


# Chapter 6

## Machine Learning in Reducing E–Waste: A Global Legal Perspective

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### ABSTRACT

*E-waste is a waste which is gathered from various sources, Household sector is considered as a biggest source of generation of e-waste. E-waste consists of various components characterized as hazardous and non-hazardous components also contain approximately 1000 substances categorized in this category. E-waste is comprising of ferrous and non-ferrous metals ceramics and other items. When e-waste gets dismantled and continuously processed it jeopardizes the health environment, and surroundings. E-waste is a composition of bio accumulative and toxic substances containing like chromium, mercury, and toxic substances (Arora et al., 2024). Machine learning plays a very important role in regulating e-waste. In context to urban segments, week by week e-waste is calculated through building a prescient model, by building and creating gradient boosting regression tree (GBRT) and neural network machine learning calculations. By incorporating machine learning, calculations will provide exact accurateness of algorithm. A convolutional neural network was created to bifurcate e-waste into different countries. These categories*

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*are as follows: cell phone, remote controller, battery, and light bulb.*

## **INTRODUCTION**

It was during the period of mid 70's that technological growth was on hike. The concept of Advanced Engineering later grew consciences due to which it innovative many new Electrical appliances and devices. Hence, People started treating it an old appliance as an obsolete shopworn technology and then the concept of E-waste disposal gradually emerged.

In United States of America, the Resource Conservation and Recovery Act has made dumping of E-waste illegal. The Developed and Developing Nations became conscious about illegal dumping of waste. Eventually, a new Industry was born named as 'Electronic Waste Safe disposal and Recycling Industry.' This newly emerged Industry had taken the charge of safe disposal and Recycling of Electronic appliances.

However, due to advancement of technology and upgradation we are incessantly replacing older product with a new product. It has been incessantly observed that electronic industry has been rapidly growing and there has been major upgradation of technology in economic, social, cultural, and technological sector. In the year 2015 Digital India Program was Launched by Honourable Prime Minister Mr. Narendra Modi. The major aim of this campaign is to improve the virtual accessibility of people by providing online portal to the individuals. This initiative taken by the government of India will digitally empower the citizens of the nation and it will also create awareness among the people of the Nation . The campaign was designed to make the citizens of the country Tech savvy. (Belsare et al.,2024)

However, with due to technological innovations and advancements citizens of the country will be immensely benefitted from the government services. The campaign set's goal to create a drastic change in digital governance and creating digital literacy among the people of the nation in the areas like e-signature, e-health services, e- governance etc. Digital India has set standards to achieve –

1. It is to ensure that citizens of the country would be more aware and digitally empowered. It has also helped in eliminating all gaps of digital illiteracy.
2. It is to ensure that the citizens of the country would be able to take benefit of government and services operating digitally, creating e-portals like e-governance, e- health services etc.
3. This campaign will reduce corruption and ensuring transparency.
4. The concept of Digital India is environmentally friendly as it eliminated and reduced paper work which ultimately leads to procrastination in task.

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