

A Focus on E-waste and its Effect on Human Health

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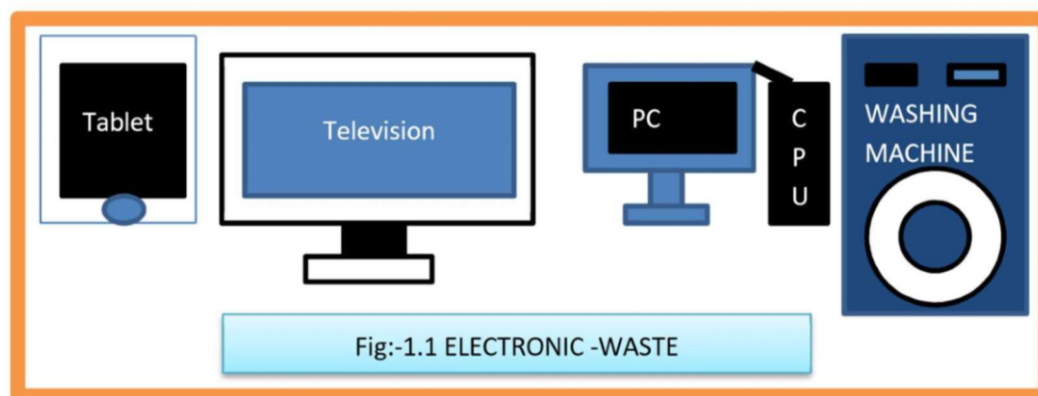
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Abstract: -

What is electronic waste? This question might be coming in everyone's mind, how can our precious electronics devices can become waste for us, we all use this electronic devices every second, even many people can't live without electronic devices since it helps us in our daily life. Electronic devices help us in our household work as well as in professional work. We humans are totally dependent on these devices, but we don't know how they may affect our health if we do not dispose it or destroy it completely when they are not in use or when they may stop working. In this paper I have done my research and brief study on the topic how ewaste effect human health. And even in this paper I am mentioning few solutions for reducing e-waste effect on human health.

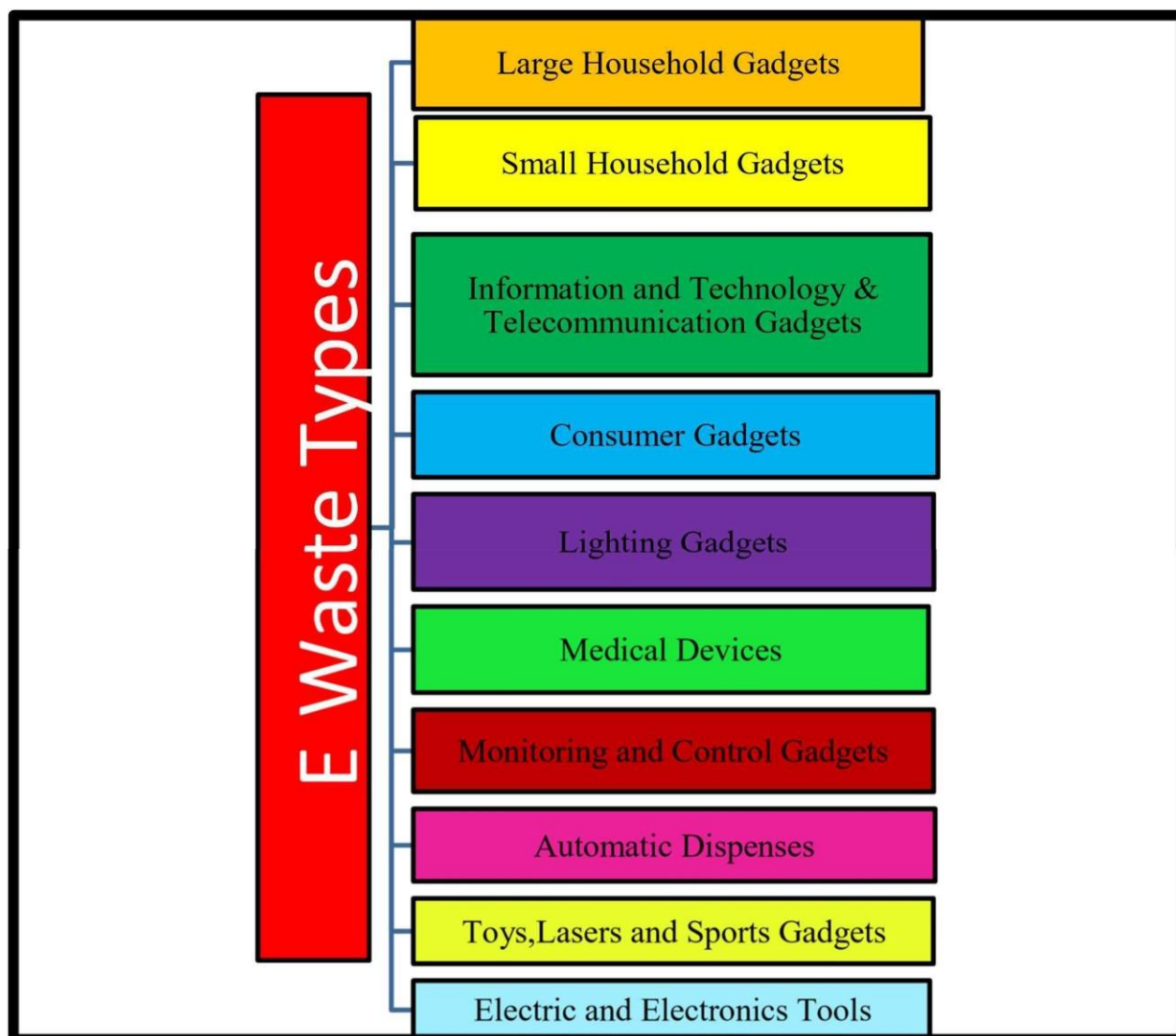
Keywords:- Electronic waste, Human Health, Electronic Devices, Professional Life, Dispose, Destroy, Waste, House Hold Work, Solutions.

1) Introduction



1.1 What is E-waste:-

E-waste stands for Electronic Waste, Electronics devices like Washing Machines, Dishwasher, Iron, Television, Computers, and Laptops etc. When this list of devices stop working or when they are discarded or when we on't need them then this devices are considered to be e-waste. This electronic device if not proper dispose then it can cause various types of diseases to humans.



1.2 Different Types of E-waste:-

Fig 1.2 Types of E-waste

From above figure 1.2 we can say that there are many types of e- waste like

- 1) Large Household Gadgets: - Appliances like Washing Machine, Dishwasher, Air Conditioner, Television, Refrigerator comes under this categories and when they stop working or when they are of no use or when they are discarded then it is called ewaste.
- 2) Small Household Gadgets: - Appliances like Iron, Mobile-Charger, and Electric Kettle etc. Comes under this category.
- 3) Information and Technology & Telecommunication Gadgets: - Appliances like CRO, Laptops, Printers, Scanners, Computer, Mobile Phones, Mouse, Keyboard, DSO, CPU etc. Comes under this category.
- 4) Consumer Gadgets: - Television, Refrigerator, Microwave oven, Camera, Tablet Computer, DVD player, Videogame Console etc. Comes under this category.
- 5) Lighting Gadgets: - LED Lamps, LED Strip Lights, Fluorescent Lamp, etc. Comes under this category.

- 6) Medical Devices: - Medical Devices like MRI machine, Endoscopy Machine, Monitors, ECG machine etc. Comes under this category.
- 7) Monitoring and Control Devices: - Monitoring and Control devices like relay logic circuits, programmable logic controllers, and computer, camera etc. Comes under this category.
- 8) Automatic Dispenses: - Automatic dispenses like Automatic juice dispenser, Automatic wending Machine, Automatic coffee dispenser, Automatic Tea dispenser, Automatic Milk dispenser etc. Comes under this.
- 9) Toys, Laser and Sports Gadgets: - Toys include Remote Control Cars, laser guns, etc. Laser like Laser gun, Laser printer, Laser Pointer, etc. Sports Gadgets like Fitness Smart band, Smart watch etc. Comes under this category.
- 10) Electrical and Electronic Tools:- Like Resistor, Capacitor, Inductor, CRO, DSO, LED'S, Batteries, Voltage regulator, Variable Resistor, Transistor, motors etc. comes under this category.

1.3 Reasons of why E-waste has bad impact on human Health:-

- 1) Dismantling & Recycling Yards are very few:- One of the problem behind e-waste is that dismantling and recycling yards are very less, since the proper place is not present to dismantle and recycle the e-waste, therefore e-waste is not dispose properly and hence it is thrown or burnt which causes various harmful diseases to human. And not only human gets affected but also animals; our environment gets affected by this.
- 2) Dismantling Substance contains harmful gases and other toxic substances like heavy metals like lead, cadmium, mercury etc. Which are drain into ground water with the help of soil and it contains potential to pollute air, water, and soil of the surrounding where they are disposed.
- 3) While dismantling the worker in case have not wear industrial gloves, helmets, masks etc. May get injured and because of toxic chemicals, metals etc. It even causes death.

- 4) Since the electronic products have become affordable due to which anyone can easily buy it therefore people prefer purchasing new products instead of repairing old one.
- 5) Manufacturing and recycling rates is also the reason behind increased volume of electronic waste.
- 6) Because of High worker cost developed countries are avoiding e-waste recycling and instead of recycling they are dumping it in developing countries where this e-waste get recycled using some techniques with less regards for workers safety.

2. Literature Review:-

1.4 Impact of E-waste on Human Health

Toxic Materials	Diseases	Equipment's List were Toxic Materials are used.
1) Plastic	Generate dioxins and Furans.	Used in washing machines, microwave oven, electric kettles etc.
2) Americium	Causes Bone Cancer since it emit radioactive particles.	Used in Smoke Alarm
3) Mercury	Mercury Causes Sensory Impairment, Dermatitis, Memory Loss, Muscle Weakness.	Used in Fluorescent Tube, Tilt Switches, and Flat Screen monitor.

4) Sulphur	Causes Damages to Important Organ like Liver, Kidneys, and Heart and also causes Eye and Throat irritations.	Used in Lead Acid Batteries.
5) BFR	Causes Impaired Development of Nervous system, thyroid and Liver Problem.	Used in Flame Retardants in plastic.
6) Cadmium	Causes Server Damage to the lungs, also causes Kidney Damage. Also causes Deficient in cognition learning behavior, neuromotor skills in children.	Used in Rechargeable batteries
7) Lead	Causes Impaired Cognitive function, behavioral Disturbances attention deficits, hyper activity,	Used in Soldering Agents, CRT monitors glass, Lead Acid Batteries.
	conduct problem, lower IQ.	
8) Beryllium Oxide	Causes irritation to skin and causes burning sensation on skin. Higher exposure causes skin ulcers, breathing beryllium oxide can irritate the noise, throat & lungs.	Used in Thermal interface material such as Thermal grease used on heat sinks for cpu and power transistor, magnetrons, X-ray transparent ceramic window, heat transfer fern, In vacuum Tubes, gas laser.

9) Hexavalent Chromium	Causes Asthma, Eye irritation, Kidney and Liver Damage, Pulmonary Congestion, and edema upper abdominal pain, nose irritation and damage, respiratory ,cancer, skin irritation & erosion.	Used in metal finishing and chrome plating, stainless steel production, leather tanning, and wood preservatives.
10) Nickel	Causes Lung Cancer, Nose Cancer, Laryns Cancer, Prosted Cancer, asthma, and Chronic Drumictic, Charcinogenic.	Alloys ,Batteries, Relays, Semiconductor, pigments.

1.5 Solutions on How to Reduce E-waste:-

Following are the solutions to reduce E-Waste:-

1) Reduce 2) Reuse 3) Recycle 4) Awareness

1) Reduce: - It is very difficult for us to stop using electronic devices but we can reduce their usage. Because of which production of E-waste will be lesser. What we should do is to use our electronic devices until it get fully damage and we cannot use it. Then only we should buy new electronic device. Don't get attracted towards new technology or new devices and because of that don't buy new electronics devices.

2) Reuse:- Reusing will not only help for reducing E-waste but it will stop production of more Electronic devices and less material will be bought because of which money, time etc. will be saved. And what we need to do is when you don't required your old phone, TV, any other electronic devices give it to the person who need it may be it can be old age home, shelter home, NGO, Poor people, Employee etc.

3) Recycle: - Recycle this term is very useful in stopping e-waste production. Here what we should do is you can give your old phones, etc. Electronic devices to your nearest electronic manufacturing company, shops or on the place where you bought your product, or you can give it to recycling company, where they can take out their needed component and destroy this product and create new one from that old Product. (Certified E-waste Recycler give your old product to them.)

4) Awareness: - Awareness means you can tell people, students to visit nearest recycling company and observe and give your electronic product to them for recycling. School, college can organize different programs like Webinar, Projects, and Posture Making etc. To create awareness about e-waste and their harmful effect on humans. Educate people about e-waste. You can organize campaign on awareness of e-waste.

3. Conclusion:-

From above all research we concluded that E-waste has very harmful effects on human. And it is not easy for us to completely stop using Electronic devices since it help us in every work may be in professional life like devices like Printer, Scanner, Laptops, Copying Machine etc. And in Personal life devices like Refrigerator, Television, Computer, Mobile Phones, Microwave Oven help us in our Household. But we can reduce it and reuse and recycle our old electronic devices so that they don't become e-waste and we can reduce the percentage of e-waste production it will be very helpful for our human kind and environment.

In this paper we have also provided Solutions to Reduce E-waste.

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