



# Tackling India's E-Waste Crisis: Balancing Growth and Responsibility

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Issue Brief

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ISSUE BRIEF

# **Tackling India's E-Waste Crisis: Balancing Growth and Responsibility**

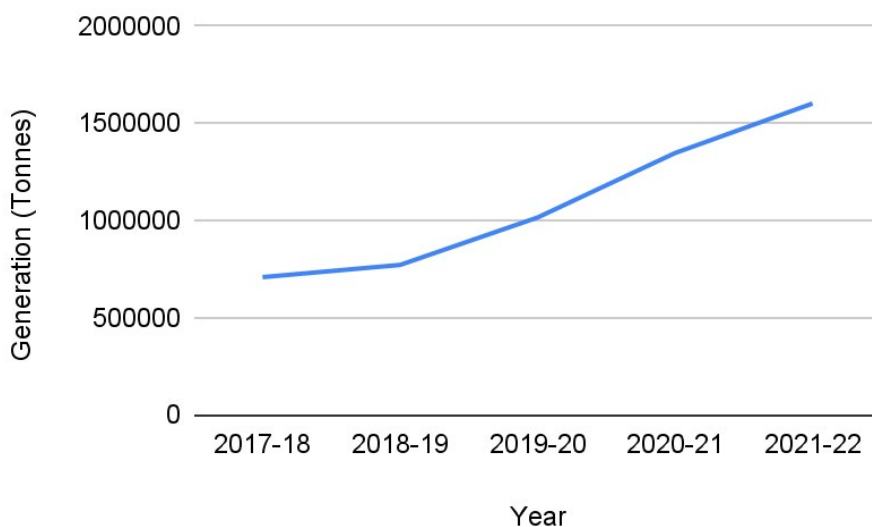
| Neha Chauhan

## INTRODUCTION: THE GROWING PROBLEM OF E-WASTE IN INDIA

In the backdrop of an era characterised by technological advancements and the increasing affordability of internet access, electronic products have become indispensable components of modern daily existence. This surge in electronic adoption has contributed significantly to improved living standards for a substantial portion of the global population. However, the flip side of this digital revolution is the alarming growth in electronic waste, commonly called e-waste. E-waste is the byproduct of electronic and electrical equipment reaching the end of its intended lifespan or becoming obsolete due to rapid technological progress (Manish and Chakraborty, 2019). This category encompasses many devices, including computers, servers, monitors, printers, cellular phones, and televisions. In the age of rapid technological advancement, the replacement cycle for electronic gadgets has also grown shorter. Consequently, consumers are discarding older models at an alarming rate in pursuit of the latest innovations, further exacerbating the burgeoning problem of e-waste.

India, in particular, has emerged as a significant contributor to the e-waste predicament. According to the United Nations' Global E-Waste Monitor 2020, India now ranks as the world's third-largest e-waste generator, following only China and the USA (Forti et al., 2020). Collectively, these three nations accounted for a substantial 38% of the total 53.6 million tonnes of e-waste generated worldwide in 2019 (ibid.).

**Figure 1: Annual e-waste generation in India over the years (in Tonnes)**



Despite India's significant contribution to e-waste, its per-capita generation remains below the global average (ibid.). However, there is room for improvement. In the year 2021-22, India generated an estimated 16.01 lakh tonnes of e-waste (Ministry of Environment, Forest and Climate Change, 2023a), yet only approximately 5.27 lakh tonnes were collected and processed (Ministry of Environment, Forest and Climate Change, 2023b). This underscores the pressing need for more effective e-waste management within the country.

As the global generation of e-waste by 2030 is projected to nearly double to 74.7 million tonnes (Forti et al., 2020), immediate and coordinated efforts are imperative to address this pressing issue. The explosive growth of electronic goods consumption in India adds to the urgency of implementing sustainable e-waste management practices. There is a compelling need for a concerted global and national commitment to tackle the burgeoning challenge of electronic waste to ensure a cleaner environment and protect the well-being of workers and communities.

## ENVIRONMENTAL AND HUMAN HEALTH RISKS ASSOCIATED WITH E-WASTE

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The management of e-waste presents substantial environmental and human health risks, especially in middle- and low-income countries that frequently lack formal e-waste management infrastructure. The informal sector bears the brunt of e-waste management responsibilities in these areas. India's longstanding tradition of informal waste management and recycling exemplifies this global phenomenon. Remarkably, over 90% of the e-waste generated in the country finds its way into the hands of the informal waste management sector (India Cellular and Electronics Association, 2023). Unfortunately, these informal practices are often unscientific and have severe environmental and health consequences.

One of the most pressing concerns revolves around the health of workers engaged in the informal waste management sector. Many of these labourers hail from vulnerable sections of society and remain unregistered, lacking awareness of their rights. Consequently, they are exposed to hazardous substances such as mercury and lead during unsafe e-waste recycling activities. Operating in environments devoid of proper ventilation or personal protective equipment, these workers are at high risk of sustaining physical injuries and suffering from chronic health issues (Raghupathy et al., 2010). Alarming reports indicate that children as young as five years old are found to be engaged in the sorting, dismantling, and recycling of e-waste, adversely impacting their physical and mental development (World Health Organization, 2021).

The negative environmental externalities stemming from the existing scale of informal sector-led e-waste management are equally concerning. The mishandling of electronic waste severely impacts the environment, affecting air, water, and soil quality. During informal disposal methods like dismantling, shredding, or melting components, dust particles and chemicals are released into the environment, contributing to air pollution and harming respiratory health (Jain et al., 2023). Moreover, the release of fine particles from e-waste poses a high risk of diseases, including cancers and chronic

illnesses, particularly for those directly involved in handling this type of waste (ibid.). The improper disposal of electronic trash in landfills or illegal dumping areas allows chemicals to seep into the soil, contaminating groundwater and affecting crops (ibid.). This contamination has detrimental effects on agriculture, reducing productivity and health risks.

The consequences of improper e-waste disposal extend beyond immediate public health concerns, as they can persist for generations, polluting ecosystems and threatening communities. Addressing these critical issues requires acknowledging the informal sector as a vital stakeholder in future e-waste management frameworks and policies. This recognition sets the stage for collective efforts to mitigate the environmental and human health risks associated with e-waste.

## WAY FORWARD

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In light of the challenges posed by the rapid growth of e-waste in India and the urgent need for effective management, significant strides have been made through legislative actions and policy reforms. According to the United Nations' Global E-Waste Monitor 2020, India is the only Southern Asian country with comprehensive e-waste legislation. This recognition underscores India's role as a regional leader in tackling the escalating e-waste challenge.

The journey toward effective e-waste management in India began with the introduction of e-waste (Management and Handling) rules in 2011, marking a significant milestone with the inclusion of Extended Producer Responsibility (EPR). EPR mandated producers to take responsibility for safely disposing of electronic and electrical products once they reached the end of their lifecycle, a critical step in tackling the issue (Ministry of Environment and Forests, 2011). However, despite these initial efforts and subsequent amendments, a substantial portion of e-waste continues to be mishandled by the informal sector, leading to severe health and environmental consequences.

Recognising the gravity of the situation, the Indian government, in November 2022, announced the new E-Waste (Management) Rules, 2022, which came into effect on April 1, 2023. Notably, they broaden the scope of covered items to include over 100 types of electronic equipment across seven broad categories, aligning with the evolving landscape of electronic consumption. However, further improvements are needed, particularly in achieving comprehensive coverage under EPR, which includes over 500 products worldwide (Singal, 2023).

Additionally, to streamline the management of e-waste and ensure transparency, the new rules mandate all manufacturers, producers, refurbishers, and recyclers to register on a centralised digital portal developed by the Central Pollution Control Board (CPCB). This digital platform can potentially standardise the e-waste value chain and enhance oversight, fostering greater accountability among stakeholders.

While regulatory measures are essential, public awareness and education are equally crucial components of effective e-waste management. Evidence suggests that overall awareness levels remain low, even among bulk consumers (Turaga et al., 2019). To address this, stricter guidelines and regulations are needed to enhance public understanding. Alternatively, mandating producers to col-

laborate with grassroots-level organisations in conducting awareness campaigns holds the potential for a more profound impact.

In the future, a multi-pronged approach is necessary to combat the e-waste challenge effectively. Simultaneously focusing on sustainable consumption practices and encouraging manufacturers to produce environmentally friendly products with longer lifespans and recyclable materials can significantly mitigate the e-waste problem in the long run. Achieving these objectives will require collaboration and partnerships among various stakeholders, including the informal sector engaged in e-waste management.

In conclusion, the path forward in managing India's e-waste crisis involves a combination of robust regulations, enhanced public awareness, sustainable consumption practices, and responsible manufacturing. With the new E-Waste (Management) Rules, 2022, serving as a foundation, India can create a more sustainable and environmentally conscious future where electronic waste is managed effectively and its detrimental impacts are minimised.

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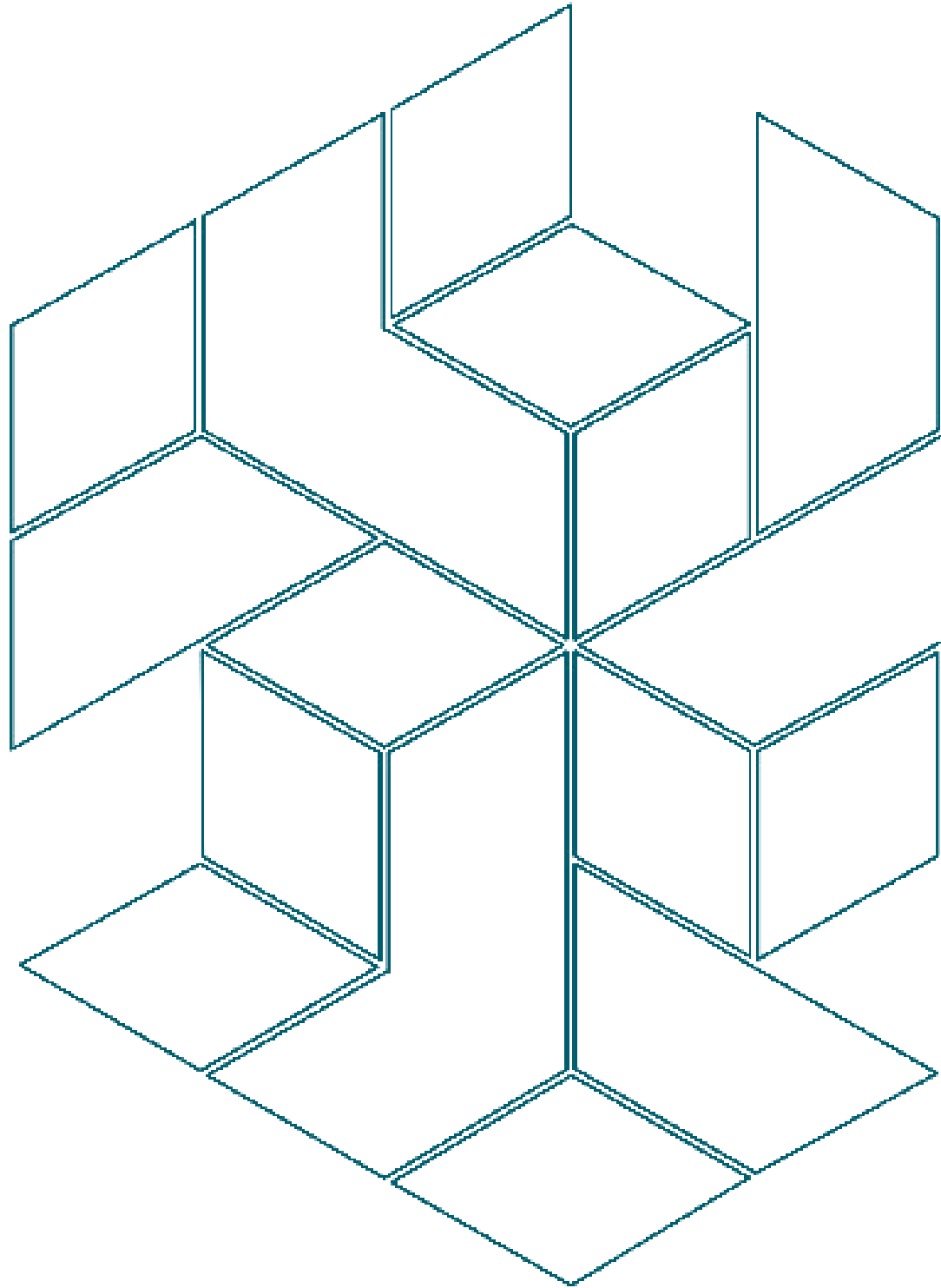
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