E-WASTE RECYCLING

RECYCLE IT ALL, NO MATTER HOW SMALL!!

WHAT IS E-WASTE?

Electronic waste, commonly known as e-waste, refers to electric and electronic equipment that is no longer useful to its users or no longer serves its original purpose. E-waste encompasses items like refrigerators, washing machines, microwaves (referred to as "white goods"), as well as televisions, radios, computers, and cell phones (known as "brown goods") that have become obsolete due to redundancy, replacement, or damage.

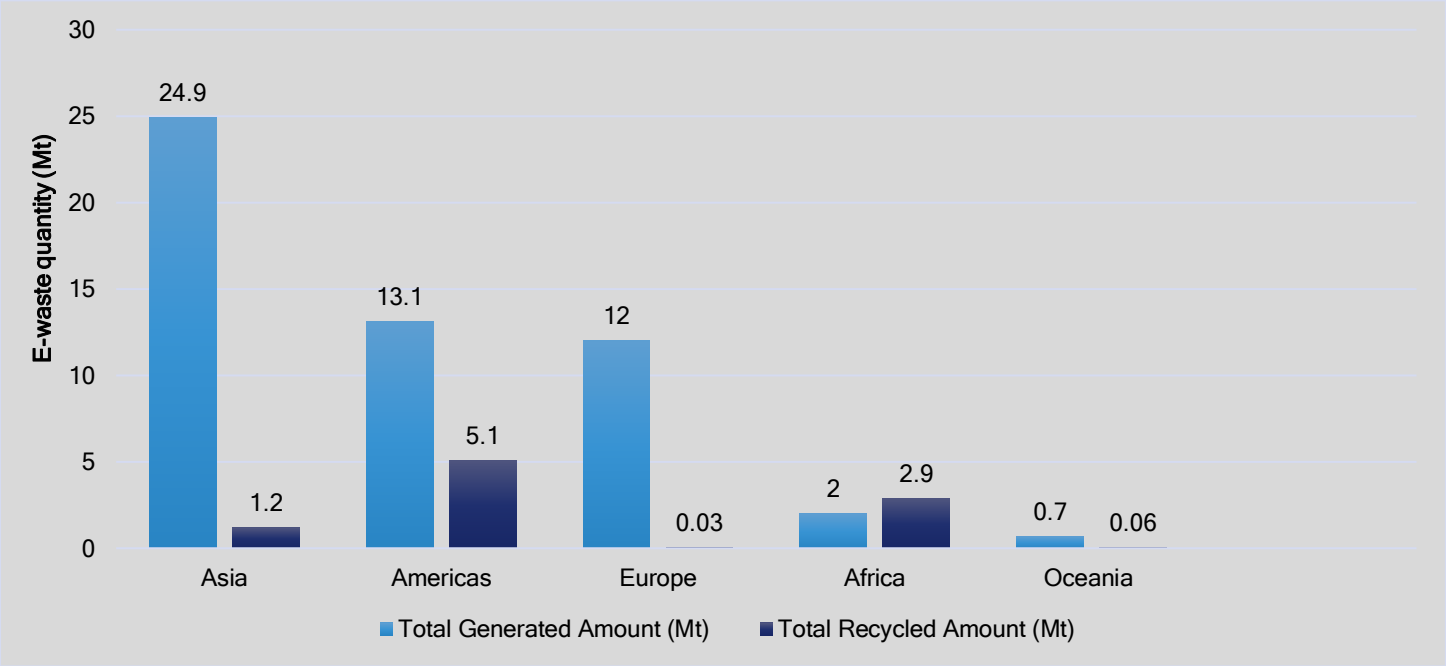
HOW DID WE GET INTO THIS?

The Resource Conservation and Recovery Act, passed by Congress in 1976, marked the initial response to hazardous waste disposal concerns. Subsequently, in March 1989, the Basel Convention emerged as a significant international treaty aiming to minimize the transboundary movement of hazardous waste and prevent its transfer from developed to less-developed countries.

Switzerland took a crucial step in 1991 by implementing the world's first electronic waste recycling system, which started with the collection of refrigerators.

GLOBAL E-WASTE STATISTICS

In 2019, the world produced a staggering 53.6 million metric tons (Mt) of e-waste, averaging 7.3 kg per capita. This figure represents a growth of 9.2 Mt since 2014, and it is expected to reach 74.7 Mt by 2030, nearly doubling in just 16 years. The rising amount of e-waste is largely driven by increased consumption of electrical and electronic equipment (EEE), shorter product life cycles, and limited repair options. In the same year, only 9.3 Mt (17.4%) of e-waste was formally collected and recycled, leaving 82.6% (44.3 Mt) with an uncertain fate, leading to varying environmental impacts across different regions.



TOP E-WASTE RECYCLING STARTUPS

ENVIROLEACH TECHNOLOGIES

EnviroLeach Technologies**,** a Canadian startup, has introduced *EnviroLeach*, an environmentally friendly recycling process for used printed circuit boards (PCBs). Their innovative technology enables the efficient extraction of target metals like copper, lead, and aluminium from PCBs.

RECY-CALL

Recy-call, a Belgian startup, offers e-waste recycling solutions tailored for emerging countries in Africa. They collect end-of-life electronics, like smartphones, and recycle them, generating value while fostering positive long-term social and environmental impacts. Recy-call's urban mining strategies also facilitate the creation of green and safe job opportunities for waste collectors in low-income nations.

Adatte

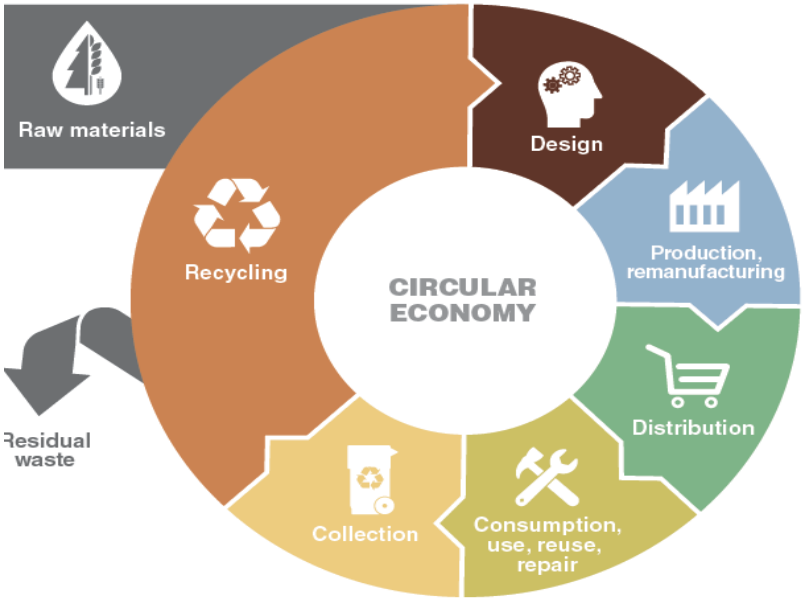
Adatte, an Indian startup, employs hydrometallurgy and pyrometallurgy methods to recycle PCBs. Their automated process efficiently extracts various metals from plastic and epoxy powder using specialized machinery for metal recovery. To ensure environmental safety, fumes generated during e-waste processing are treated with ultraviolet systems and scrubbers. Additionally, the effluent treatment plant utilizes the zero liquid discharge (ZLD) process to manage and treat the effluents effectively.

RECONO.ME

RECONO.ME, a British startup, focuses on collecting, refurbishing, and recycling unwanted electronic devices and IT equipment. They utilize sanitization software to wipe all data from the devices during collection. By selling these refurbished products to consumers at a more affordable price, RECONO.ME actively contributes to reducing e-waste in circulation.

IMPLEMENTING CIRCULAR ECONOMY BUSINESS MODEL

By leveraging strategic circular economy business models to address the tsunami of e-waste, companies can capitalize from financial opportunities, strengthen value chain relationships, and create long-lasting organizational value.



1. SHARED ECONOMY MODEL FOR ELECTRONICS

2. PRODUCTS-AS-A-SERVICE (PAAS) MODEL FOR ELECTRONICS

3. PRODUCT OWNERSHIP MODEL – UTILIZING PLE AND DESIGN FOR RECYCLABILITY (DFR) PRINCIPLES

Recent News on E-waste

DSIIDC floated a tender for the park in February, which states that the facility should be run according to E-Waste (Management) Rules, 2016

Delhi currently generates an estimated 200,000 tonne of e-waste each year, based on Central Pollution Control Board (CPCB) data. (Representative image/HT Archive)

Back in April 2021, the Delhi government announced plans to establish India's first electronic waste (e-waste) park, providing a centralized location for e-waste collection and recycling. However, as of two years later, progress has been limited to identifying a site in northwest Delhi's Holambi Kalan.

The Delhi State Industrial & Infrastructure Development Corporation (DSIIDC) attempted to attract bids through a tender floated in February, emphasizing compliance with the E-Waste (Management) Rules, 2016 guidelines. Unfortunately, the tender failed to attract any takers and was reissued in March.

Recycling has gone up in last 5 years, but 67% of e-waste remains unprocessed

Several agencies have said untreated e-waste also ends up in informal industries where children are employed to dismantle electronics. Exposure to chemicals such as lead and mercury can adversely affect children's growth and development.

E-Waste Management System Market size to grow by USD 160.2 Bn by 2032; The rise in the adoption of electronic products to drive the industry growth

According to Market.us, The recycling segment is the biggest market in the e-waste system industry, since it involves recovering valuable metals from e'waste such as copper, silver, or gold.

https://www.itu.int/en/ITU-D/Environment/Pages/Spotlight/Global-Ewaste-Monitor-2020.aspx

https://www.ewaste1.com/what-is-e-waste/