



“E-wastes and its impact on environment: contemporary analysis”

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Abstract: -

Today, e-waste, also known as electronic garbage, which is on the rise. The technology upgrade has failed to investigate the discarded outdated equipment. There is no procedure in place to ensure that it is disposed of properly. Recycling products appears to be a viable option, but there is no shortage of outdated things on the market. These technological breakthroughs expose several compounds that are detrimental to the environment, wildlife, and human health. There are laws in place to deal with it, but is it necessary to have a distinct piece of legislation? The methodology, execution, and proper implementation must all be examined. When it meets other things on a wider scale, it has certain detrimental consequences. When it gets into touch with air, water, soil, and other materials on a larger scale, it has several harmful consequences, thus it is critical to control e-waste before it is too late.

Key Words: -

e-waste, environment protection, pollution, sustainable development.

Introduction: -

E-waste has developed as a new type of waste today, with any abandoned electrical or electronic equipment being classified as e-waste. This includes both working and non-working things that are broken or unusable and that we humans either discard or send to a charity reseller like Goodwill. In a supermarket, if an item stays unsold, it goes to the trash and is frequently thrown. When e-waste is buried, poisonous compounds leak out of the metals, making it even more dangerous.

As the year progresses, the practise of eliminating obsolete materials continues. There was a time when VCRs were popular, but they were eventually superseded by DVD players. In the current scenario, the DVDs have been replaced by blue-ray discs. As a result, whenever a technical development is achieved in a product on the market, it frequently leads to just one thing: the disposal of outdated electronic items, resulting in e-waste.

When modern gadgets are utilised above ground, they are safe to use; however, when they are buried, they release a lot of toxic waste, including beryllium, cadmium, arsenic, and lead, all of which pose substantial environmental dangers to our land, water, air, and wildlife. There, we come across the word leaching, which describes what happens when e-waste is placed in a landfill and eventually dissolves in the filthy sludge. The radioactive materials' traces gradually sink into the ground beneath the landfill. Even more waste items end up in the groundwater. Effective waste management can decrease the criminal as well as civil liability risks it can also help in the proper disposal, operational costs, and the need for transport and disposal.¹

Coming into direct contact with harmful compounds that leach from e-waste, according to the World Health Organization (WHO), can result in a variety of human health issues. Minerals like lead, cadmium, and chromium, as well as brominated flame retardants and polychlorinated biphenyls, are examples of contaminants (PCBs). Inhalation of harmful vapours emitted by it, which also aggregate with chemicals in soil, water, and food, may be hazardous. Endangered species include not only humans, but also land and sea animals. The industrialised countries have a habit of transferring their waste to developing countries, putting the countries who aren't developed enough to handle it at risk.

Objectives of Research: -

- To examine the provisions related to the e-waste and to find major issues related to it.
- To protect the environment for the sustainable development.
- Promote the awareness about the healthy environment for present and future generation.

RESEARCH METHODOLOGY: -

The project uses doctrinal method of research. Existing literature on the subject matter has been reviewed in order to reach the conclusion. In order to support the conclusion, reference has been made to legal provisions and case-laws.

RESEARCH DESIGN: -

The entire research is purely doctrinal. It is descriptive and analytical by nature. The research is based on primary and secondary sources. Relevant material from primary sources is collected from statutory provisions of the relevant legislation and court decisions. In case of secondary sources, material is collected from scholarly commentaries, articles, research reports, government documents etc.

LITERATURE REVIEW: -

Journals referred -

Nivedita Chaudhary in *ELECTRONIC WASTE IN INDIA: A STUDY OF PENAL ISSUES* available at <https://www.ili.ac.in/pdf/env.pdf>

¹Sinha S, Mahesh P, and Donders in E. Waste electrical and electronic equipment: the EU and India: sharing best practices. Delhi: Toxic Link, 1- 104(2015).

This journal gave a detailed introduction as to what is e-waste. The meaning of the e-waste is clearly defined in detail and how it works in respect to the environment in India. The Indian constitution also has the safeguard provisions regarding the same. The participation is not only limited to the India but also it is available at international level. The article covers important areas of the waste in the environment under the Indian context as well as the other countries.

R. E. Rakhyunand K. Bosselmann in *International Environmental Law in the Anthropocene* available at <http://journals.cambridge.org>

The state of the global environment is deteriorating, despite the rising body of international environmental law. They argue for a goal-oriented, purposeful system of multilateral environmental agreements based on Earth system science and the concept of interconnected planetary boundaries, which could be realised through a Grundnorm that acts as a sort of global constitutional norm, giving all international regimes and organisations a shared purpose to which their specific objectives would contribute. Through the Earth subsystem, a clear goal will give a point of reference for legal reasoning and interpretation in the legal system, strengthening institutional coherence.

E-WASTE AND ITS NEGATIVE IMPACT ON THE ENVIRONMENT: -

There are certain repercussions that we will face, due to the inappropriate disposal of the e-waste. These waste when are improperly dumped into the land or to the sites that are non-dumping in nature it gives rise to the major threat that will be faced by the public. It harms the ecosystem to the manner from where recovery seems impossible. It affects the animals, humans, soil, land, water in short, the whole ecosystem gets affected. Thus, looking into the negative effects that the e-waste brings into the environment.

The Negative Effects on Air: -

Electronic trash pollutes the air in a variety of ways, the most common of which is when it is deconstructed, shredded, or the materials are melted, they then release certain toxins into the air and hence causing air pollution and affecting human lung health. Burning is a common method for disposing of low-value e-waste, but it may also be used to extract valuable metals like copper from devices. It also raises the risk of chronic diseases and malignancies by releasing small particles that can travel for miles, posing a health concern to humans and animals.

In locations where recycling is not fully regulated, elements such as precious metals which usually are silver and gold are frequently removed from highly integrated circuits using acids, Air can take this pollution to thousand miles away from the original site where such pollution was done.²

When contrasted, the air pollution caused by e-waste has a far greater impact on some animal species than on others. It jeopardised these species as well as the biodiversity of contaminated areas. As a result,

²Mittal, v.k. and Sangwan, in K. S. Development of a model of barriers to environmentally conscious manufacturing implementation. *International Journal of Production Research*, 52, 584-594. (2014).

irreparable ecosystem harm occurs. In China, for example, parties interested in extracting valuable metals developed an informal recycling centre, resulting in high lead exposure in the atmosphere, that are inhaled and swallowed when the trash is returned to water and soil. As a result, animals, wildlife, and humans suffer brain impairment as a result. Hence, it is imperative to determine the level of awareness about e-waste management and the public concern for the environment.³

The Negative Effects on Soil: -

Whenever e-waste is inappropriately dumped in landfills or in areas where it has been improperly disposed of through toxic substances and flames, it pollutes the groundwater and agriculture nearby. It also has long-term consequences on the field. These heavy metals mingle in the soil, where they consume poisons, causing disease and reducing farmland productivity.

Because of the size and weight of the particles emitted during the burning, shredding, or dismantling of electronic waste, they easily re-deposit on the ground, decontaminating the soil. The temperature, soil kinds, and pH levels all pollute the soil. The threat then shifts to microbes and plants, and animals and wildlife that rely on nature will eat the contaminated plants, resulting in a health problem.

The Negative Effects on Water: -

Mercury, barium, etc among other heavy elements created by e-waste, penetrate deeper than soil degradation and finally infiltrate groundwater. After touching the groundwater, they make their way through marshes, rivers, streams, and the reservoir. It doesn't need to be in direct touch with water to create acidification and toxification in the water, which damages animals' plant life and the ecosystem. There is no longer any safe drinking water available. As a result, humans are affected as well.

Acidification can wipe out both marine and freshwater species, as well as disturb biodiversity and harm habitats. The danger is so great that if water sources are harmed, habitat recovery will be irreversible and unachievable.

The Negative Effects on Humans: -

Mercury, lead, cadmium, polybrominated flame retardants, barium, and lithium are just a few of the dangerous compounds that harm people. They've all been freed from e-waste. When it comes to the impact on human health, it causes substantial damage to the brain, heart, kidneys, and liver, all of which play critical roles in a human body's ability to function optimally. Contact with such materials, whether direct or indirect, has a negative impact on the human body. The body then goes into even deeper consequences, causing damage to humans' reproductive and nervous systems, leading to disease and birth problems, putting future generations at

³Islam M. and Huda, in Material flow analysis (MFA) as a strategic tool in E-waste management: Applications, trends and future directions? *Journal of Environmental Management*, 244, 344- 361. (2019).

danger. It is critical to promote public knowledge about the dangers that they pose to the human body, since they are exceedingly dangerous to the global environment and have disastrous repercussions.

THE ENVIRONMENT AND HUMAN HEALTH DEGRADATION DUE TO E-WASTE: -

The ecology and human health are deteriorating as a result of e-waste. The ramifications of improperly disposing even one product have far-reaching implications for the future. Some of the damage is irrevocable, so we must put an end to such acts.

Global Cost of Electronic Waste Problems: -

The global market is a place where we create products with little improvements that quickly take over the market. It is the new commercial culture, according to which the old must go and the new must come in. Consumers have an irrational need to toss out the old in favour of the latest edition. Even if an electronic product has made significant advancements, users are nevertheless willing to change their devices for a little software update. This results in the generation of even more product waste, and in such a short period of time. Gadgets have become a status symbol as well.

Many elements are found in electromechanical items, most of which are toxic to humans and environments. These metal ions make up more than sixty percent of e-waste, with hazardous metals accounting for only 2.7 percent.⁴

Let's look at the real-life example of the corporation Apple. Apple's latest model iPhone was expected to sell over 195 million devices by the end of 2020 when it was unveiled. As a result, upgrading from other phones will result in many phones that will no longer be used. In the year 2022, the iPhone 11 is no longer in production, and the iPhone 12 and 13 have entered the market. What does this entail for millions of abandoned mobile phones that wind up in landfills every year? This is just one example; in reality, there are many additional markets with potential.

It's simple to point the finger at these businesses for the garbage, but most of the time, individuals are unaware that it is their job to safeguard the environment. Consumers have a role to play in this as well. This does not imply that people should cease purchasing new items. People frequently discard their devices after the first symptom of slowness or failure that could be easily repaired, or the availability of a more advanced model.

As technology advances, electronic gadgets become smaller as updates are produced on a regular basis, which are frequently incompatible with older versions. As a result, in some situations, being updated by the new device becomes a requirement.

What is the outcome? The amount of e-waste disposed of throughout the world is - among the municipal solid waste we can see that about near five percent of waste is e-waste according to the EPA. it is also to be noted that the e-waste is going to take a arise at about more than eight percent each year.⁵

⁴Widmer R, Krapf , Khetriwal , Schnellmann and Boni in H. Global perspectives on e-waste. Environ Impact Assess Rev 25(5):436–58 (2005).

The Health Effects of E-Waste Disposal: -

It would have been simple if the electronic item had been created using an environmentally friendly recipe that did not hurt the environment. Most gadgets, on the other hand, include more than just potentially harmful components. In truth, most gadgets include highly hazardous materials such as lead, mercury, cadmium, and barium, as well as fire retardants such as neodymium, etc.

We are inhaling these harmful materials and their consumptions daily, thus if these components are swallowed in larger proportions, it will be disastrous. After being digested, these toxins are deposited in the cells of the organisms and subsequently passed up the food chain, a process known as bioaccumulation and bio magnification. Endangering the lives of animals, crops, and people. As a result, effective recycling is critical.

PENAL PROVISIONS DEALING WITH THE E-WASTE: -

It is generally known that as a result of random, unplanned, and untrained disposal of electronic trash, environmental pollution is increasing, and the quality of the environment is degrading. There are those cheaters who do not receive much in return. Is the law weak? Or the execution? Is still the question. To counteract this crime, legislation have been enacted in a number of countries. In India, there are numerous regulations dealing with e-waste, both direct and indirect, under the environmental law. Unfortunately, they are unable to avoid such violations since the penalties and punishments are lenient and difficult to execute. There are various other reasons for this, including a lack of execution, database violations, and the justice delivery system, among others.

There are various legislations/rules dealing with E-wastes in environmental laws either directly and indirectly, we have the environment protection act along with the air act, water act there is also a specific legislation dealing with the waste that is electronic waste amendment rules of the 2018.

There are only a few statutes and regulations that deal with the dangers of improper electronic waste disposal. Pollution caused by e-waste and improper disposal that has a negative impact on the environment should be punished more severely than it now is.⁶

The most significant legislation particularly dealing with electronic trash is the Environment (Protection) Act of 1986, which covers sections 15, 16, and 17. Despite the fact that the Environment (Protection) Act of 1986 is a wide law, the EPA is only responsible for E waste laws. As a result, the E waste laws are mentioned in the EPA's criminal rules. Section 15 expressly indicates that it protects violations of the Act's laws, as well as regulations, directives, and even instructions issued under the EPA.

Under the two acts of the air as well as the water we can see that there are five criminal provisions are found in sections 37, 38, 39, 40, and 41 of the Air Act, as well as sections 21, 22, and 31A, which are particularly important. Individual liability is addressed in under sections 37, 38, and 39 of the Act, and it aims

⁵<http://docs.manupatra.in/newline/articles/Upload/15168156-32A9-4EBB-8554-E051222A8D96.pdf>
(last visited at 15-01-2022 at 16:55)

⁶<https://en.reset.org/blog/e-waste-burden-human-health-and-our-ecosystem-alike> (last visited at 18-01-2022 at 18:35)

to punish those who does not comply with the sections 21 and 22, as well as any other orders that is being issued under section 31A of the Act. Coming to the section 40 it is specifically designed for the businesses and section 41 to the government agencies so that they are held liable for the actions

Sections 41, 42, 43, 44, 45 A, 47, and 48 of the Water Act are especially relevant because they represent the foundation for several of the Act's offences. Sections 20(2), 20(3), 24, 26, 32(1)(c), 33(2), and 33 A are also significant since they provide the foundation for various Act offences. Since inadequate dismantling and recovery of recyclable materials leads in environmental degradation and pollution, these laws are indicated.⁷

If in case such sections are not complied with then, Section 37 of the Air Act comes into the role. Under this section the punishment is given which is imprisonment of not less than one year and six months that might extend up to 6 years, as well as a fine and an additional fine of up to five thousand rupees. In actuality, the maximum sentence ranges from two to seven years in prison, plus a fine. In contrast to the Environmental Protection Agency, just a little penalty has been levied. Section 41 of the Water Act defines a significantly lesser degree of punishment and penalty, it gives imprisonment for only three months and fine is also less that is up to 10000 rupees which exacerbates the problem.

On the other hand, a detailed review of the rules that control e-waste reveals inadequacies. To begin, it does not cover everyone; only manufacturers, suppliers, collection centres, dealers, refurbishes, recyclers, dismantlers, and customers are included.

The system then generates a route through which e-waste can be disposed of. The major goal of imposing the responsibility on stakeholders is to encourage them to recycle garbage in an environmentally sustainable manner. Even though the statute requests that it be recycled in this manner, it fails to define the term. As a result, no such method is required. As a result, a loophole was created to avoid liability.

The regulations also stipulate that before anyone can operate, they must first acquire approval from the relevant state pollution control board, as well as permission from expanded producer liability. As a result, these standards are only applied to the formal sector, which is involved in the recycling of electronic trash, while other sectors are ignored. There are informal sectors that handle most of the work linked to the recycling and dismantling of electronic debris, which is frequently disregarded.⁸

When it comes to waste awareness, there are no rules that force the state to offer suitable facilities, as well as knowledge about safe e-waste disposal and even skill training for waste disposal to these unrecognised companies. Because these non-traditional and informal workers are disregarded, their punishment is also overlooked.

As a result, we can conclude that while there are appropriate rules in place for e-waste, they are not expressly dealing with it, and when it comes to implementation, we can also claim that it is not successful. There is also a dearth of understanding of e-waste and its implications.

⁷<https://www.stevesrubbishremovals.com.au/7-different-types-of-rubbish-you-need-to-dispose-of/> (last visited at 20-01-2022 at 18:55)

⁸Shibani Ghosh, *Indian Environmental Law: Key Concepts and Principles*, The Orient Blackswan, 2019.

Penal Provisions in IPC dealing with E-waste: -

When it comes to British control, various regulations were enacted to protect the environment. There was no explicit regulation in place, nor was there a distinct act that addressed it. The reason for this was that there was a lack of understanding of the reasons that cause pollution of the environment, as well as how to conserve it and the implications of this. In comparison, we are all aware of severe environmental crises such as global warming today. Previously, environmental conservation was thought to be a moral obligation that had to be obeyed because of religious convictions.⁹

The Indian Penal Code (IPC) was enacted in 1860. A variety of regulations dealing with environmental pollution can be found in Chapter XIV of the IPC, and some of these requirements can be applied to pollution generated by electronic waste. Sections 268, 269, 270, 277, 278, 284 and 290, for example, deal with public health and safety violations and apply to E-waste to some extent.

Public Nuisance has been defined in section 268 under which a person is said to be guilty of the offence of the public nuisance where it includes any act done by him or any illegal omission that causes the following – the annoyance, damage or injury to the people where it comes with the private right of the person.

The word "public nuisance" has a far broader definition, encompassing various sorts of contamination to the soil, water, air, and noise. It's also utilised to clean up pollution caused by open burning of electrical waste, or its exposure to the air, water, or soil, or any other method of pollution.¹⁰

The section 277 that talks about the water pollution where it mentions that any person when using the water spring or reservoir, he fouls that water or corrupts, the only mode to use that water should be in ordinary course and not otherwise. In case such thing takes place there is punishment defined which is imprisonment that may extend up to 3 months and fine that could be for 500rs or both.

Section 269 of I.P.C. deals with the one who shall be responsible for the water pollution. The section mentions that any person who unlawfully or negligently does any act where he is aware or has the knowledge or is likely to spread any infectious disease that will become dangerous to the life of human. He shall be punished with the imprisonment that could extend up to 6 months or with fine or both.

Since the Indian penal code was enacted, there has been a lack of understanding and concentration on the area of the legal provisions for any environmental harm. As a result, e-waste was neglected because it was not deemed a big crime, even though its environmental impact was greater. We may also tell that there is a deficiency in filing complaints. The lack of complaints stems from a lack of understanding and repercussions, as the impacts of improper disposal emissions are unknown. Even when the impact is bigger than the imagination, it is not regarded a major offence. Furthermore, even if the complaint is filed and the conditions are followed, there is no greater punishment, so it is straightforward in court. The penalties aren't as severe as the crime.

⁹Ibid.

¹⁰Ibid.

RECYCLING OF E-WASTE IN INDIA: -

Electronic waste includes a lot of different gadgets they are not only restricted to the mobiles and computers but also extend to any kind of electronic material. They are DVD players, chargers, speakers, tv, laptop etc. According to Global E-Garbage Monitor in year 2017, it was found that India is at a position where it produces about 3 million tonnes of the e-waste each year. If we look at the world index rank, we can see that we are in the top five countries in terms of garbage production each year. There are numerous reasons for this, but one of the most important is the population. This does not justify the ranking because roughly 95 percent of India's electronic waste is recycled in a coarse manner in the informal sector. Consider the 2019 scenario, in which the water stream alone reached 48.5 MT in 2018, with the figure expected to double if no measures are taken. As things stand now, not much has changed, and even legislation has failed.¹¹

Let's look at another UN research, which claims that just about 20% of global e-waste being recycled. As a result, 80% of the waste ends up in the wrong hands. Also, when we look at the recovery rate of simply cobalt (which is used in laptops, batteries, phones, and auto batteries, among other things), we see that it is just 30%, leaving 70% of cobalt to harm the environment. If we extrapolate this scenario to the rest of the world, we can see that china is doing better. They are the biggest recycler after the US.¹²

Since 2015, the Ministry of Electronics and Information Technology has collaborated with industry organisations to raise awareness about e-waste among the general public as part of the digital India initiative. The clean India, green India effort was insufficient in terms of trash management; adequate disposal and strategies are required. As a result, to educate the general public on what alternative procedures are needed for the disposal of e-waste and how to limit such wastes. The emphasis was also turned to the unorganised sector, which had hitherto been overlooked. The programme focuses primarily on e-waste recycling initiatives that are both environmentally benign and sustainable. They mentioned technological advancements in order to achieve their objectives, and recycling is done in the healthiest way possible. As a result, it produces jobs and possibilities for the local community. As a result, the programme has benefited a variety of societal sectors. If we take plastic as an example, the initiative has aided in the conversion of plastic into valuable products, which are now being used for a better purpose rather than being discarded. CYOB, which stands for "carry your own bag," is another motto that has helped to limit the usage of plastic and polythene on the market.

The humans are affected by it that is well established till now, but the effect can also be seen into the babies that are new born, scientifically speaking they affect the growth of a child, producing the BFRs and thyroid-disrupting¹³

We have a lot of potential in terms of increasing e-waste recycling and repurposing its components in other materials. While dumping the entire thing isn't always a waste, we don't always need to recycle it. While certain ways have been employed for recycling, we are heading in that direction. Public awareness, organising

¹¹<http://ili.ac.in/pdf/env.pdf> (last visited at 26-01-2022 at 11:44)

¹²Regional Workshop on E-waste/WEEE Management; Osaka, Japan. New Delhi, India: IRG Systems South Asia; 2010

¹³Darnerud PO. In Brominated flame retardants as possible endocrine disrupters. *IntJAndrol*31(2):152–60. (2018)

campaigns, human capital development, and applying the latest technology that aids in the recycling and correct disposal of e-waste may easily reach a larger audience.

Given India's lack of rich mineral resources (and the fact that untreated e-waste ends up in landfills), an e-waste recovery regime that is well-designed, robust, and supervised is required to produce both jobs and revenue.

THE 2018 AMMENDMENTTO THE E-WASTE MANAGEMENT RULES: A BREIF IMPACT: -

The centre amended the e-waste management regulations with the goal of increasing efficiency and enforcing environmentally sound e-waste management in India. They also intended to promote e-waste legislation. They intend to formalise the e-waste recycling industry by approving dismantlers and recyclers.

With effect from October 1, 2017, the amendment made changes to the EPR, including the addition of new selection goals. It stated that the updated targets will now be handled by the central pollution control board for more efficient and effective e-waste management. Even when looking at the execution in the years 2017-2018, the 10% collection target was maintained, and the target was met. The same target was aimed to be 70 percent by the next year i.e. 2023.¹⁴

Producers who are new to the market and have recently opened are now assigned unique aims. For the waste disposal system to function properly, their collection goals are stated separately. The reason for this is that they have a shorter sale period, and the average consumer wants a shorter spam.

Producers must be made aware that they are solely responsible for the development of e-waste during the manufacturing process, and that they must adhere to these standards and apply them effectively. Different sectors, such as manufacturers, pollution control boards, and local governments, must work together to achieve this. Their cooperation can aid in the achievement of the waste-disposal objective goals. These could easily be achieved.

We can establish a more structured way in the legal industry with the role of the CPCB, and that would be far more productive e-waste regulation. As a result, an appropriate channel can be formed via which goals can be created, targeted, and achieved.

¹⁴<https://www.mondaq.com/india/waste-management/695996/e-waste-management-in-india> (last visited at 05-02-2022 at 22:05)

CONCLUSION

In today's world, technology has usurped us to the point where we have become its slaves. Technology was supposed to help humanity grow, but it has made their life worse in many ways. Consider the mobile phone: each person carries at least two phones in their pockets and discards them as soon as a new upgrade is available. As a result, e-waste is generated, posing a significant burden for the planet. What we require is immediate action in conjunction with the solutions in order to avoid exacerbating the problem. If we do not intervene now, our world may face a worse problem.

Given the situation, we require sustainable recycling of technologies, which has become a necessity, as well as proper disposal of such waste rather than throwing it away. Pollution and degradation of the environment are far worse than we can imagine. To deal with it, we'll need strict penal provisions as well as a rigorous monitoring system. People would not care if they did not face a harsher penalty if they did not have to dispose of e-waste. Throwing away is easy and due to the lack of awareness, people cannot judge what its consequence will be? To avoid such conflicts, we need a successful policy that aids in the discharge of functions, raising awareness, and identifying methods for correct disposal. We'll need specialised equipment to help us put it into action.

The most significant impediment we currently face is a lack of regulatory structure in the area of e-waste regulations. There is no proper act in place, and the sections of various acts and statutes that are in place are insufficient to regulate those sections. To sum up, even if e-waste is defined in the EPA, the Water Act, the Air Act, and the IPC, the rules are still enough within them.

Second, we have a problem with individuals and government officials not understanding each other. The government should inform the public about how e-waste management should be carried out. They must also provide the necessary machinery for proper disposal and channelling of the waste. The public's awareness and support are critical for the successful implementation of any proposed plans or plans that are urgently needed. Campaigns, awareness programs, and other tactics can be used to obtain support by making citizens aware of their acts and the implications of their actions. Sustainable development is one strategy to regulate it, and we also need additional action plans to ensure that we do not repeat past mistakes and, as a result, reduce environmental damage.

Third, there is insufficient work-related protection for those working in these systems, causing e-waste management to become more difficult. As a result, we'll need to form a staff at various levels to handle the management.

Fourth, all environmental issues, including e-waste, should be granted additional jurisdiction to the centre and state pollution control boards. Manpower needs to be developed, and expertise is critical. We require specialised personnel with experience in dealing with electronic garbage. We still have time to fix the problems we've caused in the past, as well as save the future we've yet to see.