



Internet and E-waste Awareness

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Abstract:

New inventions of man keep on taking the human race to the next level day by day. Though these inventions are beneficiary to the better living and life style of human being, sometimes it also creates adverse effects on environment which in turn affects the people on this earth. Thus it has become a great challenge for us to protect and preserve the nature from the destructions of modern technology. Day by day the usage of computers is multiplying and the usage of the internet also in on the increase. So as the need for the computers and electronic gadgets also is increasing every day. E-waste has become one of the major problems to day. So, there is need for saving the people from the e-waste phenomenon. As the usage of internet and blog users is growing rapidly, there is a possibility of creating awareness through blogs. The findings of the study reveals how blogging which is an integral part of internet addresses the e-waste related problems confronted by us and the ways it can be managed efficiently.

Keywords: Internet, Wastes, Blog, gadgets

1.0 Introduction:

In the context of today's environmental problems a new concept of citizenship appeared, that is environmental citizenship (Dobson, 2003; Bell, 2005), assessing the rights and duties of citizens related to the environment. Accordingly to this newly emerged concept, every individual has the right to reside in a clean environment, to access environmental information and to involve actively in environmental decision making, respectively citizens have duties related to the preservation of the environmental quality, both in the private and the public sphere. Environmental citizenship constitutes a form of citizen participation, a way of inclusion and bottom-up environmental reform strongly linked to the core mean of democracy (Melo-Escrihuela, 2008). Over four million people purchased the new Apple iPhone 4S² during the first weekend that the updated device was available for sale. Most of these newly purchased phones replaced older phones, which were likely discarded. While many states have recycling programs that will renovate old cell phones or responsibly dispose of their toxic components, these programs often are not widely known or advertised.

As an accelerating cycle of innovation drives the consumer electronics market forward, consumers are purchasing new devices and discarding their

older models at an increasing rate. Discarded electronic products, including cell phones, televisions, and computers, account for tens of millions of discarded items each year, causing electronic waste ("e-waste") to continue to grow as a percentage of solid waste. Only a small portion of these products is recycled, compounding their presence in our nation's landfills. With an increasing number of consumer devices in use and continual innovation perpetually driving future purchases, the low incidence of recycling aggravates the environmental harms of e-waste disposal—including the prevalence of chemicals that leak into the environment due to improper disposal. These harms can be avoided through refurbishment or recycling programs, which provide an environmentally friendly disposal method and save valuable landfill space. The problems associated with e-waste are not insurmountable.

Over the past decade, legislatures across the country have passed legislation that regulates the disposal of electronic products, including computers, televisions, and cellular phones. Today, half of the states have laws that regulate some aspect of e-waste disposal. Government legislation that encourages the recycling of e-waste addresses environmental and economic concerns regarding

unregulated disposal, including community exposure to toxic chemicals found in discarded materials and scarce landfill space. However, the nature of electronics, their potentially toxic components, the high costs of proper disposal present unique challenges, and most early e-waste laws took only limited steps to address the growing problem of e-waste disposal. Some while others took only minimal steps to encourage consumer recycling. Besides government imposing rules and regulations on regulating e-waste, there are also environmental activists and non-governmental organizations doing their part in providing awareness on diverse e-waste issues with the help of modern technology such as internet to the global audience. They have been actively engaging themselves in writing and throwing useful insights on e-waste and its management through websites and blogs. Thus, the primary objective of the current study is to identify particularly the blogs which are exclusively discussing about e-waste and to explore the contents of such blogs to identify the various issues being discussed in such blogs.

1.1 What is E-Waste?

The electronic industry is the world's largest and fastest growing manufacturing industry (Radha, 2002; DIT, 2003) Electronic waste (e-waste) comprises waste electronics/electrical goods that use or have reached their end of life. This may include items such as computers, servers, mainframes, monitors, CDs, printers, scanners, copiers, calculators, fax machines, battery cells, cellular phones, transceivers, TVs, medical apparatus and electronic components besides white goods such as refrigerators and air-conditioners. E-waste contains valuable materials such as copper, silver, gold and platinum which could be processed for their recovery.

Electronic wastes can cause severe environmental damage due to the use of toxic materials in the manufacture of electronic goods (Mehra, 2004). Hazardous materials such as lead, and mercury are present in Cathode ray tubes (CRTs), Printed board assemblies, Mercury switches and relays, Batteries, Liquid crystal displays (LCDs), Cartridges from photocopying machines, Selenium drums (photocopier) and Electrolytes. Although it is hardly known, e-waste contains toxic substances such as Lead and Cadmium in circuit boards; lead oxide and Cadmium in monitor Cathode Ray Tubes (CRTs);

Mercury in switches and flat screen monitors; Cadmium in computer batteries; polychlorinated biphenyls (PCBs) in older capacitors and transformers; and brominated flame retardants on printed circuit boards, plastic casings, cables and polyvinyl chloride (PVC) cable insulation that releases highly toxic dioxins and furans when burned to retrieve Copper from the wires. All electronic equipments contain printed circuit boards which are also hazardous to the environment. (Devi et al, 2004).

1.2 Defining Blog

Although it is difficult to point out the exact origin of the blog, many agree that the term *weblog* was coined by weblog writer John Barger in 1997 (Blood, 2000). Blogs are personal website, often in the type of a journal, consisting the author's observations and comments and are linking to other websites and blog postings. Blogs are updated frequently and the postings arranged so that the most recent writings appear at the top of the page, and sometimes options are provided to enable readers to leave comments on the original posting (Brewer's Dictionary of Phrase and Fable, 2009). Wikipedia explains a blog as a discussion or informational site published on the World Wide Web and containing discrete entries ("posts") typically displayed in reverse chronological order. Indeed, the very term "blog" itself was chosen as Merriam-Webster's word of the year 2004. (Bruns.A & Jacobs.J) Merriam-Webster defined blog as a Web site that contains an online personal journal with reflections, comments and often hyperlinks. The blog, like other components of the internet, offers the opportunity for people to use their own voice, through the texts and discourse they create, to tell the identity of the blogger who is situated in a specific and unique place. Eventually, the readers of blogs move into the space created by the blogger when they read a blog. To many readers, finding this space is critical because the spaces made by the blogs could be ones that the reader was once familiar with but has perhaps become distant from, for instance, through a process of migration (Mitra A, 2008).

Lexis-Nexis database shows the word blog was first mentioned in the press in 1998, and by 2002 over five hundred articles appeared mentioning blogs. In the beginning the blogs originated as a way to share information of interest. These early blogs had three

primary features: they were chronologically organized, contained links to sites of interest on the web, and provided commentary on the links. The early bloggers were Web savvy individuals, generally designers or programmers working in the technology industry. Not only did they have to be able to locate information on the Web before search engines became as accessible as they are today, but they had to be able to code their own HTML pages. (Miller.C & Shepherd.D, 2004)

1.3 Mass Media and Environment

Mass media is an important tool in promoting environmental concern and the dependent on environmental information which then depends on mass media and public sphere communication. Hansen (1991, 1993) notes that mass media act as an agenda setting in relation with environmental issues and bring into public attention issues and problems about which the public would know less in the absence of the media. Mass communication, therefore, plays a crucial role in connecting the world to an individual, and provides opportunity for the individual to communicate with a wider audience. However, the downside of mass media communication, as national and international media ownership is more likely to be influenced by a few, is in its difficulty to maintain neutrality to what is being shared through different modes of public communications (McDonald, 2004; Ura, 2006).

According to S.P.Alahari, (1997) the notion of individuality is lost in the word 'mass' and various forms of media such as radio, television, newspaper, etc., report events intended for such an enormous number of listeners, viewers, and readers. The advances in telecommunication networks have revolutionized the function of mass media to serve wider coverage at a faster pace worldwide. This has provided an enabling environment for media in the new era to achieve its ultimate aim of reaching to a very large audience. Environmental education is one of the tools to help meet the aims of conservation. The media could take up a crucial role by providing technical information about relevant environmental problems and possibilities, and about appropriate innovations. (Singhal & Rogers, 1989) The potential role of the media was defined as the people's expectation of the possible role that the media could play in promoting environmental consciousness by extending coverage on environmental issues.

Environmental education also gives people a deeper understanding of the environment, inspiring them to take personal responsibility for its conservation and restoration. So the mass media can play a constructive role providing people with environmental education.

1.4 Internet in Conservation of Environment

The present forms of mass media have moved towards new forms of communication technologies and instruments (e.g., Internet and mobile technologies, computers and mobile devices) through which the awareness of various public issues has drastically increased. According to Peterson (1997) new communication technologies, particularly the Internet, has the following advantages compared to the traditional media: inherent activity, potential for lateral and horizontal communication, non-hierarchical modes of communication, low costs to users, rapidity in communication, lack of national and other boundaries, freedom from monitoring of government. These advantages, and especially the lack of boundaries in Internet mediated communication, are very important patterns when one refers to nowadays' environmental problems (e.g. climate change) which are trans-boundary and their coverage requires a similar medium.

The role of the Internet in spreading environmental information and in enhancing environmental activism and governance was documented in several studies. Various studies have studied the role of the Internet as an information depot for specific environment related topics: toxicology, pollution, environmental management, etc. According to Doyle and McEachern (2001) the Internet has become a new means for mobilization on environmental issues and created a more dynamic, less localized politics compared to the static environmental politics existed before the Internet age in which issues and concern haven't gone far away. Stokols and Montero (2002) bring into attention the ways in which the Internet has changed environmental campaigning: while in the past efforts to promote environmental behaviours like energy conservation, recycling, etc. have relied on community-based information campaigns, now efforts to promote environmentally significant behaviours are channeled through comprehensive and visually striking web sites.

The Internet thus serves as a medium for social learning and can be conceptualised as a tool for empowerment (McKenna and Tal, 2008).

Regarding the relationship between the Internet and environmental information, respectively environmental concern the conclusion may be that ‘the Internet contains a wealth of environmentally related information, much of it of considerable significance’ (Rittner, 1992, p. 2). The growing number of Internet users envisages the growing impact of Internet based environmental information.

2.0 Methodology:

The primary goal of this exploratory research study is based on qualitative analysis of discourse analysis of five blogs which exclusively discuss about e-waste and its management issues. The blogs that were chosen for the study as follows,

Table1: Blogs chosen for the study

Sl.No	Blogs chosen for the study
1.	www.ewasteglobal.blogspot.in
2.	www.ewastedisposal.blogspot.in
3.	www.ewastererulation.blogspot.in
4.	www.recyclingewaste.wordpress.com
5.	www.weeepenang.blogspot.in

While searching for the blogs entirely on e-waste in with the help of Google search engine, it was found that there were number of blogs discussed various environmental issues along with other general issues. But only few blogs exclusively talked about growing environmental issues such as e-waste and its management. Hence, it can be found from the table.1 the blogs which contained entire information on e-waste and the different efficient methods and technologies on e-waste management. Other reasons as to why only these five blogs were chosen by the researcher are that these blogs were regularly updated and they were in English language. A discourse analysis on the contents including the comments and other posts from the readers in the blogs on e-waste and its management were conducted in order to assess their commonalities and differences. The duration of blogs posts chosen for the study is from 1st January to 31st October, 2012.

3.0 Analysis and Discussion:

While studying and analyzing the blogs on e-waste drew to the conclusion that there are four categories of people who actively participated in the e-waste

related blogs. They include *individual* who are interested in protecting the environment (environmentalist), *E-waste Recycling companies*, *Non-Governmental organization* who work for conservation of environment and *Governments*-especially by the Department of environment.

Among the five blogs which are chosen for the study, the first blog weeepenang.blogspot.in is moderated by the Ministry of Environment, Malaysia. It is the project undertaken by the Department of Environment (DOE) titled “*The Project for Model Development for e-waste Collection, Segregation and Transportation from Households for Recycling*” The Project aims at working with DOE to develop an appropriate, effective and efficient e-waste collection system from households. The developed system is expected to use as a model for nationwide collection system expansion. At the same time, it is expected for DOE to derive the policy implication for the future expansion. ‘*In order to initiate active participation from the common man the blog was started*’ says the blog by the Department of Environment. The second blog, ewasteglobal.blogspot.in, is maintained by Mr.sarvamsol, an environmental activist who discusses various issues on e-waste. The third blog, ewastedisposal.blogspot.in is another blog on e-waste. It is maintained by Thomas M Abercrombie who works at Environmental Waste Disposal, an e-waste recycling and Management Company. The fourth blog, ewastererulation.blogspot.in is moderated by Een Bericht Verzenden, an environmental activist. Finally, the recyclingewaste.wordpress.co is moderated by Miguel Bautista, CEO, EZPC Recycle Company. Moderator of blog throws lights on various issues on e-waste ant its management. He invites people who are interested in recycling to work with his company. The researcher, after going through the content of five e-waste blogs from 1st January to 31st October, 2012, identified the commonalities and differences in the issues discussed in the blogs. Table 1 shows the common issues that were commonly discussed by all the five bloggers.

Analyzing the discourse of the five blog on e-waste, we can emerge at ten categories of topics talked about in common in all the five e-waste blogs. Observing the first topic, we can infer from the blogs that the bloggers lay importance to the events and

happening across the globe and in the local on e-waste. That's why we find that in all the blogs, e-waste news occupying the top positions in their 'categories' list. In the e-news, the bloggers share latest happenings on e-waste. These news can be either private recycling e-waste companies or electronic goods giants. For example, "Sony is jumping into the E-waste business - So today I read Sony has recently launched a website focused on ensuring Sony products are properly disposed of. The aim of the website for Sony is to recycle 1 pound of e-waste for every pound of electronic product they make. In order to more readily achieve this company goal Sony has opted into collecting ANY manufactured electronic waste NOT just its own products. I think that is an awesome way to show the community how much you are contributing to the environment....." (*recyclingewaste.wordpress.co*, post of 11 October, 2012)

Table 2: Topics discussed in five blogs

Sl. No	Topic discussed in Blogs
1	E-waste news across the globe
2	E-waste recycling methods
3	E-waste management in India and in other countries
4	E-waste and recycling norms policies by different countries
5	Workshops and event on E-waste
6	Articles on e-waste
7	Documentaries and short films on E-waste
8	Tips to reduce e-wastes
9	Health hazards of e-waste
10	Awareness on how e-waste can be utilized for domestic use

After the news on e-waste, another topic often discussed in the blogs is on 'E-waste recycling methods'. Here, the bloggers talk about the different types of recycling methods used for recycling various e-waste materials by e-waste recycling companies. In *ewasteglobal.blogspot.in*, we can even find videos explaining the recycling process. An introduction is given above the video clipping to explain the process.

"The companies Muller Guttenrunn, Metran and MBA Polymers jointly work on the treatment of E-waste. This film shows the techniques used to

process these e-wastes with the following steps....." (*ewasteglobal.blogspot.in*, post of August 2, 2012)
 E-waste management is the collection of electronic materials in order to recycle them and as a result decrease their effects on our health, our surroundings and the environment. Thus, the steps taken for the management of e-waste in India and in other countries are discussed in all the blogs. These blogs give links on e-waste management related information for getting in-depth details.

Followed by the topic E-waste management in India and in other countries, 'Recycling norms on E-waste' occupies another important place in e-waste blogs. Bloggers discuss various norms to be followed while recycling e-waste. They also talk about policies and bills passed by the Indian and other countries governments. These blogs also discuss the effectiveness of those rules and they are very skeptical about them.

"The Central Government considers it necessary in the public interest and to enable the recovery and/or reuse of useful material from Waste Electrical and Electronic Equipment (WEEE), thereby reducing the hazardous wastes destined for disposal and to ensure the environmentally sound management of all types of waste electrical and electronic equipment. These rules may be called the E-waste (Management and Handling) Rules, 2010" (*ewastedisposal.blogspot.in* post of February 13, 2012)

"Can California Regulate E-Waste Better? R2 certification is the EPA's response to these e-waste problems. However, this certification is not a requirement but rather a suggestion. Giving it more weight in the American e-waste industry might have the drastic change on e-waste management in California and in turn the world. (*recyclingewaste.wordpress.co*, post of March 20, 2012)

There are a number of events and workshops taking place all over the world every now and then on environmental issues. But they are not reached to the common man by the mainstream media. It is brought to the notice of the people rarely. Even if it is said, complete details of the events are not given to them. We find in the e-waste blogs the details of event and workshops and its reports are provided to invite people interested in protecting the environment.

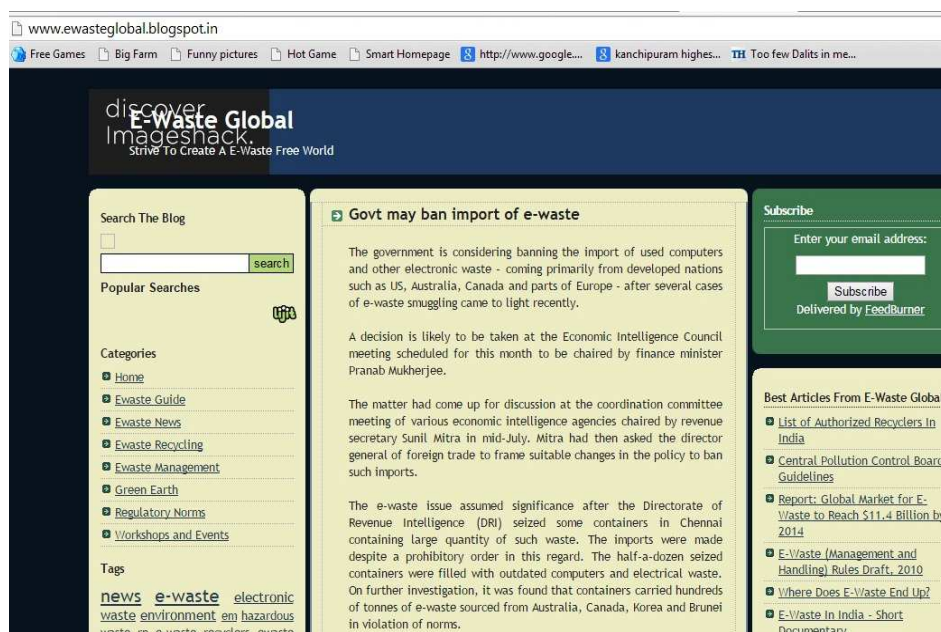


Fig. 1: www.ewasteglobal.blogspot.in

“Mumbaikars have been found guilty of flouting environmental norms with regard to disposal of e-Waste. So, the Maharashtra Pollution Control Board (MPCB) has decided to hold a one-day workshop for the aam admi or common man, to teach them e-Waste management. The workshop to be conducted at the MPCB office at Sion on July 16 will be open to all.”(e-wastererulation.blogspot.in, post of March 28, 2012)

“Six months have passed since the Pilot Project for collecting e-waste in Penang Island was started on June 2nd, 2012. A workshop for sharing the progress of the Pilot Project and the data accumulated for these six months was held in Penang Island on October 1st, 2012.” (weeepenang.blogspot.in, post of October 1, 2012)

‘Articles on e-waste’ finds place in almost all the blogs. Bloggers under the category of ‘Article’ provide various links articles related to e-waste. By clicking on the link one could get environment preservation related articles, especially articles related to e-waste, recycling, management of e-waste, problems owing to e-waste in different parts of the world, ineffectiveness of policies of e-waste across the globe etc.,

Another interesting topic that the researcher found in all the e-waste blogs is the ‘documentaries and short films uploaded on e-waste’. Consumers are still largely unaware of the environmental impact when

they dispose of obsolete or outdated electronics. These documentaries and short films on e-waste illustrate the environmental and human damage

caused by electronic waste while offering solutions to this global problem. These documentaries and short films show the way people e-waste is collected in an unsafe manner in countries like India and Africa. It also talks about the health problems faced by those people working with e-waste. Taking about the intention for making one of the documentaries the filmmaker Isaac Brown says in the blog

“I made the film because although the issue of e-waste isn't new it continues to be a major "sleeper" environmental issue and that he hopes that the film encourages people to seek out appropriate sites for the disposal of their used electronics.” (ewastedisposal.blogspot.in post of May 13, 2012)

Bloggers also offer a number of tips for reducing e-waste in their e-waste blogs. ‘Tips for reducing e-waste’ almost finds in all the five blogs. In one of the blogs under tips for e-waste, the blogger writes, “In my opinion, you can also say that besides the government and business life, which try to minimize the e-waste, also private life can do a lot of things! I found a very good text on the internet, and in the text, the writer, Russel Morgan, gives tips and says what people and companies can do with their old PC's that are stored in an old attic room.

The first thing you can do, says Morgan, is to donate them to people who really need your computer and can still use it....." (*e-wastererulation.blogspot.in*, post of June 6, 2012)

It was found in all the five blogs that more number posts and articles pertaining health hazards caused by e-waste and improper recycling of e-waste. Along with posts, photographs are accompanied which speaks volume on the ill-effects of e-waste. We find in the photographs that mostly children and women becoming vulnerable to the harmfulness of e-waste. We also can see a child sitting at the backdrop of huge piles of e-waste dumped in an open area. This probably conveys the message that either of the child's parent is on the hunt for collection of e-waste. One of the posts in the blog reads,

"Electrical and electronic equipment contain different hazardous materials which are harmful to human health and the environment if not disposed of carefully. While some naturally occurring substances are harmless in nature, their use in the manufacture of electronic equipment often results in compounds which are hazardous (e.g. chromium becomes chromium VI). The following list gives a selection of the mostly found toxic substances in e-waste." (*ewastedisposal.blogspot.in* post of April 13, 2012)

Apart from damages caused due to human, the blogger also talks about how e-waste endangers other species living on the earth. A post reads, "It's not unknown knowledge that pollution is a problem in our world today. But the extent to which this poses is threat may be surprising. New research shows that Natural Ocean processes such as wind, drag, turbulence and wave height can push the plastic deep down where it remains unnoticed by scientists examining the ocean's surface."Plastic bags strangling sea sponges....." (*recyclingewaste.wordpress.co*, post of September 11, 2012)

The final topic of blogs in the list of topic discussed in the e-waste blog is 'Awareness on how e-waste can be utilized for domestic use'. Though we can't have control over all the e-waste, some of the electronic items can be made use for the domestic purpose like decorative items for the house. In *recyclingewaste.wordpress.com* blog we find a lot of innovative ideas for waste CDs and DVDs to

convert into decorative hangings in houses. In *e-wastererulation.blogspot.in* a post reads, "Here is a thrifty alternative to purchasing bubble wrap and packing peanuts. Fill the gift box with remnants of shredded paper from your paper shredder and if you have unusable pieces of wrapping paper run the scraps through the paper shredder for some color! This will not only save you a trip to the store and money, but it will help the environment." (*ewastedisposal.blogspot.in* post of February 26, 2012)

4.0 Conclusion:

In the past the blogs have played key role in bringing into fore the issues concerning human rights and safety. We cannot deny the fact that it is our right to live in a world without pollution and hazardous illness caused by science. The results of the study has emphasized the fact that internet has succeeded in raising issues and the concerns about which the mainstream media rarely speak, while empowering people who otherwise be without access to the traditional media or space in the public sphere. The analysis of the contents of the blogs reveals that blogs do play a constructive role in talking about the safety of the environment. So, the Social Media such as blogs give a platform for their issues to be talked openly, which otherwise will not be talked by the mainstream media. Though newspapers, radio and television are doing their part in taking environmental issues to the people, most of the time it is only one-way communication. But in the study it can be found that blogs pave way for the two-way communication and has potential in taking awareness issues to their home at the click of a button. Furthermore, it can be noted that the readers too contribute to the already exiting contents. Previously, the distance between the scientists and the man on the street was very wide. With the emergence of internet, the gap between them has reduced. Now, the scientists, environmentalists, biologists and common persons can talk to the people directly and can give awareness through the help of internet.

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