E-Waste Management in Bangladesh: Paving the Way to a Sustainable Future

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In the rapidly evolving landscape of technological innovation, there is an alarming 30 percent annual increase in e-waste, posing a substantial threat to both the environment and human health. This rapid increase highlights the crucial need of efficient electronic waste management. The detrimental impact of electronic waste on soil, air, and water quality is concerning, with toxic chemicals released from discarded devices permeating our surroundings. In light of this situation, it becomes imperative to raise awareness about the significance of recycling and proper disposal to tackle the imminent environmental challenges.

E-waste, comprised of more than 1,000 toxic substances, poses a direct threat to human life. Everyday electronic devices, including televisions, computers, cellphones, refrigerators, and air conditioners, contain hazardous materials such as lead, mercury, copper, and beryllium. The improper disposal of these devices releases these toxic chemicals into the environment, leading to various health issues, including cancer, kidney damage, and disruptions in thyroid hormones.

The boom in technology usage has resulted in a large growth in electronic gadgets, as well as an increase in e-waste. Unfortunately, inadequate recycling management has resulted in the irresponsible disposal of electronic waste, exacerbating environmental issues. The rapid advancement of technology, continual upgrades, multifunctionality, increasing storage capacity, and appealing designs all contribute to the growing generation of e-waste, making old gadgets outdated at an unprecedented rate. The older devices often lack the durability for extended use, and the cost of repairing them is frequently economically unviable. Compounding this issue, aggressive marketing strategies employed by multinational companies play a pivotal role in the accelerated turnover of electronic devices. Consumers are consistently enticed to upgrade to newer models, intensifying the growing e-waste crisis.

The e-waste generated in 2019 globally had a raw material value of approximately USD 57 billion, of which only USD 10 billion was recovered through environmentally accepted methods. The United Nations Environment Program and the United Nations University suggest that if e-waste is properly recycled, four million tons of precious metals can be recovered annually. This not only represents a significant economic opportunity but also underscores the importance of responsible e-waste management in harnessing these valuable resources.

The disposal of e-waste carries both economic and environmental consequences. The monetary value of metals used in electrical and electronic products is estimated at \$45.4 billion. Furthermore, the United Nations Environment Program and the United Nations University suggest that four million tons of precious metals can be recovered annually from e-waste through proper recycling. Despite the potential economic benefits, only small portion of the 3 million tons of e-waste generated in Bangladesh in 2022 undergoes proper recycling, while the rest is dumped, incinerated, or inefficiently processed.

The improper management of e-waste poses significant health risks, particularly for vulnerable groups such as women and children. Exposure to toxic substances from discarded electronic devices can result in severe health problems, including cancer, kidney damage, and disruptions in thyroid hormones. Initiatives for proper e-waste management are crucial to safeguard these vulnerable populations from the harmful effects of electronic waste. The urgent need for appropriate e-waste management is essential to mitigate health risks and protect the well-being of the population.

Despite the challenges posed by e-waste, there is a silver lining – the potential for employment generation and entrepreneurship in the e-waste management industry. With concerted efforts, there is an opportunity to create jobs and foster entrepreneurship. As awareness grows and demand for proper disposal

and recycling services increases, the potential for economic development in this sector expands. The government, businesses, and educational institutions can collaborate to provide training and support for individuals entering the e-waste management field.

Recognizing the gravity of the situation, the government of Bangladesh has implemented policies to address the risks associated with e-waste, marking a significant step forward with the Hazardous Waste (E-Waste) Management Rules, 2021. However, the effective implementation of these regulations is crucial to ensuring proper disposal and recycling practices. Strict enforcement of laws, coupled with responsible behavior from device manufacturers and users, is pivotal to resolving the e-waste problem. Government agencies must actively monitor and ensure compliance with regulations, holding accountable those who contribute to the improper disposal of electronic waste. The effectiveness of these policies relies on robust enforcement and continuous monitoring to ensure compliance from all stakeholders involved in the life cycle of electronic devices.

Environmentalists and experts emphasize the potential of e-waste in fostering a circular economy in Bangladesh. By efficiently managing and recycling e-waste, the country can recover valuable resources, reduce environmental impact, and contribute to sustainable economic development. E-waste management, if given the necessary support and patronage from the government, producers, and business organizations, could emerge as a pivotal sector in the nation's economy.

While the existence of regulations is a positive step, the need for strengthened implementation cannot be overstated. Government agencies must collaborate with industry stakeholders, environmental organizations, and the public to create a comprehensive and effective e-waste management system. This involves enforcing regulations, conducting regular audits, and holding accountable those who contribute to improper disposal practices.

E-waste management has the potential to become a significant player in Bangladesh's economy. With the right government patronage, collaboration from e-waste producers, and engagement of business organizations, this sector can contribute substantially to economic growth. The circular economy model, emphasizing resource recovery and sustainable practices, aligns with global trends and positions Bangladesh as a responsible and forward-thinking player in the international arena.

The surge in e-waste in Bangladesh demands urgent attention and comprehensive strategies. The environmental and health hazards posed by improper e-waste disposal are too significant to ignore. With proper awareness, strict enforcement of regulations, and a collective effort from the government, manufacturers, and users, the country can overcome the challenges of e-waste and turn it into an opportunity for economic growth through sustainable practices. The road ahead involves fostering a culture of responsible e-waste management, ensuring compliance with regulations, and realizing the potential for a circular economy that benefits both the environment and the economy. By addressing the e-waste challenge head-on, Bangladesh can pave the way for a sustainable and prosperous future.

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