E-WASTE HAZARDOUS ON GLOBAL TRADE

- Essential factors in global waste trade economy
- Waste trading as a quint essential part of electronic recycling
- Free trade agreements as a means of waste trading
- Import of hazardous e-waste in India
- India‘s stand on liberalizing import rules
- E-waste economy in the organized and unorganized sector
- Estimation and recycling of e-waste in metro cities of India

Essential factors in global waste trade economy

- The global waste trade is the international trade of waste between countries for further treatment, disposal, or recycling. Toxic or hazardous wastes are often imported by developing countries from developed countries.
- Specifically, countries which produce more solid waste are more economically developed and more industrialized. The report explains that "Generally, the higher the economic development and rate of urbanization, the greater the amount of solid waste produced”. (Global North to Global South).
- Multiple factors like which countries produce waste and at what magnitude, including geographic location, degree of industrialization, and level of integration into the global economy.

Essential factors in global waste trade economy

- Current supporters of global waste trade argue that importing waste is an economic transaction which can benefit countries with little to offer the global economy.
- Countries which do not have the production capacity to manufacture high quality products can import waste to stimulate their economy.
- Various studies have investigated the environmental and health effects of this e-waste upon the people who live and work around electronic waste dumps. Heavy metals, toxins, and chemicals from these discarded products into surrounding waterways and groundwater, is poisoning the local people who work in these dumps, local children searching for items to sell, and people living in the surrounding communities are all exposed to these deadly toxins.

Essential factors in global waste trade economy

- Most of the electronic waste is shipped to developing countries in Asia and Africa to be processed and recycled.
- Only 17.4% of electronic waste is recycled globally, leading to heightened environmental and health issues, particularly in economically developing countries.
- China is not the only importer of the US e-waste.
- This e-waste contains toxic materials that are poisoning the nearby area.
- India is a net importer of waste paper, because the country is effective in the utilization of waste paper.

Waste trading as a quint essential part of electronic recycling

- E-waste contains hazardous constituents that may negatively impact the environment and affect human health if not properly managed.
- In many countries, because of lack of adequate infrastructure to manage wastes safely, these wastes are buried, burnt in the open air or dumped into surface water bodies.
- Challenges faced by WEEE management are not only consequences of growing quantities of waste but also the complexity of WEEE; it is one of the most complex waste streams because of the wide variety of products from mechanical devices to highly integrated systems and the accelerating technological innovations.

Waste trading as a quint essential part of electronic recycling

- Recycling electronic waste has become an increasingly important environmental issue as the useful life of electronic devices becomes shorter and the list of electronic gadgets we use becomes longer.
- E-waste recycling benefits are numerous and the need to address these items in the solid waste stream is becoming more urgent.
- **There are many factors to consider when evaluating electronics recycling, but here are the most significant reasons why e-waste recycling is important :**

  - It’s critical to keep electronic waste out of landfills.
  - Electronic products are comprised of valuable materials such as precious metals like gold, silver and platinum along with copper, aluminum, plastic and glass.
  - Reclaiming valuable materials from the recycling process means there will be decreased demand for new raw materials.
  - Using recycled material will also help reduce greenhouse gas emissions produced when manufacturing or processing new product
  - Discarded electronic devices can also be kept out of the landfill if they are refurbished, reused and donated to a worthy cause…

Free trade agreements as a means of waste trading

- A free trade agreement is a pact between two or more nations to reduce barriers to imports and exports among them.
- Under a free trade policy, goods and services can be bought and sold across international borders with little or no government tariffs, quotas, subsidies, or prohibitions to inhibit their exchange.
- Governments with free-trade policies or agreements in place do not necessarily abandon all control of imports and exports or eliminate all protectionist policies.
- For example, a nation might allow free trade with another nation, with exceptions that forbid the import of specific drugs not approved by its regulators, or animals that have not been vaccinated, or processed foods that do not meet its standards.

Free trade agreements as a means of waste trading

- **Advantages and Disadvantages of Free Trade**
  - Rapid Development
  - Lower Global Prices
  - Unemployment and Business Losses
  - Increased Dependency on the Global Market
- It is reported that Japan and the EU are currently negotiating a similar FTA with India which could result in enormous increase in the import of waste severely hampering environmental safeguard measures.

Import of hazardous e-waste in India

- India is one of the largest waste importing countries in the world. All types of wastes are imported into the country, in the form of cheap raw materials including hazardous and toxic wastes.
- India imports most of its Electronic waste from Belgium, Germany and United States.
- For the management and handling of hazardous waste, the Ministry of Environment & Forest has passed the Hazardous Waste (Management & Handling) Rules, 1989 under the Environment (Protection) Act, 1986.
- In 2009, India generated 5.9 million tonnes of hazardous waste domestically and imported 6.4 million tonnes.69 It generates about 3,50,000 tonnes of electronic waste every year and imports another 50,000 tonnes.

Import of hazardous e-waste in India

- The two main hubs where e-waste is re-cycled in the country are Delhi and Mumbai. The other two major hubs are Hyderabad and Bangaluru which have been the centres of the electronics and information technology industry
- India has been the destination of the hazardous and industrial wastes like :
  - *mercury, electronic and plastic wastes from the United States*
  - *asbestos from Canada*
  - *defective steel and tin plates from the E.U., Australia and the U.S.*
  - *toxic waste oil from the United Arab Emirates, Iran and Kuwait*
  - *zinc ash, lead waste and scrap of metals such as cadmium, chromium, cobalt, antimony, hafnium and thallium from Germany, Denmark, the Netherlands, the United Kingdom, Belgium and Norway.*
- These wastes contain toxic components which are damaging to the public health and environment.

India's stand on liberalizing import rules

- India has also felt the pressure from the developed countries to liberalize its import rules to allow access to its markets for their re-manufactured goods.
- It is argued by the countries like U.S., Switzerland and Japan that promoting trade in re-manufactured goods helps both the developed and the developing countries by increasing access to low cost, superior quality products while helping solid waste management and encouraging transfer of technology and skills.
- But India is apprehensive that it could lead to a deluge of import of low-quality cheap goods and actually amount to transfer of waste from the developed to the developing countries.

India's stand on liberalizing import rules

- Thus, it has opposed suggestion by some developed countries for more liberal trade in remanufactured goods or refurbished old products apprehending that it could harm the country's domestic industry and also have adverse environmental ramifications.
- Agreeing with the Government's stand on the issue, Amit Mitra quoted as saying, "Unrestricted imports of remanufactured goods would adversely impact our domestic manufacturing sector and also have the risk of diluting safety standards and dumping of e-waste".

E-waste economy in the unorganized sector

- India has the label of being the second largest e-waste generator in Asia.
- More than 90 per cent of the e-waste generated in the country ends up in the unorganized market for recycling and disposal.
- The unorganized sector mainly consists of the urban slums of the metros and mini-metros, where recycling operations are carried out by the unskilled employees using the most rudimentary methods to reduce cost.
- Workers face dangerous working conditions as they may be without protection like gloves or masks. Released gases, acid solutions, toxic smoke and contaminated ashes are some of the most dangerous threats for the workers and for the local environment.

E-waste economy in the unorganized sector

- Very often child labor is employed to separate the parts from the circuit boards, utilizing wire cutters and pliers. After some pin straightening, some of the Integrated Circuits (IC) chips and components are sold for reuse.
- The items that are not worthy of re-use go directly to the open fires to reduce them to metals.
- After burning, the ashes are floated in water to remove lighter ash. Another process involves utilizing nitric acid on the circuit boards to remove gold and platinum.
- Both methods, open burning and acid baths, are fraught with occupational health risks as well as risks to the people living in the surrounding community.

E-waste economy in the organized sector

- In July 2009, organized recyclers formed the e-waste recycler's association but facing stiff competition from the unorganized sectors, they have been able to capture only 10 per cent of the total share of the e-waste market.
- A problem facing the organized sector is the lack of proper collection and disposal mechanisms and appropriate technologies in the face of a large informal sector.
- Even when these are sold or exchanged, they are refurbished and then resold. Only a small proportion of obsolete electronics products actually find its way into the e-waste processing stream.
- The formal sector also lack refineries for precious metals recovery. Therefore, according to the e-waste recyclers' association formed by organized recyclers in July, 2009, the only way to sustain formal business in the current scenario is the license to import.

E-waste economy in the organized sector

- Currently, the Attero recycling unit is the only recognized recycling facility for e-waste in India which has the license to import e-waste from the developed countries.
- Unlike the informal recyclers, the formal recyclers do not use any chemicals or incinerations and use environmentally sound processes. Clients of the formal recyclers include multinational companies which have to keep up with an environment friendly image and those which do not want their products to enter the grey market and compete with their new products.
- Unlike the organized sector, the informal dealers refurbish and sell a computer, even if it can be classified as e-waste, with some parts of it in working condition.
- About 10 per cent of the e-waste generated every year is recycled and the remaining is refurbished.

Estimation and recycling of e-waste in metro cities of India

NEW DELHI

- A report found that 70 per cent of electronic waste collected at recycling units in New Delhi was actually exported or dumped by the developed countries.
- In Delhi, it was estimated that about 5,000 metric tonnes (MT) of hazardous waste was produced annually. The amount of e-waste generated annually is about 12,000 tonnes. Though not the leading generator, Delhi is the leading processing centre of e-waste in the country.
- The work takes place in small illegal units where neither regulations nor environment or health safeguards are in place.

Estimation and recycling of e-waste in metro cities of India

- There are many factors that contribute to the thriving e-waste recycling business in Delhi - its status as the capital and hence its connectivity to all parts of the country.
- The ewaste hub on the north-eastern fringe of Delhi, the Seelampur market is also called the largest electronics dismantling market in the country, where over 50 per cent of used computers end up for sale and recycling.
- Since waste processing is illegal in Delhi, the Government does not have an exact estimate of how much waste is produced in the city or how much is brought in for recycling. Even though officials claim that the units have moved out of Delhi, they cannot be sure of the numbers as the work largely takes place in the unorganized sector.

Estimation and recycling of e-waste in metro cities of India

MUMBAI

- Among Indian cities, Mumbai ranks first among top ten cities generating WEEE in India.
- The market of e-waste in Mumbai is not concentrated in a single place, but spread over different areas, each handling a different aspect of recycling. The city has a large network of scrap traders.
- In spite of the absence of proper technology, each component is disassembled and recycled or reused in Mumbai.
- Most of the WEEE generated in the Pune Region is transported to the Mumbai Metropolitan Region (MMR) for further treatment and distribution.

Estimation and recycling of e-waste in metro cities of India

- As per country level e-waste assessment study, Mumbai generates maximum wastes among all the cities in India.
- Total electrical and electronic waste generation in
  - *Maharashtra is 20270.6 tonnes, out of which*
  - *Navi Mumbai contributes 646.48 tonnes,*
  - *Greater Mumbai 11017.06 tonnes,*
  - *Pune 2584.21 tonnes,*
  - *Pimpri-Chinchwad 1032.37 tonnes.*

Estimation and recycling of e-waste in metro cities of India

BENGALURU

- In Bengaluru, the Silicon capital of India, e-waste recycling is a multi-crore market.
- The e-waste recyclers earn around Rs. 2-3 lakhs a month from selling the dismantled e-waste to Delhi. There are a few recycling centres in Karnataka like e- Wardd, e- Parisara, Ash Recyclers.
- According to industry surveys, 8,000 to 10,000 tonnes of e-waste is generated each year by IT firms and electronics manufacturers in and around Bengaluru.
- While the larger companies have warehouses for storing the waste, others sell them to small-time scrap dealers.

Estimation and recycling of e-waste in metro cities of India

- The dealers, many concentrated around Mysore Road, often employ women and children to deal with the scrap and remove usable metal.
- What cannot be used at all is thrown into fields and channels or burned under unsafe conditions.
- Apart from affecting the health of the employees of the scrap dealers, air, soil and ground water also get polluted.
- Annual e-waste generation in Bengaluru from computer and printer, television and mobile phone is 6743.87 MT.

Estimation and recycling of e-waste in metro cities of India

HYDERABAD

- Hyderabad has been known as the emerging Silicon capital of India.
- The annual e-waste generation has been estimated for Hyderabad at 3,263,994 MT from computers, printers, television and mobile phones.
- Most of the e-waste collectors and recyclers only do size reduction (shredding) and segregation.
- After segregation, the waste is sent to e- Parisara(Bengaluru) and in turn it gets exported to Belgium along with its waste for precious metal recovery.
- Resource recovering facility is available only in Belgium.

Estimation and recycling of e-waste in metro cities of India

- With the fast rate of technological changes and growing dependency on information technology and other modern electronic household items, the quantum of e-waste is set to rise in every electronic item.
- Since most of the e-waste finds its way to the unorganized sector with profit as the prime motivating factor, ewaste recycling undeniably requires better management and improved working environment guided by strict regulations.

THANK YOU