

Electronic Waste

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A dark blue diagonal gradient bar that starts from the bottom left corner and extends towards the top right corner, covering the lower half of the slide.

What is Electronic Waste?

Electronic waste is defined as electronic products nearing the end of their "useful life"

Computers, televisions, VCRs, stereos, copiers, and fax machines are common electronic products.

Many of these products can be reused, refurbished, or recycled.

In 2006, the United Nations estimated the amount of worldwide electronic waste discarded each year to be

50 million ton

The amount of global e-waste is expected to grow by

8% /yr

By 2050 we will have

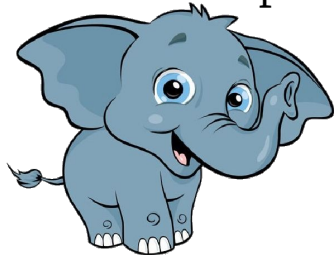
120 million tonnes

per year of e-waste

5 ton = 1 elephant

50 million ton = 10 million elephants

Current Elephant population = 400,000



5 ton = 1 elephant

120 million ton = 24 million elephants

Elephant population in 2050 = 148,000

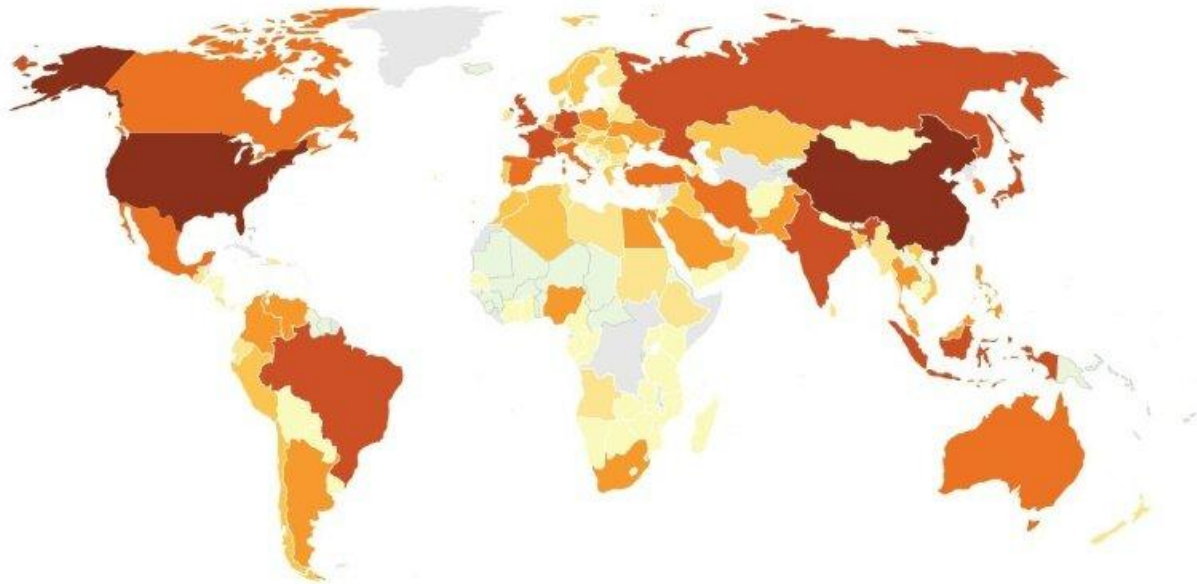


~ 150% ↑

~ 65% ↓

Electronic waste

E-waste generated in kilotonnes, 2016



Worst polluters

CHINA	US	JAPAN	INDIA	GERMANY	UK
7,211	6,295	2,139	1,975	1,884	1,632

Source: ewastemonitor.info

**melting
plastics
without
proper
ventilation**

E-waste generated from richer developed countries is being exported to poorer developing/undeveloped countries for recycling; one of the reasons being that the labor cost for recycling in these countries is minimal compared to recycling or disposing of the e-waste domestically. However, the recycling industries in these countries, which include China, India, Pakistan, Vietnam, and the Philippines, are often crude and do not have the appropriate facilities to safeguard environmental and human health. Unsavagable materials are disposed of either by dumping in fields and rivers or by open burning.

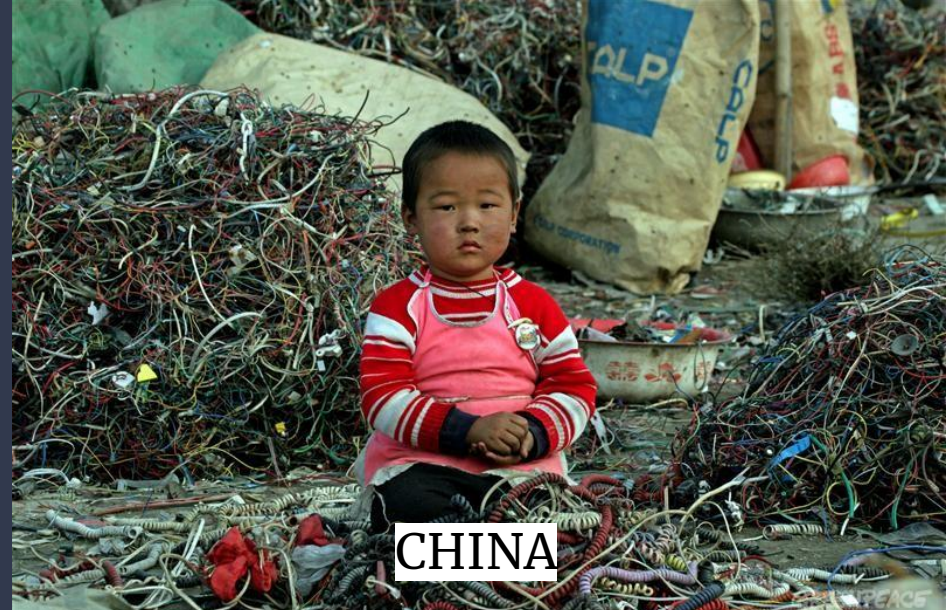
**circuit
board
removal by
heating
over a grill**

**Stripping
metals in
open pit
acid baths**

**recovering
metals by
burning
cables and
parts**



INDIA



CHINA



GHANA



PAKISTAN

Effects of E-WASTE

Discarded computers, televisions, refrigerator, drives, fax machines, electric lamps, cell phones, radios, and batteries if improperly disposed of can leak toxic substances like cadmium, lead, copper, chromium and other substances into soil, groundwater, air.

1. Lead
2. Mercury
3. Sulfur
4. Cadmium
5. Perfluorooctanoic acid (PFOA)

How these Chemicals Affect Us!

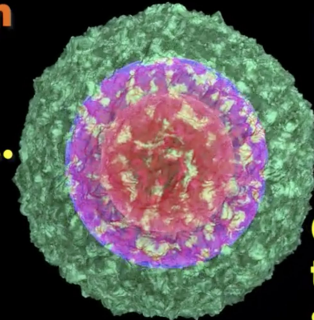
Lead: It is found in batteries, solder and cathode ray tubes (CRTs). Exposure to lead would cause behavioral disturbances, attention deficits, hyperactivity, and lower IQ. These effects have a high impact on the growth of children. They adversely affect the nervous system, causing mental disorder.



Perfluorooctanoic acid (PFOA): It is found in non-stick cookware, exposed via production facilities or industries. Studies have found increased maternal PFOA levels to be associated with an increased risk of spontaneous miscarriage and stillbirth.

PFOA is a carcinogen that has also been linked to ...

Thyroid disease



Accelerated puberty

Liver damage

Changes to the immune system

app.

Sulfur: It is found in lead-acid batteries. If it is released in the environment, it can create sulphuric acid through sulfur dioxide which is a dangerous corrosive acid. Sulfur can cause liver damage, kidney damage, heart damage, eye and throat irritation.



Cadmium: It is found in light-sensitive resistors, corrosion-resistant alloys, and nickel-cadmium batteries. Cadmium can leach into the soil, harming microorganisms and disrupting the soil ecosystem. It can damage lungs and kidney. Cadmium can also affect the growth of children.



Mercury: It is found in fluorescent tubes, thermostats, and flat screen monitors. Health effects include sensory impairment, dermatitis, memory loss, and muscle weakness. Environmental effects in animals include death, reduced fertility, and slower growth.



PROCESS

Recyclables enter facility and are weighed and recorded



TVs and monitors are sent to TV Land to be demanufactured



Materials are sorted and graded



Higher-grade materials (CPUs, laptops) are demanufactured by hand



Resulting materials: circuit boards, wire, plastic, lead tubes



Lower grade components (printers, keyboards, copiers) are sent up a conveyor belt to a machine known as "The Beast", which shreds them



Resulting material: Copper aluminum, steel, lower-grade circuit boards



Resulting materials: circuit boards, wire, steel, plastic

Broken-down scrap metals are collected, packaged and then sold up the value chain to other metal processors around the globe. These scrap metals will be melted down and eventually used to build new components and other goods made with metal.



Founded in 2002 and headquartered in Hudson Ohio, e-Waste helps companies of all shapes and sizes recycle their outdated technology assets in a safe, secure and responsible manner.

At e-Waste, we go beyond industry standards to provide efficient, ethical and environmentally friendly services. Our disposal methods are compliant with SOX404, HIPAA, Graham-Leach-Bliley and the EPA and we have a zero land fill policy, recycling or remarketing 100 percent of the assets we assume.

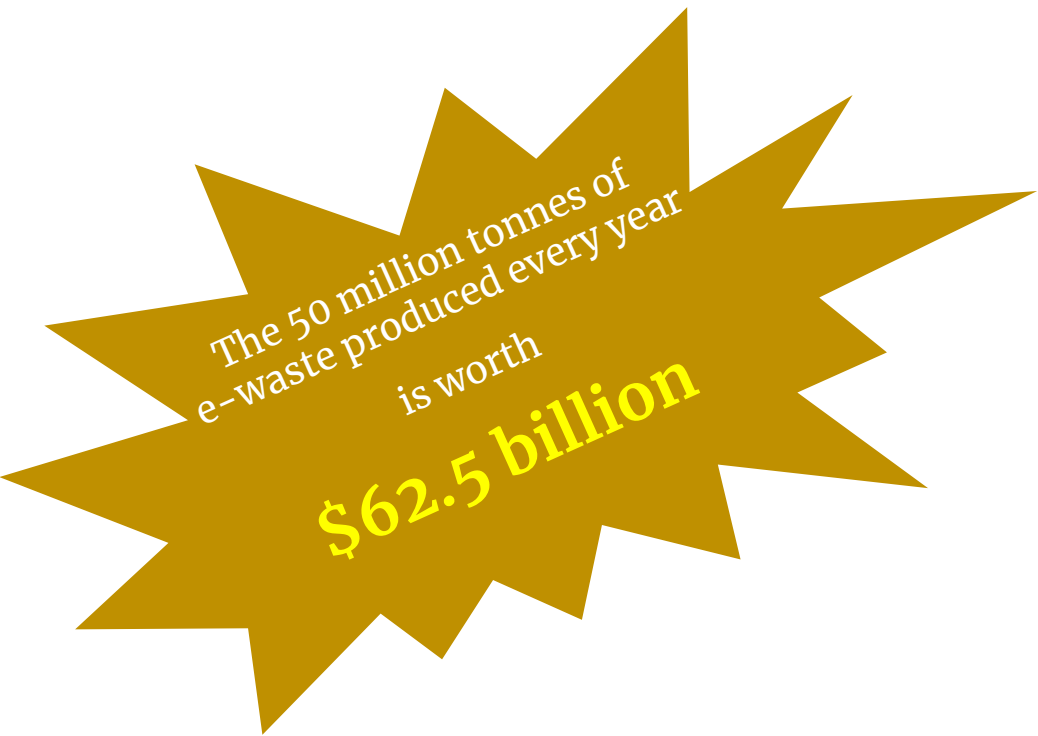
We also adhere to R2 Certified industry standards and help our clients mitigate risk through a detailed documentation process that includes a complete audit report, fully insured certificates of destruction and a letter of indemnification that verifies data erasure, destruction of data and disposal compliance.

e-Waste offers a full suite of IT asset management and disposal services, including asset tracking, residual forecasting, portfolio planning, certified DoD data erasure, IT Asset Recovery/Asset Purchase programs (liquidation of unwanted equipment and trade-in credit or revenue sharing programs) and fully certified, comprehensive electronic waste recycling. This suite of services solves all of a corporation's core disposal requirements, specifically ensuring compliance and indemnification against any downstream violations of data or improper recycling practices.

Our services are offered to clients directly or through Value-Added Resellers (VARs) and OEMs. Product specialties include Rugged Mobile Handheld products and bar-code scanning devices (AIDC), computers, servers, networking equipment, telecom/cell phones, data storage, printing, mobility, tablets and smartphones.



Ethical, Efficient, and Eco-Friendly Organizations



The 50 million tonnes of
e-waste produced every year
is worth

\$62.5 billion

There's **80** times as much gold in one ton of cellphones as there is in a gold mine.

The process of recovering materials from discarded electronics is called
“urban mining”
by the journal *Environmental Science & Technology*.

Urban mining makes more financial sense than mining for new materials from the earth.

Apple debuted Daisy, a robot that disassembles old iPhones to recycle the materials inside.

Reuters covered a South Korean factory that specializes in retrieving precious metals from car batteries.

Tokyo 2020 Medal Project

The Tokyo Organising Committee of the Olympic and Paralympic Games (Tokyo 2020) conducted the “Tokyo 2020 Medal Project” to collect small electronic devices such as used mobile phones from all over Japan to produce the Olympic and Paralympic medals.

“the metric ton of circuit boards can contain 40 to 800 times the amount of gold, and 30 to 40 times the amount of copper mined from one metric ton of ore in the United States.”

In the two years between April 2017 and March 2019, 100% of the metals required to manufacture the approximately 5,000 gold, silver and bronze medals have been extracted from small electronic devices that were contributed from people all over Japan. Every single medal that will be awarded to the athletes during the Tokyo 2020 Games are made from recycled metals.

Conclusion

To tackle electronic waste:

The sale of Nickel-Cadmium batteries has been banned in the European Union except for medical use.

Nonfunctioning CRTs from televisions and monitors are classified as hazardous by California law.

WHAT WE CAN DO:

We should segregate electronic waste from regular trash.

We should hand it over to the services who take care of these waste materials in an organized manner.

We should reuse still functioning electronic equipment by donating or selling it to someone who can use it.

WHAT CAN WE DO IN NY?

<https://www1.nyc.gov/assets/dsny/site/services/electronics/electronics-drop-off-locations>

DSNY Electronics Drop-Off Locations

Host SAFE Disposal Events (Solvents, Automotive, Flammables, and Electronics) throughout the year in all five boroughs to give residents a location to drop off their harmful household products safely.

https://www.staples.com/sbd/cre/marketing/about_us/corporate-responsibility/environment/recycling-solutions/

Staples has been offering free office electronics recycling to all retail customers in the U.S. since 2012. Customers can bring any brand of office technology in any condition, regardless of where they purchased it, to Staples® stores for free recycling by our recycler, ERI Direct.

SOURCES

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