# INTERNATIONAL CONFERENCE ON ENVIRONMENT, LIVELIHOOD & HUMAN RIGHTS

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10-11

## *Proceedings of the Conference 2010*

*Reuse the past, Recycle the present, Save the future*

***GO GREEN !!!***


**DEPARTMENT OF SOCIALWORK**

**MADRAS CHRISTIAN COLLEGE**

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Oliver Twist Seeks Food Security, *The Hindu,* August 12.

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Displacement: A Case Study, *Social Action,* January-March.

Human Rights and the Urban Poor, *Social Action,* January-March

Naveen: Development Should Go On, The Hindu, 24.08.2010 p. 12

*For the Success of the 8th Plan,* ND: Govt. of India DAVP.

## CREATING AWARENESS ON E-WASTE MANAGEMENT AMONG STUDENTS

Dr.S.Rajalakshmi

***"Wealth must not be despised-that should be the vow.***

***Wealth must not be wasted-that should be the duty.***

***Wealth must be developed manifold-that should be the determination.***

***The earth should be treated as the wealth by itself"***

- **Arish Ghosh**

Our mother earth is the most precious gift of the universe. It is the substance of "Nature" that is a key to the development of the future of mankind. It is the duty and responsibility of each one of us to protect nature. We live in a world where in natural resources are limited. Water, Air, Soil, Minerals, Oils the products we get from forests, grasslands, oceans and from Agriculture and live stock, are all a part of our life support systems. Without them, life itself would be impossible. As the Earth's natural resources are rapidly dwindling and our environment is being increasingly degraded by human activities, environmental conservation is the axis for the economic well-being and the peaceful existence of humanity on the surface of the earth, hitherto the need and importance of environment have not been realized by the people. But the fast development of science and technology which resulted in the establishment of a good number of variety of industries and the quest of humanity for sophisticated living are contributing significantly for the degradation of the environment.

Waste management can involve solid, liquid, gaseous or plastic with different form of methods and fields of expertise for each. Waste management practices differ from developed and developing nations, for urban and rural areas and for residential, industrial and commercial producers. A hazardous waste is any waste or combination of wastes that poses a substantial danger, now or in future to human, plant or animal life and which therefore cannot be handled or disposed without special precaution (Mayer, 2001 and Joseph, 2003).

The rapid change of technology brought change in the field of electronics has made appliances for homes and office equipment both affordable and widely used. The extreme growth and ever increasing obsolescence rates result in large quantities of electrical and electronic equipment being added to the waste stream).

Electronic waste, also known as 'E-waste', is a waste generated from unwanted electronics such as computers, monitors, hard drives, copiers, printers, fax machines, mobile phones, telephones and even televisions. It is a point of concern considering that many components of such equipment are considered toxic and are not biodegradable,

these. The question of allocation of available resources has to be looked at dispassionately and all political parties must join hands to render justice to all and avoid pampering a few. Politicizing the issue will only stall progress. Finally, let us not question the bonafides of our own government needlessly but lend it a helping hand.

**References:**


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E-waste is a general category for electronic products facing displacement of replacement that are hazardous due to the toxic metals present with their internal materials, coatings and glass. E-waste contains metals and other materials that can be hazardous to human health and the environment if they are not properly managed).

E-waste contain toxic constituents in their components such as lead, cadmium, mercury, polychlorinated, bi-phenyls (PCBs), chemicals, brominates flame-retardants etc., which are required to be handled safely. So far the preliminary estimates suggest that total e-waste generation in India is approximately 1,46,00 tonnes per year. 2.054800 tonnes of electronic wastes are laid to rest in landfills each year).

Environmental degradation has become a pressing issue today. Pollution and depletion of natural resources are not one side of the problem whereas the problem of waste management has acquired Himalayan proportion. Of all the waste dumped on the surface of mother earth, e-waste is perhaps the most hazardous. People are increasingly aware that computers, cell phones and other electronic contain chemicals such as cadmium, lead and mercury. Unless properly recycled, these chemicals could make their way from landfills into the soil, water and air .

E-waste has become an issue of serious concern to environmentalists as a growing number of electronic items are discarded in landfills every year. Many consumers are not aware that electronics products like computers and cell phones actually contain toxins that can leach out into the soil and damage the environment. The problem is further compounded by the fact that many of the elements used in the construction of consumer electronics are quite valuable, leading companies to attempt to recover them from abandoned electronics and discard unwanted part, which is unsaf).

Water is being transported from faraway towns to cater due to the demands of the population. Incineration of e-waste can emit toxic fumes and gases, thereby polluting the surrounding air. Improperly monitored landfills can cause environmental hazards. Mercury will leach due to circuit breakers are destroyed; the same is true for polychlorinated biphenyls (pcbs) from condensers. When brominated flame retardant plastic or cadmium containing plastics are land filled, both polybrominated dlphenyl ethers (PBDE) and cadmium may leach into the soil and groundwater and leads to brain damage, kidney failure, heart problems and nervous disorder).

**TOXIC COMPONENTS OF E-WASTE**

| Component | Possible hazardous content |
|---|---|
| Metal | Arsenic, Mercury, Lead |
| Motor/ compressor | Lead, Cadmium, Zinc, Copper |

| | |
|---|---|
| Cooling | Ozone, Depleting Substance |
| Plastic | Phthalate Plasticize, BFR |
| Insulation | Insulation ODS in foam, asbestos, refractory ceramic fiber |
| Glass | Lead, Cadmium Mercury |
| CRT | Lead, Mercury, Cadmium, Phosphors |
| LCD | Mercury |
| Wiring/ electrical | Phthalate plasticizer, BRK |
| Concrete | Oleum, Sulphur, Trioxide |
| Transformer | Chlorinated hydrocarbons, PCBs |
| Circuit board | Lead, Beryllium, Antimony, BRF |
| Fluorescent Lamp | Mercury, Phosphorus, Flame retardants |
| Incandescent Lamp | Mercury |
| Heating Element | Mercury, Arsenic |
| Thermostat | Mercury |
| BFR-containing plastic | BFRs |
| Batteries | Lead, Lithium, Cadmium, Mercury |
| CFC, HCFC, HFC, HC | Ozone depleting substances |
| External electric cables | BFRs, Plasticizers |
| Electrolyte capacitors (over I/d 25mm) | Glycol, other unknown substances |

(Padmavathi, 2008)

**EFFECTS OF E-WASTE CONSTITUENT ON HEALTH**

| Source of e-waste | Constituent | Health effects |
|---|---|---|
| Solder in printed circuit boards, glass panels and gaskets in computer monitors | Lead (PB) | • Damage to central and peripheral nervous systems, blood systems and kidney damage.<br>• Affects brain development of children |
| Chip resistors and semiconductors | Cadmium (CD) | • Toxic irreversible effects on human health<br>• Accumulates in kidney and liver<br>• Causes neural damage.<br>• Teratogenic |
| Relays and switches, printed circuit boards | Mercury (Hg) | • Chronic damage to the brain<br>• Respiratory and skin disorders due to bioaccumulation in fishes |
| Corrosion protection of untreated and galvanized steel plates, decorator or hardner for steel housings | Hexavalent chromium (Cr) VI | • Asthmatic bronchitis<br>• DNA damage |
| Cabling and computer housing | Plastics including PVC | Burning produces dioxin. It causes<br>• Reproductive and developmental problems;<br>• Immune system damage;<br>• Interfere with regulatory hormones |
| Plastic housing of electronic equipments and circuit boards. | Brominated flame retardants (BFR) | • Disrupts endocrine system function |

| | | |
|---|---|---|
| Front panel of CRTs | Barium (Ba) | Short term exposure causes:<br>• Muscle weakness;<br>• Damage to heart, liver and spleen. |
| Mother board | Beryllium (Be) | • Carcinogenic (lung cancer)<br>• Inhalation of fumes and dust. Causes chronic beryllium disease or beryllicosis.<br>• Skin diseases such as warts. |

The study on "Creating awareness on E-waste Management among students" was undertaken with objective of Creating awareness on basic information about environment, E-waste and management of E-waste. 200 NSS students from Avinashilingam University selected for the study.

E-waste is waste from electrical and electronic equipment and is also the term used to describe old, end –of –its life or discarded appliances.

The questionnaire method was selected as a tool for conduction the survey.

Student's knowledge level on environment and basic facts about e-waste was assessed through questionnaire. Their knowledge level was not up to the mark just they knew the term E-waste. They were not aware of e-waste meaning, categories, threats, and toxic substance present in e-waste. Due to this reason awareness creation on E-waste was planned and conducted for the students.

The methods for educating the students comprised of lectures, group discussion, brain storming, interactive session and question answer session. Resource persons were also invited to create awareness on E-waste.

*Background information of the selected students*

The background information of the students, included utilization of electronic items at households level, electronic items used by the students are given in Table .

**BACKGROUND INFORMATION OF THE STUDENTS**

| Aspects | Percentage of students stating N: 200 |
|---|---|
| **Type of family** | |
| Nuclear | 85 |
| Joint | 15 |
| **Age (year)** | |
| 17-20 | 100 |
| **Religion** | |
| Hindu | 88 |
| Christian | 10 |
| Muslim | 7 |
| **Family income / month** | |
| < 2000 | 15 |
| < 3000 | 20 |
| Above 3000 | 75 |

The above table shows that 85 percent of the students belonged to the nuclear family and the rest (15 percent) hailed from the joint family. All the students fall under the age group 17-20 years. Eighty eight percent of the students were Hindus, 10 per cent of them were Christians and the rest seven percent were Muslims. Majority (75 percent) of the student's family income ranged between Rs.3000-5000 per month and 20 percent between Rs. 2000-3000 and the rest 15 percent family income was Rs.2000 and below.

**UTILIZATION OF ELECTRONIC ITEMS AT HOUSEHOLD LEVEL**

| Electronic items | Percentage of students stating N: 200 |
|---|---|
| Television | 1000 |
| Grinder | 95 |
| Mixi | 95 |
| Radio | 75 |
| Iron box | 75 |

| | |
|---|---|
| Computer | 75 |
| Washing machine | 60 |
| Fridge | 60 |
| Wall clock | 60 |
| Microwave oven | 25 |
| Hair dryer | 25 |
| Cordless phone | 25 |
| Electronic stove | 10 |

*** Multiple responses**

The above table indicates that 100 percent were having Television and followed by Mixi, Grinder (95 percent) and computer, Iron box, and Radio (75 percent). Twenty five percent were using cordless phone, hairdryer and microwave oven and only 10 percent were using electronic stove.

**ELECTRONIC ITEMS USED BY THE STUDENTS**

| **Items** | **Percentage of students stating N: 200** |
|---|---|
| DVD | 75 |
| Cell phone | 75 |
| Radio | 70 |
| Ipod | 65 |
| Computer | 50 |
| Printer | 40 |
| Fax | 40 |

* Multiple responeses

From the above table it is evident that a majority (75 percent) were using cell phone, computer, DVD and 40 percent were using printer, fax. The students were not aware of the threats of e-waste. Without knowledge of the threats and hazards to life all were using the electronic gadgets.

*Impact of awareness generation on environment and E-waste Management*

These aspects are discussed under the following heads:

Knowledge level on environment
Scientific fact about e-waste
Organizations/ institutions working for environmental protection '
Environmental protection – the need of the day

**KNOWLEDGE LEVEL ON ENVIRONMENT**

| **Topics** | **Percentage of students stating N:200** |
|---|---|
| Natural resource | 90 |
| Meaning of the environment | 90 |
| Concept of an ecosystem | 88 |
| Biodiversity and its conservation | 85 |
| Environmental Pollution | 85 |
| Solid waste management | 83 |
| Sustainable development | 80 |
| Environmental ethics | 80 |
| Global warming | 75 |
| Zero waste management | 75 |
| Environmental policies | 70 |

* Multiple responses

The table shows that majority to them (90 percent)gained knowledge on components, segments and type of environment and policies and seventy percent of the students gained knowledge on zero waste management respectively.

**GENERATIONS OF E-WASTE AT HOUSE HOLD LEVEL**

| **Mode** | **Percentage of students stating**<br><br>**N: 200** |
|---|---|
| Television | 100 |
| Cell phone | 100 |
| Washing machine | 95 |
| Dryers | 95 |
| Air conditioners | 94 |
| Vaccum cleaner | 94 |
| Office machines | 93 |
| Toasters | 90 |
| DVD/VCD/CD players | 90 |
| Microwave oven | 90 |
| Water heater | 88 |
| Electric cooker | 85 |
| Fan | 85 |
| Fryer | 83 |
| Grinder | 81 |

| | |
|---|---|
| Fluorescent tubes | 80 |
| Clocks | 80 |
| Radio | 70 |
| Fridge | 70 |

*Multiple responses

Before the awareness programmes the students were not aware that household eletronic items like as television, mixie, grinder, fridge, drier, coffee maker, tape, and lights can cause e-waste. After the awareness programme majority (100) students understood the category of e-waste and promised to use these items at a minimum level.

After the awareness programme the students were astonished and understood the harmful effects of e-waste and promised that they will minimize the use of electronic items.

SOURCES OF E-WASTE GENERATION AT OFFICE, COMMUNICATION DEPARTMENTS, INDUSTRIES AND MEDEICAL INSTITUTION

| **Mode** | **Percentage of students stating N:200** |
|---|---|
| **Computer peripherals** | **95** |
| **Electronic type writer** | **91** |
| **Calculator** | **90** |
| **Fax** | **89** |
| **Copier** | **88** |
| **Video cameras** | **85** |
| **Drills** | **85** |
| **Electronic sewing machines** | **83** |
| **Tools for welding equipments** | **80** |

| | |
|---|---|
| **Spraying equipment** | **80** |
| **Grinding and cutting tools** | **78** |
| **Tools for grinding and moving** | **75** |
| **Radio therapy equipment** | **75** |
| **Nuclear medicine** | **74** |
| **Laboratory equipment** | **73** |
| **Dialysis equipment** | **70** |
| **Freezer** | **70** |

* Multiple responses

Majority of the students (95 percent) expressed that e-waste generated through computer peripherals followed by (75 percent) tools for grinding and moving, radio therapy, (70 percent) dialysis equipment and freezer respectively.

**ENVIRONMENTAL PROBLEMS DUE TO E-WASTE**

| **Problems** | **Percentage of students stating N: 200** |
|---|---|
| Lethal to aquatic plants | 90 |
| Toxic to aquatic organisms | 89 |
| Leaching into the environment | 88 |
| Leaching into water and soil | 85 |
| Indications of carcinogenic effect | 80 |
| Effects due to acute chronic toxicity | 78 |
| Green house effect | 75 |
| Climate change | 72 |

* Multiple responses

THREATS OF E-WASTE

| Threats | Percentage of students stating N: 200 |
|---|---|
| Harm to the unborn child | 96 |
| Carcinogen | 95 |
| Reproductive and development problems | 95 |
| Respiratory problems | 95 |
| Strong allergic reaction | 95 |
| Neurological problems | 95 |
| Endocrinal problems | 95 |
| Skin problem | 4 |
| Lumber region experience sever pain | 94 |
| Dark coloured teeth | 94 |
| Acute joint pain | 90 |
| Weakened bones | 87 |
| Affect walking | 85 |
| Insomnia | 82 |
| Tingling of fingers and lips | 80 |
| Weakened fatigue | 80 |
| Bleeding of gums | 79 |
| Loosening and loss of teeth | 78 |
| Abdominal discomfort | 78 |
| Kidney and liver damage | 75 |
| Chronic damage to the brain | 75 |

| | |
|---|---|
| Asthmatic bronchitis | 74 |
| DNA damage | 73 |
| Heart damage | 70 |

**The above table indicates that majority (95 percent) of the students understood the threats of e-waste and harmful effects on human bodies such as neurological problems kidney, liver and heart damage and 70 percent expressed sever pain in the lumber region.**

INTERNATIONAL AGENCIES FOR ENVIRONMENTAL PROTECTION

| **Name** | **Place** | **Percentage of students stating N: 200** |
|---|---|---|
| Network for sustainable development | Africa | 99 |
| United nations environmental progrmme the world bank | US | 96 |
| The world meteorology organization and the world bank | German | 97 |
| United national educational scientific and cultural organization UNESCO | Russia | 98 |
| International union for conservation of nature and natural resources (IUCN) | USA | 92 |
| South Asia co-operative environment programme (SACEP) | Asia | 93 |

* Multiple responses

The students were astonished when they came to know about the international organization working for environmental protection and realized the seriousness of the environmental problem. This enabled the students to understand the role and responsibility in protection of environment.

**Recommendations:**

- Governments should be responsible for providing an adequate system of laws, controls and administrative procedures for hazardous waste management.
- Education public regarding E-waste on reuse / recycling
- Enforce strict regulations and heavy fines levied on industries, which do not practice waste prevention and recovery in the production facilities.
- Encourage and support NGOs and other organizations to involve actively in solving the nation's e-waste problems.
- Explore opportunities to partner with manufacturers and retailers to provide recycling services.

**To the Manufacturers**

- Manufacturers of computer monitors, television sets and other electronic devices containing hazardous materials must be responsible for educating consumers and the general public regarding the potential threat to public health and the environment posed by their products.
- All computer monitors, television sets and other electronic devices containing hazardous materials must be clearly labeled to identify environmental hazards and proper material management. Hazardous materials used in either a product formulation or a production process may be replaced with a less hazardous or non-hazardous material.
- Installing more efficient process equipment or modifying existing equipment to take advantage of better production techniques can significantly reduce waste generation.

Conclusion

The mantra of industries is a "faster, smaller, and cheaper". Our mantra is " cleaner, greener, and safer". It is time for a fundamental change in thinking, we must close the loop. Improving E-waste collection is also key to preventing toxic pollution; consumers need to help control this toxic danger by getting discarded waste to qualified recyclers for proper treatment. Electronic products have a great positive impact on our lives. However their increasing availability and affordability means that they also present a growing environmental problem, one we all personally need to address. The discarded saying reduce, reuse, recycle-applies particularly well to electronic waste.

Students realized the future threats to environment caused by e-waste and reduce the usage level and avoid buying most hazardous buy products.

# A STUDY ON THE LEVEL OF AWARENESS ON THE NATIONAL RURAL EMPLOYMENT GUARANTEE ACT AMONG THE BENEFICIARIES AT MANGALUR BLOCK, CUDDALORE DISTRICT.

**(Mrs. Sakthi Prabha, Lecturer, Department of Social Work, Hindustan College of Arts & Science and Mrs. Sylvia Daisy, Assistant Professor, BSW Department, Madras Christian College)**

The concept of rural development is almost at the top of agenda in national policies to develop the country. Rural development covers development of the agricultural and allied activities and social facilities (B.L. Mathur, 1996). The First step towards rural development was started in 1952 with Community Development Programme and the National Extension Service. Several other programmes and schemes were developed by the Government of India for the rural development such as National Food For Work Program, National Rural Employment Program, Rural Landless Employment Guarantee Program, Jawahar Rozgar Yojana, Employment Assuarance Scheme, Sampoorna Grameen Rozgar Yojana.

The recently passed National Rural Employment Guarantee Act, 2005 was developed out of all the above mentioned employment programmes. National Rural employment Guarantee Act is a "People's Act". This act gives employment assurance to rural poor. It guarantees 100 days of work to any rural household in a financial year. It guarantees to generate productive assets, protect the environment, empower rural women, reduce rural urban migration and foster social equity.

**Objectives of NREGA**

The act aims at creation of durable assets and strengthening of the livelihood resources of rural poor. Under the act the following works are initiated in rural areas: Water conservation and water harvesting, Plantation and afforest ration to deal with problems of drought prone areas, Irrigation canals including micro and minor irrigation works, Provision of irrigation facility to land owned by households belonging to the SC and ST's or to land of beneficiaries of land reforms, Renovation of traditional water bodies including distilling of tanks, Land development, Rural connectivity and Flood Control and protection works including drainage in water lodged areas (Schedule I, NREGA, Ministry of Law and Justice, 2005 and "SIRD, Hand Book , 2006).

**Implementation agencies**: