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Right to Repair: A Sustainable Solution for E-Waste Reduction

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The world is currently facing some unprecedented challenges. All countries need to pay attention to find the proper solutions for these problems. One such type of problem is e-waste. Countries all over the world have recognized it as a major threat, hence the need to search for sustainable solutions for this problem has arisen. In the research work, I have thrown some light on the concept of e-waste, and how the right to repair might be a sustainable solution for e-waste. But for that, there is a need to understand the basic concept of e-waste, the right to repair and how big the problem of e-waste is. We need to know how the activities of human beings are contributing to e-waste. Governments all over the world have tried to make people aware of this and find solutions. The right to repair comes as an effective solution to the waste problem, and for that, we need to understand the reports, data, and findings globally that support the argument. And finally, we must understand that it's a global problem that has to be solved with the involvement of all the stakeholders namely; the governments, the consumers, and the manufacturers.

Keywords: *e-waste, right to repair, sustainable solution, government.*

INTRODUCTION

‘REPAIR IS THE FIRST STEP OF DEFENSE AGAINST E-WASTE.’¹

¹ James Myers, ‘Right to repair: the first step towards tackling E-waste’ (*Arm blueprint*, 25 November 2021) <www.arm.com/blogs/blueprint/right-to-repair> accessed 16 September 2023

In this era of digitalization, electronic devices have become an integral part of our daily lives. We are continuously growing our reliance on electronic devices like smartphones, laptops, washing machines, refrigerators, air conditioners etc. It is becoming hard to realize a day without the use of these devices. The new developments in the field of science and technology will only increase the dominance of these devices in our lives. However, the rapid proliferation of electronics imposes a significant challenge to the environment, of which one of the most significant challenges is E-waste. The problem of E-waste is recognized globally and various steps have been taken to reduce the E-waste from the world. Now, the Right to Repair movement has emerged as a beacon of hope offering a sustainable solution to mitigate the E-waste problem.

E-WASTE

‘E-waste’ is an abbreviation of ‘electronic waste’. It refers to all types of electric and electronic equipment that are no longer useful for their owners or have become obsolete for them. Electronic products turn into e-waste when they lose their utility because of redundancy, replacement, or breakage. Whenever e-waste is improperly processed it leads to dangerous impacts on human health and environmental pollution. E-waste is one of the fastest-growing waste streams. It is different from traditional municipal waste as it contains some recoverable precious materials along with complex combinations of highly toxic substances such as lead, cadmium, mercury, nickel etc.²

E-waste consists of two categories of goods:

1. **White Goods:** microwaves, washing machines refrigerators etc.
2. **Brown Goods:** radio, televisions, computers, cell phones etc.³

Sources of E-waste:

Household appliances are categorized into two parts:

² Gitanjali Nain Gill, ‘electronic waste’ (Britannica, 2023) <www.britannica.com/technology/electronic-waste> accessed 13 September 2023

³ *Ibid*

- Large household appliances such as televisions, refrigerators, washing machines, dishwashers, vacuum cleaners etc.
- Small household appliances such as radios, irons, coffee makers, toasters hairdryers etc.
- Various Information technology (IT) equipment like personal computers, telephones, mobile phones laptops, servers, switches, routers and networking equipment.
- Office equipment such as printers, scanners, photocopy machines, fax machines etc.
- Lighting equipment such as fluorescent lamps, LED lights etc.
- Electronic or Electrical tools i.e. handheld drills, saws, screwdrivers etc.
- Sports equipment.
- Entertainment equipment like televisions, DVD players, VCRs etc.

HARMFUL EFFECTS OF E-WASTE

Electronic and electrical equipment (EEE) when disposed of improperly, creates threat and danger for the environment at large. This improper disposal of e-waste impacts soil, water and air in various manners.⁴ E-waste is increasing rapidly, and one of the biggest contributors is growing consumer demands worldwide. Moreover, the rapid advancement of technology and shorter replacement cycles are also great contributors to the growth of e-waste worldwide.⁵

“The world produces as much as **50 million tonnes** of electronic and electrical waste (e-waste) a year, which means over six kilograms for every person on the planet, and only 20% of this is formally recycled. 80% either end up in landfills or are being informally recycled – much of it by hand in developing countries, exposing workers to hazardous and carcinogenic substances such as mercury, lead, and cadmium. E-waste in landfills contaminates soil and groundwater, putting food supply systems and water sources at risk. The e-waste produced annually is worth

⁴ Neetika Jain, ‘E-Waste – Sources, Composition, Effects, Treatment, Disposal System’ (*Electricalfunda Blog*, 2020) <https://electricalfundablog.com/e-waste-electronic-waste-sources-composition/#Sources_of_E-Waste> accessed 14 September 2023

⁵ ‘What is e-waste’ (*Step*, 2014) <www.step-initiative.org/e-waste-challenge.html> accessed 14 September 2023

over \$62.5 billion, more than the GDP of most countries. There is 100 times more gold in a tonne of e-waste than in a tonne of gold ore.”⁶

According to the Central Pollution Control Board, the quantum of e-waste generated in India during the financial year 2019-2020 was estimated **at 1014961.2 tonnes** for 21 types of electrical and electronic equipment (EEE). More than 95 percent of this waste is handled by the informal sector, which only adds to the problem.⁷ India holds the **third** rank among the largest generators of e-waste globally, it is behind only China and the US. The e-waste generation is highly centric in India, 65 cities in India generate more than 60% of the total generated e-waste, whereas 10 states generate 70% of the total e-waste.⁸

The e-waste harms the environment and human health in the following manner:

Effects on Air Quality: Whenever the e-waste is disposed of informally through the process of dismantling, shredding, or melting the components, it discharges harmful chemicals like dioxins along with dust particles which create air pollution and respiratory health problems.⁹

Effects on soil: The soil is harmed through the process of leaching, and poisoning underground water at the stockpiles of e-waste on the land. The presence of metals in the soil also makes the crops more vulnerable.¹⁰

Effects on Water: Heavy metals present in the e-waste seep further deeper into the groundwater, produce acidification, and increase the toxic levels in the water.¹¹

⁶ ‘UN report: time to seize opportunity, tackle challenge of e-waste’ (UNEP, 24 January 2019) <www.unep.org/news-and-stories/press-release/un-report-time-seize-opportunity-tackle-challenge-e-waste> accessed 14 September 2023

⁷ Anshula Agarwal et al., ‘Dealing with the discarded: E-Waste management in India’ (Down To Earth, 26 August 2021) <www.downtoearth.org.in/blog/pollution/dealing-with-the-discarded-e-waste-management-in-india-78667> accessed 14 September 2023

⁸ ‘E-Waste Management in India’ (Drishti IAS, 11 September 2023) <www.drishtiias.com/daily-updates/daily-news-analysis/e-waste-management-in-india> accessed 14 September 2023

⁹ Muskan Jain et al., ‘Review on E-waste management and its impact on the environment and society’ (2023) 1(3) Waste Management Bulletin <<https://doi.org/10.1016/j.wmb.2023.06.004>> accessed 20 September 2023

¹⁰ *Ibid*

¹¹ *Ibid*

Effects on Human Health: As we have discussed above e-waste harms the air, water, and soil in various ways, these pollutants in the environment enter into the body of a human being creating health problems for almost all parts of the body, causing problems like cancer, breathing issues, heart problems, hormonal imbalances, weakening of bones etc.

MEASURES TAKEN BY INDIAN GOVERNMENT

In India, the **E-waste Management Rules 2022** are responsible for rules relating to E-waste and they ensure the secure, accountable, and sustainable management of e-waste. These rules have succeeded the E-waste Management Rules 2016. It has introduced changes like digitization of the e-waste management process, enhanced the visibility of data, and used the extended producer responsibility (EPR) mechanism to reduce e-waste. These rules have also put some restrictions on the use of toxic and hazardous substances like lead, mercury etc. in manufacturing of the electrical and electronic equipment.¹² Apart from this, the government is taking measures to increase participation and compliance. A new movement for the Right to Repair has been started in many countries worldwide which can be a revolutionary step in the reduction of the e-waste by empowering the consumers and has the potential to reduce the e-waste through sustainable methods.

RIGHT TO REPAIR

The right to repair aims to expand the access and affordability of repair. Imagine that you have purchased a brand new expensive mobile phone but after some time some other new models of the same brand are launched by the company, and suddenly your phone's performance is slowed down considerably, which is not because of the daily wear and tear, and you notice that it is a usual problem whenever a new phone model is launched so now you will be forced to buy a new phone. Sometimes the brands impose conditions that if you repair your device outside their authorized brand showrooms, the warranty of the product will expire. Various such ill practices are executed by electronics companies to increase their sales and revenue. But imagine if the government, through legislation forces the manufacturer of a product to disclose

¹² E-Waste Management in India (n 8)

the details related to the product to the customers, so now they can repair the product by themselves or seek the assistance of a third party to repair it. This whole scenario is possible with the help of Right to Repair.

The idea behind the right to repair is that if a person owns something, he should be able to repair it by himself or through a technician of his own choice. We usually take older cars and appliances for repair but when it comes to modern technology and especially any appliance with a chip inside it, we are hardly able to repair it.¹³ The right to repair consumer goods refers to the legal right of end users, consumers as well as businesses, to repair devices they own or service without any manufacturer or technical restrictions. It will provide consumers with a choice to repair their products at an optimal cost instead of buying new products altogether.¹⁴ The right to repair originated in the USA when the **Motor Vehicle Owners' Right to Repair Act 2012** was passed, which made it mandatory for the manufacturers to provide the documents and information to enable anyone to repair their vehicles.¹⁵

According to a study published by the US Public Interest Research Group in 2021, if consumers could repair their devices instead of replacing them, they could save up to **\$40 billion annually**. Hence it has dual benefits of environmental protection and economic benefit to consumers.¹⁶ The right to repair is also useful to counter the concept of 'Planned Obsolescence'. Planned obsolescence involves deliberately designing a product to become obsolete or unfashionable over time, right from its initial conception by the manufacturer. The primary aim behind this practice is to encourage consumers to replace their existing products with newer alternatives offered by the same manufacturer.¹⁷

¹³ Thorin Klosowski, 'What you should know about Right To Repair' (*Wirecutter*, 15 July 2021) <www.nytimes.com/wirecutter/blog/what-is-right-to-repair/> accessed 14 September 2023

¹⁴ 'Right to Repair India' (*Ministry of Consumer Affairs, Food & Public Distribution*) <<https://righttorepairindia.gov.in/about-us.php/>> accessed 14 September 2023

¹⁵ K T Jagannathan, 'India is still taking baby steps on right to repair' (*Mobility Outlook*, 29 June 2023) <www.mobilityoutlook.com/features/india-is-still-taking-baby-steps-on-right-to-repair/> accessed 14 September 2023

¹⁶ Alex Debellis and Nathan Proctor, 'Repair Saves Families Big' (*PIRG*, 22 December 2020) <<https://pirg.org/resources/repair-saves-families-big/>> accessed 20 September 2023

¹⁷ Sakshi Shrivastava, 'THE RIGHT TO REPAIR & PLANNED OBSOLESCENCE: NEW HORIZONS IN THE INDIAN IP LANDSCAPE' (*NMIMS University Law Review Journal and blog*, 08 September 2021)

The judiciary has also played a crucial role in supporting the right to repair. In the case of *Shamsher Kataria v Honda Siel Cars India Ltd.*¹⁸, 14 automobile manufacturing companies were held liable by the Competition Commission of India (CCI), for engaging in anti-competitive practices and making abuse of their dominant position, by not selling spare parts in the open market. The CCI further highlighted that the definition of ‘consumer rights’ under section 2(9) of the Consumer Protection Act, 2019 may include the right to repair.¹⁹

OBJECTIVES OF THE RIGHT TO REPAIR

Objectives of the right to repair are as follows:

Make Information Available: The companies should provide reasonable access to the manuals, schematics, and software updates relating to their products to everyone. Software licenses shouldn’t limit support options for consumers.²⁰

Make Parts and Tools Available: The parts and tools including diagnostic tools, should be made available to third parties for the service of devices so that the consumers can repair the devices of their choice without compromising on the quality of the services.²¹

Allow Unlocking: The government should provide for the legalization of unlocking, adapting, or modifying a device so that an owner can install custom software.²²

Repairable Design: All the Devices should be designed in a way to make repair possible by third parties.²³

<<https://lawreview.nmims.edu/the-right-to-repair-planned-obsolescence-new-horizons-in-the-indian-ip-landscape/>> accessed 20 September 2023

¹⁸ *Shamsher Kataria v Honda Siel Cars India Ltd* (2014) SCC Online CCI 95

¹⁹ Susmit Kundu, Vidya Mukharjee, ‘Right to Repair- a concept and the Indian roads ahead’ (*Lexpllosion*, 19 October 2022) <<https://lexpllosion.in/right-to-repair-a-concept-and-the-indian-road-ahead/#>> accessed 20 September 2023

²⁰ Klosowski (n 13)

²¹ *Ibid*

²² *Ibid*

²³ *Ibid*

BENEFITS OF THE RIGHT TO REPAIR

There are various benefits to the right to repair such as:

Economic: The right to repair will increase the opportunities for small repair shops, which will have a significant impact on employment generation. It will give a boost to the economy.

Consumer Benefits: The right to repair will help to minimize the cost associated with repairing the devices. It will also decrease the need to change the devices with new ones thereby saving a lot more money for the consumers.

Innovation: It may incentivize the manufacturers to design products that can be repaired easily hence it will increase the innovation in manufacturing such devices.

Data Protection: If a person repairs their own devices, there is less chance of data leaks.

Environment: The right to repair will help reduce pollution by reducing the need for new products so that the manufacturing process will cause lesser harm. It will also reduce the e-waste Mountains by increasing the life span of the products.

RIGHT TO REPAIR AS A SOLUTION FOR THE MOUNTING PROBLEM OF E-WASTE

The Growing problem of toxic waste can be tackled with the help of the right to repair since more people would be able to reuse older products that only require a repair to function normally. Being able to repair products helps cut down on e-waste and lengthens the lifespan of your devices, which can also cut down on emissions. Human activities put a lot of pressure on the environment, for example, production of the electronic products is a significant contributor to increasing air pollution by releasing toxic gases. Clean energy sources such as nuclear, wind, and solar power, along with legislation for the right to repair can help to reduce the negative effects of human actions on the environment.²⁴ Increasing the longevity of electrical equipment will help in reducing the pressure on the environment. The right will also help in

²⁴ Nicolas Cates, 'Right to repair: What It Really Means for Users and Companies' (*Screen Rant*, 23 August 2022) <<https://screenrant.com/right-to-repair-users-companies-impact-explained/>> accessed on 15 September 2023

higher innovation and technological development which in turn would aid in tackling the mounting problem of toxic e-waste. Every year around **40 million** tons of electronic waste is produced by human activities. The right-to-repair law will help in reducing the disposal of electronic equipment improperly and it will also encourage the prudent use of resources for environmental protection.²⁵

Repairing helps cut down on e-waste, it can be understood better with an example; If your laptop works for 3 years and then its battery is damaged, but after being repaired it works for another 2 years, you've helped cut down on e-waste by not buying new. If the average person replaces their phone every 2 years, most will have upwards of 30 phones during their lifetime.²⁶

Repair is an important principle and step in sustainability because it helps extend the life of an item, preventing you from having to buy new, and helps you reduce your e-waste. The right to repair is also one of the principles of the 6 R of 'sustainability' which should be kept in mind when trying to reduce environmental impact, they are:

- **Rethink:** Is there a need to buy this? Can a secondhand product be used instead?
- **Refuse:** Not buying those products that are not important and thinking carefully about their utility before buying.
- **Reduce:** Use less, waste less.
- **Repair:** Is it broken and no longer useful, or can you fix it with some help?
- **Reuse:** Before throwing away any product use it again even for any other purpose.
- **Recycle:** Make sure to recycle everything whenever possible.²⁷

POSITIVE IMPACTS OF THE RIGHT TO REPAIR

Various nations around the world have recognized this right and taken steps to implement this right such as the United States (US), United Kingdom (UK), Australia, and the European Union

²⁵ Ziya ur Rahman Karimi, 'Right to Repair' (*iPleaders*, 20 September, 2022) <<https://blog.ipleaders.in/right-to-repair/#>> accessed 15 September 2023

²⁶ H L Noss, 'Why is Right to Repair Good for the environment' (*Sustainability Nook*, 15 December 2022) <<https://sustainabilitynook.com/why-right-to-repair-good-for-environment/>> accessed 15 September 2023

²⁷ *Ibid*

(EU) etc. U.S. Senate has passed legislation named The Fair Repair Act of 2022 which aims to ensure the right to repair and protect consumers, farmers and small businesses.²⁸ In the European Green Deal, the European Commission has adopted a new set of rules and tools for consumers which will make 'repair' an easy and accessible option for them.²⁹ India is also taking steps in this direction as the government has launched an online portal where all the major manufacturers have to list the public information relating to the service, warranty, and other necessary information for the repair of their products.

Reports

Faulty electrical and electronic equipment could be repaired and reused more than **twice** before disposal³⁰ "A study published in Waste Advantage Magazine reveals that the Right to Repair could reduce e-waste by up to **30%**. This reduction is achieved by prolonging the life of devices and reducing the need for new products, thereby decreasing the demand for raw materials and energy for production."³¹

Right to repair helps to reduce the use of resources and the flow of materials, hence it should also result in a reduction of e-waste (European Parliament Research Service, 2022), both inside and outside the EU.³² Various other reports confirm that the proper implementation of the right to repair has great potential to reduce e-waste globally.

²⁸ 'Wyden Introduce Legislation to Protect Consumers by Ensuring Right to Repair' (*Lujan*, 16 March 2022) <<https://www.lujan.senate.gov/newsroom/press-releases/lujan-lummis-wyden-introduce-legislation-to-protect-consumers-by-ensuring-right-to-repai/>> accessed 20 September 2023

²⁹ Trisha Ray, 'India's embrace of "right to repair" can transform the electronics sector' (*Atlantic Council*, 28 August 2023) <www.atlanticcouncil.org/blogs/new-atlanticist/indias-embrace-of-right-to-repair-can-transform-the-electronics-sector/> accessed 20 September 2023

³⁰ Odeyingbo, O. A. and Baldé, C. P., 'The Role of Repair and Refurbishment in Extending Lifetime of Electrical Electronic Equipment in Nigeria' (2022) 48(1) *Journal of Solid Waste Technology and Management* <<https://doi.org/10.5276/JSWTM/2022.55>> accessed 20 September 2023

³¹ Liz Cooper, 'How right to repair can help reduce E-waste' (*Human I T*, 21 July 2023) <<https://www.human-i-t.org/right-to-repair-e-waste/>> accessed 20 September 2023

³² Agata Meysner and Jesus Urios, 'The 'Right to Repair' Addressing social and environmental spillovers in the electrical and electronic equipment sector' (*Institute for European Environmental Study*, July 2022) <https://ieep.eu/wp-content/uploads/2022/12/Policy-brief_The-right-to-repair_IEEP-2022.pdf> accessed 20 September 2023

CONCLUSION

The rate of e-waste generation is increasing which requires some instant efforts to stop this, or to at least slow it down. The problem is present on a global scale hence the solution should also be implemented on a global scale when all countries stand together in fighting against the problem, through past experiences and research conducted worldwide the right to repair has emerged as a very impactful measure against e-waste. From the above discussion, it becomes more clear as to how the right to repair might be used as a sustainable method to counter e-waste. While the right has been already adopted by some countries, stricter implementation will produce better results. The right to repair is also beneficial in the generation of employment, growth of the economy, reduction of greenhouse gas emissions, etc.

The right to repair has some major problems in practice such as consumer behavior and lack of manufacturer responsibility etc. however, these problems can also be solved through more organized efforts towards working on the lower quality of the repaired product as compared to the new products, furnishing more warranty period on repaired products, trying to minimize the cost of repair as to make it a better alternative against buying a new product.

It can also be analyzed that India is taking steps in this direction but as we know India is a developing country and some developed nations have tried to convert other countries into dumping grounds for waste, India is now in a position to lead the global south and represent the developing countries, we need to take these steps more aggressively to save our country as well as the global south.