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TECHNO-POLLUTION

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ABSTRACT

"**TECHNO POLLUTION**" is the pollution created by the technology advancements. Man's immense ease to find new things for making life comfortable as possible lead to the invention of many new things like radio, TV etc. and at one stage leading to the invention of the computers. This invention has changed the life of man completely and made world enter into new phase of technology. Man's struggle towards a better life and higher standard of living through higher consumption of natural resources i.e. land, water, air flora and fauna etc. has resulted in use of technology in daily life without considering the ill effects on environment.

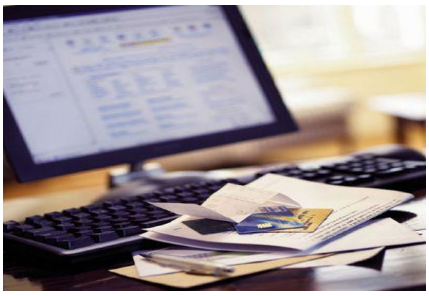
Keywords: Computer Pollution, Internet Pollution, Modern Pollution, Techno-pollution,

I.INTRODUCTION

The popularity of devices such as laptop computers, mobile phones, personal digital assistants, smart cards, digital cameras etc is rapidly increasing. Their computing capabilities are growing quickly, while their size is shrinking, allowing many of them to become more and more part of everyday life. Technology is getting smaller and complicated by each passing day, chips are getting half the size by every 18 months and performance is increasing rapidly which eventually leads disaster to environment.This is exploring the potential threat of computers, cell phones and other electronic devices to the environment i.e. Technology as a pollutant.

1.1 Computer: A growing cause of urban pollution:

Computer as we all know is becoming need of every section of society as it multi-dimensional approach, but at the same time it is also a hazard to the environment. Although computers can be used as a tool to spread awareness about problems in the environment, they cause a lot of environmental problems themselves.



Pollution caused by the production of computer hardware, as well as from the cleaning agents used to clean computers, is a great hazard to the environment and the people that live in it. The pollution caused by computers has a large effect on society. It has effects on the environment due to paper consumption, energy consumption and harm caused by toxins. This harm affects people's health and results in large economic expenses.

The biggest cause of computers being a potential pollutant is its short lifespan, which leads to the wastage. It is found that manufacturing a 24kg PC with monitor needs at least 240kg of fossil fuels to provide the energy, and 22 kg of chemicals. Add to that 1.5 times of water and your desktop system has used up the weight of a sports utility vehicle in materials before it even leaves the factory. According to a study making the average PC requires 10 times the weight of the product in chemicals and fossil fuels.

1.2 Pollutants in computers:

Computers and computer monitors in the United States are responsible for the unnecessary production of millions of tons of greenhouse gases every year, according to the Environmental Protection Agency.

More than 700 chemicals are used to manufacture a PC, about half of them toxic.

Computer remains can release dioxin and heavy metals into the atmosphere, contributing to acid rain.

1.3 Hazardous Waste:

1. Lead in Cathode Ray Tube and solder.
2. Arsenic in older Cathode Ray Tubes.
3. Antimony trioxide as flame retardant.
4. Polybrominated flame retardants in plastic casings, cables and circuit boards.
5. Selenium in circuit boards as power supply rectifier.
6. Cadmium in circuit boards and semiconductors.
7. Chromium in steel as corrosion protection.
8. Cobalt in steel for structure and magnetivity.
9. Mercury in switches and housing disposing of computers becoming a global concern.

1.3 Electronic Waste:

During the last decade and a half, technological advances in the electronic devices and materials technology have boosted the performance of information technology, all over the world particularly in India. The increasing dependence on IT and electronic products like TV, VCD/DVD players etc., has, however, given rise to a new environmental challenge, that is, the growing menace of electronic waste (E-Waste).

The growing population of Personal Computer (PC) users in the country is discarding huge quantities of older generation computers. Effective disposal of e-waste is a cause of serious concern across the globe. The estimated waste from these phones including batteries and chargers amounts to around 65,000 tonne annually.

II. EFFECTS OF COMPUTER:

Hundreds of millions of pieces of electronic equipment will reach the end of their useful life over the next five years. Equipment that is land filled, crushed, broken, shredded or incinerated can potentially release toxins and carcinogens into the environment. For example, an estimated 40% of lead in land fills comes from leaded glass of CRT monitors, lead soldering on circuit boards and other discarded electronics. Among other toxins are mercury in flat panel monitors, printed circuit boards, mobile phones, batteries, relays and switches; cadmium in semiconductors, chip resisters, and IR detectors; and brominated flame retardants in circuit boards and plastics. Need not to mention that such waste can cause human life and environment the irreparable loss.People leave their computers on non-stop resulting in a lot of energy consumption and enormous amounts of paper are being used daily to print out electronically stored data as well as economic problems and are in urgent need of treatment. It is evident that all computer hardware is responsible for the problem, for it is the hardware's production that causes the pollution. Pieces of hardware such as keyboards, monitors, mice etc., are all made out of plastic, which is usually not recyclable. Other chemicals found in these tools are also often bad for the environment and cause damage.

As a result of the assembly of pieces inside the computer such as wafers and computer chips a lot of toxic materials are given off causing further harm to the environment. The evolution of computers causes harm because old computers are often thrown out only to be replaced by larger computers, which consume more energy and therefore cause even more pollution. They too, will eventually be thrown out and replaced. As the demand for larger monitors and more memory chips grows due to developments in multimedia, so does the level of toxins and fumes released into the environment contributing even more to the problem. These are given off when the monitors and chips are being produced and manufactured.

2.1 Computer Energy Waste a Major Cause of Pollution:

Computers and computer monitors are responsible for the unnecessary production of millions of tons of greenhouse gases every year, according to the Environmental Protection Agency. In software companies alone, more than $1 billion a year is wasted on electricity for computer monitors that are turned on when they shouldn't be.

2.2 Green Tips:

1. Turn off your computer and monitor when not in use for more than an hour.

2. When purchasing new or replacement computers, consider buying efficient flat screens and laptops bearing the 'Energy Star' label.
3. Avoid excessive decorations and use natural decorative materials e.g. green plants
4. use energy saving light bulbs or LED lights
5. use fewer electrical appliances or instruments
6. avoid energy-intensive appliances

7. maximize the usage of reusable panels, cabinets, signage boards and recyclable carpet
8. adopt environmental friendly construction materials e.g. low VOC paints, FSC-certified wooden products and other wooden products with E0 or E1 formaldehyde standards
9. adopt re-usable exhibits
10. use e-paper and minimize the distribution of printed matters (e.g. catalogues, brochures).
11. switch off all appliances or instruments consuming energy when not in use

There are some of the green tips to reduce this techno pollution. They include recycling of computers and other electronic wastes like CD's, DVD's, Mobiles, USB's, I-Pods etc., The following are the preventive measures for reducing pollution caused by increasing technology .

2.2.1 Recycling:

In the recycling process, out of use electronic equipment is demanufactured (taking apart), and its base metals, plastics and chemical components become reusable for smelters, refiners and chemical companies. Instead of entering the waste stream or contaminating the environment, the equipment becomes feedstock for manufacturing new products.

Electronics recycling is an emerging industry; both its physical and legal infrastructure is in the process of being built. True electronics recycling does not usually come free and the expense should be factored into total cost of ownership.

2.2.2 Computer Recycling:

Over 50% of U.S households own a computer and the myriad toxic materials they contain as the Earth's next big pollution issue. Out of the 1000 materials that go into computers, hundreds including chlorinated and brominated substances, metals, gases, acids and plastic additives – are highly toxic.

2.2.3 Designing New Computers:

The industry can respond to the problem primarily by trying to design new computers so that they are more easily taken apart for recycling. Most major manufacturers have made adjustments in their products. Many leading computer makers have already taken this in practice like – IBM announced that it will start shipping a new line of personal computers in which the plastic in the CPU is 100% recycled.

The industry is also studying ways to reduce use of toxic materials.

Computer Aid International CEO Tony Roberts said: "In Europe all ICT manufactures including HP, Samsung, Nokia and Apple have a legal duty to fund the end of life recycling of equipment that they produced.

2.2.4 Producing Safe Monitors:
Many monitor manufacturers have reduced screen emissions in order to get highly demanding standards as low emitting and environment friendly.

IBM and other monitor manufacturers registered patents on low radiation CRT-VDT monitors, sold for years.

Two safety standards are valid at time of these lines are being written:

The easy and widespread MPRII, to which many monitors comply. A more severe standard is TCO

1995. In order to get the latter approval manufacturer has to fulfill 5 requirements:

1. Screen has to pass low radiation test.
2. Screen is automatically shut off when not in use.
3. Manufacturer has to affirm energy consumption of monitor.
4. Monitor has to comply with fire and electric safety requirements valid in Europe.
5. Manufacturer has to get TCO certificate of tests results of sample products, on test conditions and results.

2.2.5 3-R Approach:

The 3-R approach is Reduce, Reuse, and Recycle. This approach advocates the minimization of resource use, using them again and again instead of passing it on to waste stream and recycling the material goes a long way in achieving the goals of sustainability.

III. PROS:

By banning the use of computers by people, the pollution caused by the energy consumption used to run the computers would be no longer an issue for it would not exist.

Also computer pollution would cease to exist; this solution would have many social, ethical, economical and even psychological results. Socially, it could be both good and bad. People in close environments would meet in person rather than email one another.

IV. CONS:

The negative social implications this would have is that systems all over the world would no longer function for a lot of systems such as phone systems, postal services, hospitals etc work run on computers, would not longer be able to function efficiently.

Also, people who live far away from one another and communicate via email would no longer be able to do this.

In addition, people would lose all the comfort and advantages that computer systems provide such as the ability to retrieve information easily.

V. CONCLUSION:

Environmental problems can't be solved with in a day or two. It requires rigorous effort at school level, so there is an urgent need to take action in this regard. There are also other electronic devices like mobile devices, PDA's, etc., which cause this pollution. Environmental problems are not the problems of developing countries like India but it is concerned with whole globe.Two decades after becoming perhaps the most indispensible fixture of the modern work place, the Personal Computer is confronting an ugly and unavoidable truth: As with all other electronic devices powering the Information Age, it will eventually end up like any other product—in the garbage heap. In fact, watchdog groups say PC's are going out of service faster than they are being produced.There is a Chinese proverb, "If you plan for one year plant rice, if you plan for 10 years, plant trees and if you plan for 100 years, educate people." So if we want to save Mother Earth, we have to make all persons environmentally educated.Lastly, it can be concluded that though various measures have been initiated by various governmental and non-governmental agencies to promote and foster environmental education, the overall achievement has not been satisfactory so, far.

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