranking higher up in the waste hierarchy.

This builds the E-waste System Matrix for this Monitor, which is comprised of four e-waste management types with Japan, Taiwan¹ and the Republic of Korea falling under Type 1 "Advanced", Singapore and Hong Kong falling under Type 2 "Voluntary Initiative", China,

¹ Throughout this publication and based on UN decisions, Taiwan always refers to the Province of China

Malaysia, the Philippines and Vietnam falling under Type 3 "In transition" and Cambodia, Indonesia and Thailand under Type 4 "Informal Initiative".

Just as the supply chains of EEE are global in nature, so are the reverse chains at end-of-life, with large, and ever-growing, international trade in waste. The exponential growth and international controversies of these transboundary trades have led to the development of regulations at the national regional and international level. All focus countries of this Monitor plus Taiwan, Province of China, control e-waste either through the Basel Convention or their respective national legal framework (only for Taiwan). However, the measures to control imports and exports of second-hand electronics, and their effectiveness, are different. While some countries control and prohibit the export of e-waste, others control or outright prohibit the import of e-waste and second-hand products.