**From gadgets to graveyards**

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Pakistan’s relentless pursuit of technological progress hides a looming threat – an ever-increasing torrent of discarded gadgets that endanger our environment and future generations.

Electronic waste or ‘e-waste’ presents a paradox of wealth and peril, overlooked by many, amidst the allure of slick and sleek gadgets. Yet, within these devices lie untapped riches – gold, silver, copper and rare earth metals, intricately woven into their circuitry. While these precious materials can be extracted, the cost is grievous: countless recycling workers pay with years cut off their lives and the planet suffers in silence.

Pakistan faces a massive e-waste burden, importing 954,000 tons annually and generating an additional 433,000 tons locally. Developed countries’ high-waste management costs, and developing nations’ weak legislation and enforcement have turned countries like Pakistan into ideal dumping grounds for electronic waste.

Illicit and uncontrolled waste flows often camouflage as legal transboundary movements, blurring the line between legitimate and illegal activities. The problem is worsened by inadequate enforcement capacity and a lack of penalties, leading to severe consequences for destination countries.

Approximately 60 per cent of the total e-waste in Pakistan is informally handled, leading to extremely dangerous recycling methods, including open burning, acid baths and use of blow torches. Recycling workers lack protective respiratory equipment and are exposed to toxic substances such as lead, cadmium, and mercury that harms respiratory and skin health.

Such substances also pose serious risks to foetal development, breastfeeding mothers and the nervous system, simultaneously contaminating water sources and disrupting ecosystems. A single mobile phone battery alone has the potential to contaminate a staggering 600,000 litres of water.

Karachi, Pakistan’s main seaport, receives endless containers falsely labelled as ‘used goods’, most of them non-functional. Districts like Lyari, Sher Shah, Jacob lines, and Surjani Town are hotbeds for hazardous e-waste recycling where vulnerable workers – mostly children and teenagers – risk their lives for a few grams of valuable metals. The consequences reverberate through landfills and rivers, leaving a lasting legacy of harm to human wellbeing and the environment. Shockingly, pollution-related deaths have surpassed nine million annually worldwide, with over 90 per cent occurring in developing countries like Pakistan: exceeding even the devastating toll of the Covid-19 pandemic.

In Pakistan, various laws address the e-waste issue, including the newly developed National Hazardous Waste Management Policy (2022), Pakistan Environmental Protection Act 1997, and provisions of the Pakistan Penal Code. Pakistan is also a party to and has ratified the Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and their Disposal (the ‘Basel Convention’), the global legal instrument that addresses illegal waste trade.

However, specific legislation at the national and provincial levels is crucial to tackle the e-waste problem effectively. Currently, India is the only South Asian country that has adopted dedicated laws in this regard – the E-Waste (Management) Rules, 2022. It is suggested that there is a pressing need to strengthen our current knowledge base and develop laws customized for the problem at hand, drawing from the experiences of other countries facing similar challenges.

Key recommendations for improving regulatory oversight include: clear identification and regulation of entities involved in e-waste; distinct categorization of e-waste types for better management and handling, and this should include generating quantitative inventories of e-waste; and investment in generating data and analytics to underpin evidence-based interventions.

Other suggestions include mandatory registration of all regulated entities, including manufacturers, producers and recyclers and business dealings with unregistered entities should be prohibited; establishment of formal recycling facilities equipped for proper e-waste disposal, and such facilities must be required to seek necessary authorization before recycling; and specific recycling targets should be prescribed for producers to encourage responsible e-waste management.

Steps like introduction and implementation of innovative take-back systems with user-paid recycling fees and comprehensive Extended Producer Responsibility (EPR) mechanisms that apply to every manufacturer, producer, dismantler and recycler of electronic products can also help tackle the problem to a great extent. Finally, all applicable laws should be strictly enforced and non-compliance should result in penalties and prosecution.

With regard to international trade of e-waste, stringent standards for used goods/second-hand appliances must be set and comprehensive policies to ban hazardous waste imports must be prioritized. Customs authorities should be empowered, as they play a vital role at border crossings and are the most appropriate authorities to perform monitoring and controlling actions of imported e-waste to help curb waste trafficking, aligning with the objectives of the Basel Convention.

As poverty-stricken Pakistanis bear the burden of waste they did not create, the e-waste crisis demands immediate and unified action. The aforementioned recommendations serve as a vital starting point to mitigate hazards tied to electronic waste.

However, the journey ahead necessitates collective action, with every individual and institution playing a crucial role in shaping a greener and more sustainable future for our beloved nation. Together, we can turn the tide and build a brighter tomorrow for Pakistan.

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