

E-waste management in India , Policies and Best Practices

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- India is generating about eight lakh tonnes of e-waste annually. In December, 2017, the United Nations reported that the world generated 44.7 million tonnes of electronic waste in 2016, India's contribution to this was a significant 2 million tonnes, being amongst top five countries in E-waste generation. According to a recently published report by TechSci Research, the country's E-Waste market is expected to grow at a CAGR of around 30.6% during 2014-19
- E-waste generally includes discarded monitors, motherboards, power supplies, storage devices, cathode ray tubes, printed circuit boards, mobile phones and chargers, compact discs, headphones, speakers etc.

- Due to high levels of lead, mercury and cadmium, Computers, laptops, Tablets and mobile phones are the most dangerous, because also they are discarded quite frequently due to frequent upgradation and due to short battery life. In general depending upon usage average mobile phones and personal computers are discarded between 2.5 years to 4 years, in developing countries and even more frequently in developed ones.

- Department of Telecommunications, Ministry of Communication in National Telecom Policy 2012 (NTP), puts emphasises on Periodic disposal of all electronic waste as E-waste, Strengthening the framework to address the environmental and health related concerns pertaining to the telecom sector. It encourages enhanced and continued adoption of green policy in telecom and incentivize use of renewable energy sources for sustainability.
- National Telecom Policy 2012 and draft NTP 2018, promotes the use of energy efficient equipment and renewable energy technologies to achieve long term sustainability.

- The Ministry of Environment & Forests (MoEF) is the nodal agency in the administrative structure of the Central Government for the planning of e-waste management and sustainable environmental issues .
- Government has recently amended the E-waste Rules in a move to effectively implement the environmentally sound management of e-waste in India .These amendments in rules has been done with the objective of channelizing the E-waste generated in the country towards authorized dismantlers and recyclers in order to "formalize " the e-waste recycling sector , the collection targets under the provision of Extended Producer Responsibility (EPR) in the Rules have been revised and targets have been introduced for new producers who have started their sales operations recently.

- On March 22, 2018, the Ministry of Environment, Forest and Climate Change (MoEF & CC) amended the E-Waste Management Rules, 2016. These rules are called E-Waste (Management) Amendment Rules, 2018 to address the lacunas in former laws and work towards sustainable environmental goals.

Major highlights of the E- Waste rules

- According to the new E-Waste (Management) Amendment Rules, 2018 the manufacturer, producer, importer, transporter, refurbisher, dismantler and recycler shall be liable to pay financial penalties as levied under the Provisions of the Environment (Protection) Act. Moreover, the collection, storage, transportation, segregation, refurbishment, dismantling, recycling and disposal of e-waste shall be in accordance with the guidelines.

- According to the latest amendment, the Central Pollution Control Board (CPCB) may conduct random sampling of electrical and electronic equipment placed in the market to monitor and verify the compliance of reduction of hazardous substances provisions and the cost for sampling and testing shall be borne by the government, which was not the case in the previous amendment. Previously , the cost was borne by the producers.

A brief of responsibilities assigned to various stakeholders are as follows:

Manufacturer Responsibility

- Manufacturers will have the responsibility to collect e-waste generated during the manufacturing of any electrical and electronic equipment and channelize it for recycling or disposal.
- Manufacturers will ensure that no damage is caused to the environment during storage and transportation of e-waste.
- Manufacturers will maintain records of the e-waste generated, handled and disposed in prescribed forms and make such records available for scrutiny by the concerned State Pollution Control Board.

Producers Responsibility

- The producer of electrical and electronic equipment listed in prescribed Schedule shall be responsible for implementing the Extended Producers Responsibility with the following frameworks, namely, collection and channelisation of e-waste generated from the 'end-of-life' of their products or 'end-of-life' products with same electrical and electronic equipment code and historical waste available on the date from which these rules come into force as per prescribed Schedules. The mechanism used for channelisation of e-waste from 'end-of-life' products includes collecting those from their service centres, taking them to authorised dismantler or recycler in accordance with the Extended Producer Responsibility (overall product life cycle)

- In cases where recyclers are not available like disposing off fluorescent and other mercury containing lamps, channelisation may be from collection centre to the treatment, Storage and Disposal Facility as for disposal in Treatment, Storage and Disposal Facility, a pre-treatment is necessary to immobilize the mercury and reduce the volume of waste to be disposed off.

Extended Producer Responsibility (EPR)

- The EPR is a policy approach under which producers are given a significant responsibility—financial or physical—for the treatment or disposal of post-consumer products. Responsibility of the producer for collection of waste Electrical and Electronic Equipment from the Electrical and Electronic Equipment placed on the market earlier, such as through dealer, collection centres, through buy-back arrangement, exchange scheme, Deposit Refund System, etc. whether directly or through any authorised agency and channelising the items so collected to authorised recyclers.

Consumer Support with regards to Extended Producer Responsibility

- Producers are supposed to provide contact details such as address, e-mail address, toll-free telephone numbers or helpline numbers to consumer, or bulk consumers through their website and product user documentation so as to facilitate return of end-of-life electrical and electronic equipment, creating awareness through media, publications, advertisements, posters, or by any other means of communication and product user documentation accompanying the equipment, information on hazardous constituents as specified in electrical and electronic equipment

- Consumer information on hazards of improper handling, disposal, accidental breakage, damage or improper recycling of e-waste, instructions for handling and disposal of the equipment after its use, along with the Do's and Don'ts, affixing a visible, legible and indelible symbol given below on the products or product user documentation to prevent e-waste from being dropped in garbage bins containing waste destined for disposal, and mechanism available for their consumers to return e-waste for recycling including the details of Deposit Refund Scheme, if applicable.

- The producer shall opt to implement Extended Producer Responsibility individually or collectively. In individual producer responsibility, producer may set up his own collection centre or implement take back system or both to meet Extended Producer Responsibility. In collective system, producers may tie-up as a member with a "Producer Responsibility Organisation" or with e-waste exchange or both. It shall be mandatory upon on the individual producer in every case to seek Extended Producer Responsibility the import of electrical and electronic equipment shall be allowed only to producers having Extended Producer Responsibility authorisation, they have to maintain records of the e-waste handled and make such records available for scrutiny by the Central Pollution Control Board or the concerned State Pollution Control Board and file annual returns. In case of the Producer with multiple offices in a State, one annual return combining information from all the offices shall be filed.

- The producer shall be responsible to get e-waste collected on his behalf by dismantler or recycler or refurbisher including those arising from orphaned products, the collection centres established by producer can also collect e-waste on behalf of dismantler, refurbisher and recycler including those arising from orphaned products, ensuring that the facilities are in accordance with the standards or guidelines issued by Central Pollution Control Board (Apex body for pollution control) also from time to time ensure that the e-waste collected by them is stored in a secured manner till it is sent to authorised dismantler or recycler as the case may be.

- The Producer has to ensure that no damage is caused to the environment during storage and transportation of e-waste, maintain records in prescribed formats of the e-waste handled as per the guidelines of Central Pollution Control Board and make such records available for scrutiny by the Central Pollution Control Board or the concerned State Pollution Control Board as and when asked for.

Responsibilities of dealers.

- In the case the dealer has been given the responsibility of collection on behalf of the producer, the dealer shall collect the e waste by providing the consumer a box, bin or a demarcated area to deposit e waste, or through take back system and send the e-waste so collected to collection centre or dismantler or recycler as designated by producer.
- The dealer or retailer or e-retailer shall refund the amount as per take back system or Deposit Refund Scheme of the producer to the depositor of e-waste , like in case of Nokia in India Kiosks to deposit used mobiles are placed in dealers outlets where users can deposit old mobiles for recycling dealer shall ensure that the e-waste thus generated is safely transported to authorised dismantlers or recyclers , ensuring that no damage is caused to the environment during storage and transportation of e-waste.

Responsibilities of the refurbisher

- Refurbisher is suppose collect e-waste generated during the process of refurbishing and channelise the waste to authorised dismantler or recycler through its collection centre , in accordance with the procedures laid down ,the authorised Refurbisher shall be required to submit details of e-waste generated to the concerned State Pollution Control Board on yearly basis ensuring that no damage is caused to the environment during storage and transportation of e-waste also ensure that the refurbishing process do not have any adverse effect on the health and the environment.
- Not only ensuring that the e-waste thus generated is safely transported to authorised collection centres or dismantlers or recyclers but also maintaining records of the e-waste handled which should be readily available for scrutiny by the appropriate authority.

Responsibilities of consumer or bulk consumer.

Consumers or bulk consumers of electrical and electronic equipment shall ensure that e-waste generated by them is channelized through collection centre or dealer of authorised producer or dismantler or recycler or through the designated take back service provider of the producer to authorised dismantler or recycler, whereas bulk consumers of electrical and electronic equipment shall maintain records of e-waste generated by them and make such records available for scrutiny by the concerned State Pollution Control Board. They shall also ensure that such end-of-life electrical and electronic equipment are not admixed with e-waste containing radioactive material as covered under the provisions.

Responsibilities of the dismantler.

- Ensuring that the facility and dismantling processes are in accordance with the standards or guidelines prescribed, ensure that no damage is caused to the environment during storage and transportation of e-waste, ensure that the dismantling processes do not have any adverse effect on the health and the environment, ensuring that dismantled e-waste are segregated and sent to the authorised recycling facilities for recovery of materials and at non-recyclable or non-recoverable components are sent to authorised treatment storage and disposal facilities , maintain record.

Responsibilities of the recycler

- Recyclers have to ensure that the facility and recycling processes are in accordance with the standards or guidelines prescribed, ensures that no damage is caused to the environment during storage and transportation of e-waste, ensuring that the recycling processes do not have any adverse effect on the health and the environment, ensure that the fractions or material not recycled in its facility is sent to the respective authorised recyclers, ensure that residue generated during recycling process is disposed of in an authorised treatment storage disposal facility, maintain record of e-waste collected, dismantled, recycled and sent to authorised recycler and make such record available for scrutiny by the Central Pollution Control Board or the concerned State Pollution Control Board, they may accept waste electrical and electronic equipment or components not listed in prescribed Schedules for recycling provided that they do not contain any radioactive material and same shall be indicated while taking the authorisation from concerned State Pollution Control Board.

Responsibilities of State Government for environmentally sound management of E-waste

- Department of Industry in State or any other government agency authorised in this regard by the State Government, to ensure earmarking or allocation of industrial space or shed for e-waste dismantling and recycling in the existing and upcoming industrial park, estate and industrial clusters.

- Department of Labour in the State or any other government agency authorised in this regard by the State Government shall ensure recognition and registration of workers involved in dismantling and recycling, assist formation of groups of such workers to facilitate setting up dismantling facilities, undertake industrial skill development activities for the workers involved in dismantling and recycling, undertake annual monitoring and to ensure safety & health of workers involved in dismantling and recycling, State Government to prepare integrated plan for effective implementation of these provisions, and to submit annual report to Ministry of Environment, Forest and Climate Change.

- Central Pollution Control Board shall conduct random sampling of electrical and electronic equipment placed on the market to monitor and verify the compliance of Reduction of Hazardous Substances provisions and the cost for sample and testing shall be borne by the Producer. The random sampling shall be as per the guidelines of Central Pollution Control Board. If the product does not comply with Reduction of Hazardous Substances provisions, the Producers shall take corrective measures to bring the product into compliance and withdraw or recall the product from the market, within a reasonable period as per the guidelines of the Central Pollution Control Board.
- Central Pollution Control Board shall publish the methods for sampling and analysis of Hazardous Substances .

Transportation of e-waste

- The transportation of e-waste shall be carried out as per the manifest system from manufacturing or recycling destined for final disposal to a treatment, storage and disposal facility shall follow the provisions under Hazardous Wastes

Accident reporting

- Where an accident occurs at the facility processing e-waste or during transportation of e-waste, the producer, refurbisher, transporter, dismantler, or recycler, as the case may be, shall report immediately to the concerned State Pollution Control Board about the accident through telephone and e-mail.
- Liability of manufacturer, producer, importer, transporter, refurbisher, dismantler and recycler.

- The manufacturer, producer, importer, transporter, refurbisher, dismantler and recycler shall be liable for all damages caused to the environment or third party due to improper handling and management of the e-waste, The manufacturer, producer, importer, transporter, refurbisher, dismantler and recycler shall be liable to pay financial penalties as levied for any violation of the provisions .
- Urban Local Bodies (Municipal Committee or Council or Corporation) shall ensure that e-waste pertaining to orphan products is collected and channelised to authorised dismantler or recycler.

- The integration of the existing informal sector like waste pickers and help their transition into the formal economy in the is also a progressive feature.
- Also more than 200 manufacturers of electronic goods, including some e-giants, were served notices recently by the Central Pollution Control Board (CPCB) for not complying with e-waste procurement norms.

Way forward

- In spite of its growing environmental impact, management of electronic waste has received least concern until now and with not much headway for various reasons. Solid waste management policy has to focus on segregating and recycling, Hazardous materials, including heavy metals, e - waste before they are dumped in garbage yards. The informal sectors have major role to play in waste management in India, garbage collectors, waste pickers, waste dealers, small stores and the households, play a vital role in recovering consumer waste, have to be educated and safe conditions of informal recycling to be ensured, consumer awareness is being increased by aggressive awareness generated by government programmes on basic cleanliness. Though e - waste is still far more efficiently recovered in India as there's a huge market for second hand products which helps in reducing e waste in the environment .

- Proper implementation of regulations and supporting infrastructure could, help in resolving concerns regarding e- waste management, with the advancement of technology, increasing buying capacity of citizens, lifespan of products would become shorter, resulting in more frequent replacement of existing products with the new ones, which would further increase E-Waste generation .

- Since, in India, majority of the E-Waste is processed by the unorganized sector manually by untrained, uneducated, informal labour, introduction of stricter regulations and proper monitoring by the agencies In each stage of E-waste collection, transportation, segregation, dismantling, recycling and disposal will go a long way. Old and hazardous technologies and equipments are being used by the recyclers, to recycle and treat the e-waste are to be taken care of. Hopefully the new rules and regulations and fixing responsibility with the manufactures and those involved in supply chain for improper handling of E - waste will go a long way in resolving E - waste management issues.

- Draft National Telecom Policy 2018 strives for a national policy on digital communications and to prepare the country and its citizens for the future. Achieving these goals would require that the key stakeholders ,namely the Centre government, the State governments, local governments and agencies, Telecom Service Providers, Internet Service Providers, handset and equipment manufacturers, the academic community, the innovators and start-ups to work together towards common goals by collectively to deliver and implement national policy and its missions.

- Draft NTP 2018, strives to provide Incentives for the use of renewable energy technologies in the communications sector, by encouraging the utilisation of small cell fuel batteries, lithium-ion batteries and or other green technologies to improve energy consumption efficiencies. Draft NTP Promotes research and development of green telecom through active and constant participation of stakeholders across government, industry and academia and by rationalising of taxes and levies on the manufacture, production and import of such equipment for digital communication technologies , thus giving a big push towards sustainable development .

THANK YOU.

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RESOURCES:

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