E- WASTE "AN UNPRECEDENTED PROBLEM IN INDIA"

SARITA ABHAY DHAWALE

Assistant Professor, Ashoka Center for Business and Computer Studies, Nashik, India

ABSTRACT

The demand for computers and accessories in particular is phenomenal as a result of increasing e-literacy and the common use of these gadgets in most offices, schools and other institutions, in line with current trends in the global electronic and information age. The emergence of the information age has underscored the critical role that information, knowledge and technology can play in a nation's development and for global connectivity.

Electronic waste (E-waste) encompasses a broad and growing range of electronic devices ranging from large household appliances such as refrigerators, washers and dryers, and air conditioners, to hand-held cellular phones, fluorescent lamp bulbs (tubes), and personal stereos. Where once consumers purchased a stereo console or television set with the expectation that it would last for a decade or more, the increasingly rapid evolution of technology has effectively rendered everything "disposable." Consumers no longer take a malfunctioning toaster, VCR or telephone to a repair shop. Replacement is often easier and cheaper than repair. And while these ever improving gadgets– faster, smaller, and cheaper – provide many benefits, they also carry a legacy of waste. Electronic waste already constitutes from 2% to 5% and is growing rapidly. Studies estimate that the volume of electronic waste is rising by 3% to5% per year – almost three times faster than the municipal waste stream.

E-WASTE electronic waste has become a common spoke able term in world media, when Hollywood Hits such as Wale – e come into the theaters, But what about know, what is Happening Know towards this problem Of course a lot is contributing but problem of house could not be solved by the soldiers of Giants, more clearly we require solutions that could solve the problem much at ground domestic level, Hence In Present study we have tried to cover the whole scenario of e-waste present in world, especially in INDIA, there is no other destination for when it comes to environment then Greenpeace being so large and diverse in nature the organization is given a full documents that how much e-waste is present in world. what are it causes, who is responsible for it too. By Including their search in this present in work we concluded most important fact that e-waste was not a problem because it have already have many solutions and due to it unprecedented continuum nature we need batter domestic solution.

KEYWORDS: E-Waste, Electronic Waste

INTRODUCTION

Electronic waste (E-waste) encompasses a broad and growing range of electronic devices ranging from large household appliances such as refrigerators, washers and dryers, and air conditioners, to hand-held cellular phones, fluorescent lamp bulbs (tubes), and personal stereos. Where once consumers purchased a stereo console or television set with the expectation that it would last for a decade or more, the increasingly rapid evolution of technology has effectively rendered everything "disposable." Consumers no longer take a malfunctioning toaster, VCR or telephone to a repair shop. Replacement is often easier and cheaper than repair. And while these ever improving gadgets– faster, smaller, and cheaper

– provide many benefits, they also carry a legacy of waste. Electronic waste already constitutes from 2% to 5% and is growing rapidly. Studies estimate that the volume of electronic waste is rising by 3% to5% per year – almost three times faster than the municipal waste stream.

It is quite strange that we all are moving towards a Digital age that is Not clean And cost efficient .what this mean is clear from this paper of "Increasing mobile waste an ever escalating Situation". Let it be clear that why it is a situation Not a Problem? A Problem means "doubtful or difficult matter requiring solution" but this situation have already have a solution that is already have been proposed so, it can't be said as a problem.
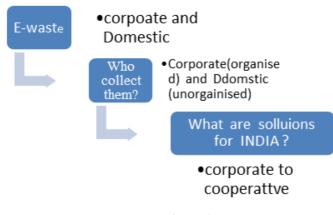
Many years from now, long ago we all used to have small computers, T.V's and also the youngest Transmitter all used with new approach lead to formation of computers, iPhones and many more distinct technology. But question arises what happen to it after we have used it.

There have been huge amount of research that have been conducted to rethink about what we have to do in order to make this unusable technology to reusable, but one thing prevail most why are we are not much successful till now. First let us cover quickly what all we know that is how much we waste and how much we save ! Global static's has been facing a boom in every kind of waste and population in these days.

According to the US EPA, more than 4.6 million tons of e-waste ended up in US landfills in 2000. Toxic chemicals in electronics products can leach into the land over time or are released into the atmosphere, impacting nearby communities and the environment. In many European countries, regulations have been introduced to prevent electronic waste being dumped in landfills due to its hazardous content. However, the practice still continues in many countries. In Hong Kong for example, it is estimated that 10-20 percent of discarded computers go to landfill.

WHAT IS EXACTLY ELECTRONIC WASTE?

E-waste is the inevitable by-product of a technological revolution. Whether generated in your home or office, E-waste includes the broad spectrum of electronic appliances, products, components, and accessories that, due to malfunction (such as the broken toaster or the boom box that's cheaper to replace than repair), exhaustion (such as batteries, light bulbs and fluorescent tubes), or obsolescence (such as that old 286 computer you've been meaning to donate to Goodwill... or the Nintendo your kid begged you for 5 years ago, but hasn't touched since the introduction of the latest Play station) have been discarded. When disposed of in a landfill, E-waste becomes a conglomeration of plastic and steel casings, circuit boards, glass tubes, wires, resistors, capacitors, and other assorted parts and materials. Cleaned and sorted, the precious metals and other materials that make up E-waste have considerable value on the recycling market. The root problem is a lack of incentives for recycling and the relatively high cost of dismantling, cleaning and sorting. A single component of E-waste – cathode ray tubes (CRTs) – has emerged in the last 18 months as a hazardous waste crisis at the local, state, national and even international level, and is a central focus of this report. CRTs are the glass 'picture tubes' in television sets, computer monitors and other video display devices that amplify and focus high-energy electron beams to create the image we ultimately see on the screen. In order to protect consumers from radiation dangers, the glass in CRTs contains lead. Lead composes approximately 20% of each CRT; about 4 to 8 pounds per unit. Lead is a toxic heavy metal, exposure to which poses a serious public health risk. Human and animal exposure to lead can cause damage to the central nervous system and blood system and is demonstrated to have serious negative effects on the brain development of child.

Figure 1

- **Incineration**

This releases heavy metals such as lead, cadmium and mercury into the air and ashes. Mercury released into the atmosphere can bio accumulates in the food chain, particularly in fish - the major route of exposure for the general public. If the products contain PVC plastic, highly toxic dioxins and furans are also released. Brominated flame retardants generate brominated dioxins and furans when e-waste is burned.

- **Reuse**

A good way to increase a product's lifespan. Many old products are exported to developing countries. Although the benefits of reusing electronics in this way are clear, the practice is causing serious problems because the old products are dumped after a short period of use in areas that are unlikely to have hazardous waste facilities.

- **Recycle**

Although recycling can be a good way to reuse the raw materials in a product, the hazardous chemicals in e-waste mean that electronics can harm workers in the recycling yards, as well as their neighboring communities and environment.

In developed countries, electronics recycling takes place in purpose-built recycling plants under controlled conditions. In many EU states for example, plastics from e-waste are not recycled to avoid Brominates Flame Retardants and dioxins being released into the atmosphere. In developing countries however, there are no such controls. Recycling is done by hand in scrap yards, often by children.

- **Export**

E-waste is routinely exported by developed countries to developing ones, often in violation of the international law. Inspections of 18 European seaports in 2005 found as much as 47 percent of waste destined for export, including e-waste, was illegal. In the UK alone, at least 23,000 metric tons of undeclared or 'grey' market electronic waste was illegally shipped in 2003 to the Far East, India, Africa and China. In the US, it is estimated that 50-80 percent of the waste collected for recycling is being exported in this way. Mainland China tried to prevent this trade by banning the import of e-waste in 2000. However, we have discovered that the laws are not working; e-waste is still arriving in Guiya of Guangdong Province, the main center of e-waste scrapping in China. We have also found a growing e-waste trade problem in India. 25,000 workers are employed at scrap yards in Delhi alone, where 10-20000 tons of e-waste is handled each year,

25 percent of this being computers. Other e-waste scrap yards have been found in Meerut, Firozabad, Chennai, Bangalore and Mumbai

- **How did the Trade Evolve?**

In the 1990s, governments in the EU, Japan and some US states set up e-waste 'recycling' systems. But many countries did not have the capacity to deal with the sheer quantity of e-waste they generated or with its hazardous nature.

Therefore, they began exporting the problem to developing countries where laws to protect workers and the environment are inadequate or not enforced. It is also cheaper to 'recycle' waste in developing countries; the cost of glass-to-glass recycling of computer monitors in the US is ten times more than in China.

Demand in Asia for electronic waste began to grow when scrap yards found they could extract valuable substances such as copper, iron, silicon, nickel and gold, during the recycling process. A mobile phone, for example, is 19 percent copper and eight percent iron. [1]

FOCUS MUMBAI

Since liberalization began in India, no other industry has performed so well against global competition than the Software industry. The Information Technology industry in India originated in Mumbai. Among Indian cities, Mumbai Ranks first among top ten cities generating WEEE in India.

Mumbai, the financial nerve center of India, is also India's Largest port city. The Mumbai-Pune industrial belt is one of the electronic items manufacturing hubs of the country. As A result, Mumbai is not only the port of import for new and used electronics; it is also home to a large user and Manufacturer base, both generating large volumes of e-waste.

The e-waste recycling market exists in a major way in Mumbai. 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, with the main Centers in Karla, Saki Naka, Kamthipura- Grant Road, Jogeshwari and Malad97. In spite of the absence of proper technology, each component is disassembled and recycled or reused in Mumbai. The general practices of recycling of the most complex parts of PCs, for instance, circuit boards and PVC wires by open roasting and acid bath to recover different metals, has not been observed in Mumbai. Most of the WEEE generated in the Pune and Pimpri Chinchwad Region is transported to the Mumbai Metropolitan Region (MMR) for further treatment and distribution.

The items, which require extraction through wet processes are sold to traders from Delhi. Though it is claimed nothing is dumped in open fields, the report prepared by the IRG systems South Asia under the aegis of the Maharashtra Pollution Control Board (MPCB) acknowledges that the hazards involved in product recycling can cause environmental damage.

The urgent need to have a well coordinated mechanism on the collection, treatment and disposal of the e-waste in the MMR has been recognized. E-waste has been identified as a priority area by the MPCB and it has initiated certain initiatives to create awareness among various stakeholders on the e-waste. Started in 2009, the project to set up the first plant for scientific recycling of e-waste generated in the region is expected to be operational from 2010. In the first phase of the project, the capacity of the plant would be around 7,500 tons per annum, which would later be increased. Once the plant is functional, the contractor would establish e-waste collection channel in the region. 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 and Pimpri- Chinchwad 1032.37 tonnes.[2]
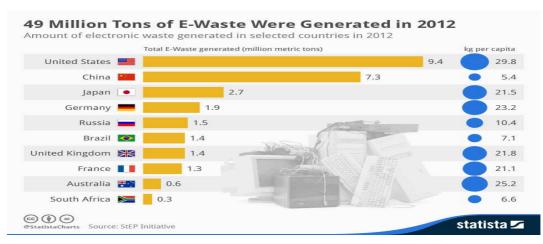

Source:http://mpcb.gov.in/pressgallery/20090325030351midday051008.jpg

Figure 2

HOW MUCH WAS IN 2012 ?

The increasing volume of E-waste is a huge problem. It is not the only issue, however; computers and other electronic and electrical equipment pose significant environmental and health hazards to our communities. Electronic waste components contain lead, cadmium, mercury, and brominated flame retardants – compounds known to be hazardous to humans and to the environment. When these items are dumped into landfills or improperly recycled, they pose a significant hazard to the environment and human health. CRTs, Mobiles,batteries,computer towers, televisions and other electronic equipment contain toxic substances. Knowing the health and environmental effects these substances lends additional urgency to solving the E-waste crisis.

There are significant risks to handling the disposal of E-waste. Recycling E-waste poses many health hazards to workers. In addition to the recent evidence of worker exposure to flame retardants,the environmental risks posed by landfilling and burning are also significant. In particular,when computer waste is landfilled or incinerated, it poses contamination problems in leachate towater sources and toxic air emissions.

Figure 3

WHAT NEED TO BE DONE: WHAT IS GOING ON FOR THIS?

Mobile phones are "considered hazardous waste" in California; many chemicals in such phones leach from landfills into the groundwater system.[3] Environmental advocacy group Greenpeace claims that the soldering of the iPhone battery into its handset hinders its being recycled. It also states that its scientists found toxic phthalates on iPhone cables, and it holds that this contravenes California's Proposition 65, which requires warning labels on products exposing consumers to phthalates.[4]

A cell phone's shelf life is only about 24 months for the average consumer.[5] This means that newer cell phone models are constantly put up on the market to replace older ones. This is as a result of the rapid progression of technology in the mobile industry. According to Matt Ployhar of Intel, the industry is rapidly evolving, possibly even at "Moore's law pace or faster."[6] This means that newer cell phone models are continually on the rise of consumerism and more outdated models are likely to end up in landfills.

PROBLEMS WHAT WE FACE?

Basically all the Math present over here is not much, we required to understand it at ground level, so I tried to analyze it with Goldratt way, so here below an art ha show how his e-waste is caused n 21st century teenage to work office people.

I started with first cause then we move on to the, deeper manner to understand the problem well.

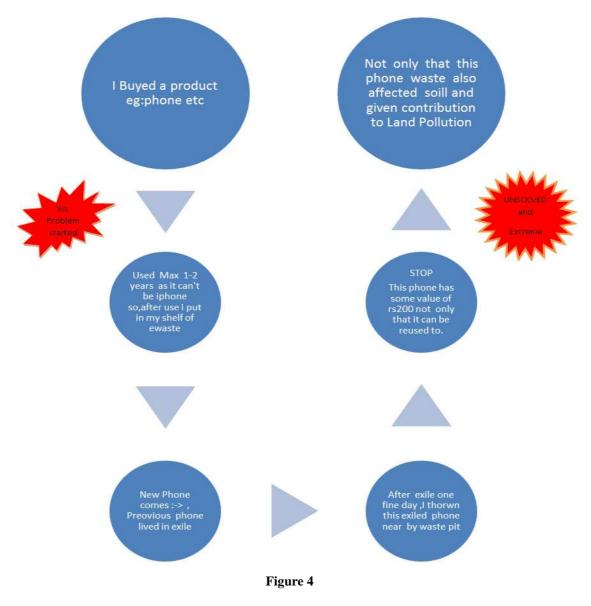It is much required to understand our daily cause and contribution to the major problem.

Most of the what happens is that we could easily read the details, and yes the various reports very well but we can't understood what we are contributing to that big problem remains, hence below we tried to culminate he whole details together.

BETTER SOLUTIONS

As we say iron for iron, that means a technology can only solve the problem of technology from my point of view, as it offer unprecedented threat to human beings so, here is some of best buyers of your waste in domestic e waste, BUT for bigger part I insist that we should try to reduce the human intervention in this crucial recycle process.

EcoATM, founded in 2008 by serial entrepreneurs Mark Bowles, Seth Heine and Michael Librizzi,[7] is the first phone-recycling kiosk. They maintain a database of more than 4,000 mint-condition handsets. After connecting with an appropriate cable, the machine will scrutinize the condition of the phones, offer to erase the data and dispense cash based on the resale value. As of 2010 10 ecoATMs had already recycled 33,000 phones with average payout $9 per phone, and 500 more kiosks were planned.[8] As of May 2013 there are 350 ecoATMs in 24 states, with two more installed per day and plans for international expansion? The company resells 75 percent of the devices to refurbishes; the rest go to e-waste recyclers who are certified by R2 Solutions or e-Stewards industry standards. EcoATM is San Diego-based[7] and since July 2013 owned by Outerwall, Inc..[9]
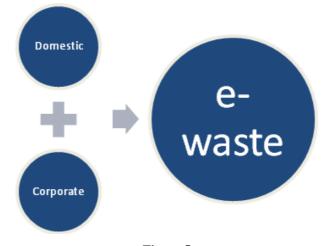
Figure 4

BETTER SOLUTIONS

As we say iron for iron, that means a technology can only solve the problem of technology from my point of view, as it offer unprecedented threat to human beings so, here is some of best buyers of your waste in domestic e waste, BUT for bigger part I insist that we should try to reduce the human intervention in this crucial recycle process.

EcoATM, founded in 2008 by serial entrepreneurs Mark Bowles, Seth Heine and Michael Librizzi,[7] is the first phone-recycling kiosk. They maintain a database of more than 4,000 mint-condition handsets. After connecting with an appropriate cable, the machine will scrutinize the condition of the phones, offer to erase the data and dispense cash based on the resale value. As of 2010 10 ecoATMs had already recycled 33,000 phones with average payout $9 per phone, and 500 more kiosks were planned.[8] As of May 2013 there are 350 ecoATMs in 24 states, with two more installed per day and plans for international expansion? The company resells 75 percent of the devices to refurbishes; the rest go to e-waste recyclers who are certified by R2 Solutions or e-Stewards industry standards. EcoATM is San Diego-based[7] and since July 2013 owned by Outerwall, Inc..[9]

CONCLUSIONS

Therefore at the end where do we have reached can provide as some very large constant context about the e-waste, the first concept what we got know is that e-waste was not a problem, it is a situation more formally we say that e –waste is of two types in our context, domestic and corporate and corporate e-waste was not problem much, but it was domestic   e-waste that caused the problem .Domestic e-waste is most of the time doesn't go to the proper place .hence, we our very much concert about its collection too.

Figure 5

Some domestic e-waste produced by our day electronic usage that go beyond the control of government or ourselves to, as we ignore its contribution to bigger basket of e-waste. Over here we suggested one option for such a problem that is expanding, its node to bigger market. E - ATM in India with franchisee to cooperative of Indian Kabarivalls can improve better collection of e-waste, produced by its dynamic and young middle class families. Strategic evaluation of electronic waste disposal was conducted by the researchers in India. The researcher sought information from both the published and unpublished documents for the review. The study established that there is strong relationship between effective strategic evaluation management and E waste disposal. The researchers concluded that there is need for the government to establish free shops in India to bring the electronic wastes from the dumping sites to their proper disposal.
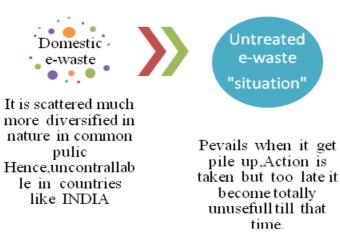

Figure 6

REFERENCES

1. E-Waste_in_ India RESEARCH UNIT (LARRDIS)RAJYA SABHA SECRETARIAT, NEW DELHI JUNE, 2011

2. http://en.wikipedia.org: Judkis, Maura (2008-07-30). "4 Ways to Earn Cash for Recycling". *Fresh Greens*. U.S. News and World Report. Retrieved 2008-03-05.

3. Greenop, Matt (2007-10-18). "Greenpeace slams Apple over 'toxic' iPhone". *New Zealand Herald*. Retrieved 2009-03-17.

4. The Daily Green Staff. "Recycle Your Cell Phone". The Daily Green. Retrieved 28 November 2012

5. Evans, Johnny. "Is the iPhone evolving faster than Moore's Law?". Computer World. Retrieved 28 November 2012.

6. Duncan, Katherine (May 23, 2013). "The Serial Entrepreneur Who Is Tackling E-Waste With EcoATMs (100 Brilliant Companies)". *Entrepreneur (magazine)*. Retrieved December 14, 2013.

7. "ecoATM". *Popular Science*. 2010. Retrieved December 14, 2013.

8. "Coinstar rebrands as Outerwall, acquires phone recycling startup ecoATM for $350M". VentureBeat. Retrieved July 2, 2013.

9. www.Greenpeace.com

10. http://livingtextblog.andosciasociology.net/20 13/04/23/ruth-noelthe-social-repercussions-of-electronic-wastes/

11. http://ewasteguide.info/files/Amoyaw-Osei_2011_GreenAd-Empa.pdf

12. http://svtc.org/wp-content/uploads/ppc-ttv1.pdf