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‘’ A REVIEW ON: TOXIC CHEMICALS IN E-WASTE AND ITS IMPACTS ON THE ENVIORNMENT ‘’

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ABSTRACT

E-waste is very serious issue in recent time because they contains very harmful and toxic chemicals. So the proper treatment and management very necessary for the e-waste products.Recycling is the best option for the treatment of e-waste.

Key words: E-waste,Equipments,Toxic,Chemicals.

INTRODUCTION:

Electrical and electronic equipments and its parts that have been discarded by the users as waste without the purpose of re-use or re-cycle is called Electronic Waste. The problem is that electronic gadgets can potentially have no resale value at the end of their useful life. Another issue occurs in relation to the resale of the electronic items such as Laptop and Smartphones will contains data which are very much sensitive so the e-waste disposal is distinguished and a completely reliable way to discard the unwanted technological and electronic material. The electronic gadgets has been used for the business purposes they contains sensitive information so that the e-waste is only option for dispose the electronic items.

Electronic waste or E-waste is defined as any broken or unwanted electrical or electronic appliance such as computers, consumer electronics, phones, medical equipments, toys and other items that have been discarded by their original users and E-waste also include waste, which is generated during the manufacturing or assembling of such Equipments.

Composition of E-Waste:

The recyclable potential of e -waste is specific for each appliances. The parts, materials found in it can be broadly classified into six categories:

1.Iron and steel used for casings and frames.2.Non-ferrous metals especially copper used in cables, aluminum and gold.3.Glass 4.Plastic 5.Electronic components 6.Other materials such as rubber,wood, ceramic etc.

Common types of e- waste:

Infocomm technology (ICT) equipment’s such as Desktop, Laptop, Tablet computers, Mobile Phones,

Computers and Mobile phone batteries, peripherals and accessories such as keyboards, modems, monitors, computer mice, docking stations, hard disk drives, printed circuit boards, battery chargers etc.and home appliances such as TV, Fridges, Air conditioners, Washing Machine Rice cookers, Microwave and Toaster ovens, Electric kettles, Food processors and Blenders, Electric fans, DVD (video,music players), Radios, Vaccum Cleaners, etc. other types of e-waste include Lamps & Lighting, Electronic toys, Batteries, Sport and Leisure equipment's are including in e-waste management.

Diposal the E-waste:

Recycling of e-wastes protects the human and environmental health. Improper disposal of e-waste leads to environmental pollution and harm for human health. Recycling of electronic wastes are important need to protect human and environment. Because they have very high impact on the environment, the pollution due to the increasing electronic wastes as led to the recycling of electronic waste on a larger scale.

Recycling of E-Waste:

E-waste recycling primarily involves two stages-

- Manual collection, sorting, separating and dismantling followed by mechanical processing which involves shredding, grinding, etc.
- Recovered materials are sent relevant facilities for further treatment and recovery of resources and materials.

Hazardous components in e-waste and their harmful effects:

We are using the electronic items everyday they contains very harmful chemicals such as Selenium exposure to high concentrations causes Selenosis, which can cause hair-loss, nail brittleness, and neurological abnormalities. Beryllum exposure can cause lung cancer and chronic Beryllium disease. Mercury exposure through ingestion or inhalation can cause central nervous system damage and kidney damage.

Chromium exposure can cause strong allergic reaction flinked to Ashmatic Bronchitis And DNA damage to cells. Workers are exposed at disposal stage. Long-term exposure of Arsenic may cause lung cancer, nerve damage and various skin diseases. Arsine gas (AsH3), used in tech manufacturing is the most toxic from of arsenic can cause liver and kidney damage. Impaired immune system function, impaired feotal development, or death. Long- term exposure to cadmium can cause kidney damage and damage to bone density. Cadmium is also a known carcinogen.

Lead exposure can cause brain nervous system damage. Blood disorder, kidney damage, and damage to feotal development. Children are especially vulnerable poly Vinyl Chloride (PVC) is the most used plastic, found in everyday electronics. When burned it produces large quantities of hydrogen chloride gas, which combines with water to form hydrochloric acid (HC1). Inhaling HC1 can cause respiratory problems. Barium exposure may lead to brain swelling, muscle weakness, damage to heart, liver and spleen, or increased blood pressure. BFR Suspected of hormonal interference (damage to growth and sexual development), and reproductive harm.

Effects of E-Wastes:

The effects on Water:

The heavy metals from e-waste, such as mercury, lithium, lead and barium, then leak through the earth even further to reach ground water. When these heavy metals reach ground water, they eventually make their way into ponds, streams, rivers and lakes. Through these pathways acidification and toxification are created in the water, which is unsafe for animals plants and communities.Acidification can kill marine and fresh water organisms, disturb biodiversity and harm ecosystems.

The effects on Soil:

When improper disposal of e-waste in regular landfills or in places where it is dumped illegally, both heavy metals and flame retardants can seep directly from the e- waste into the soil causing contamination of underlying ground water or contamination of crops that may be planed near by or in the area in the future. When the soil is contaminated by heavy metals, the crops become vulnerable to absorbing these toxins, which can cause many illnesses and doesn't allow the farmland to be as productive as possible.

The effects on Air :

Contamination in the air occurs when e- waste is informally disposed by dismantling , shredding or melting the materials, releasing dust particles or toxins, such as dioxins, into the environment that cause air pollution and damage respiratory health.They creating numerous negative health risks to humans and animals The consequences of improper e-waste disposal in landfills or other non-dumping sites pose serious threats to current public health and can pollute ecosystems for generations to come.

The effects on Humans:

Electronic waste contains toxic components that are dangerous to human health, such as mercury, lead, cadmium, polybrominated flame retardants, barium and lithium. The negative health effects of these toxins on humans include brain, heart, liver, kidney and skeletal system damage. It can also considerably affect the nervous and reproductive systems of the human body, leading to disease and birth defects so the improper disposal of e-waste is very dangerous to the global environment.

The effects on Enviornment:

When electronics are improperly disposed toxic chemicals are released, impacting the earth's air, soil, water and ultimately human health. E-waste are the source of heavy metals and hazardous chemicals. So the proper management and disposal of E-waste is very necessary to the health and enviornment.