

**GOVERNMENT DEGREE COLLEGE - RANGASAIKET, WARANGAL
DISTRICT.**

**STUDENT STUDY PROJECT
ON**

**IMPACT OF PLASTIC POLLUTION ON ENVIRONMENT AND HUMAN
BEINGS: a CASE STUDY IN WARANGAL**

Project submitted by B.Sc. (BZC) STUDENTS

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INRODUCTION

Warangal served as the capital of the kakatiya dynasty which was established in 1163 .The monuments left by the kakatiya's include fortresses , lakes, temples & stone gate ways helped the city to become a significant tourist attraction . The kakatiya kalathoranam was included in the emblem of telangana by the state government .The city along with its two neighborhoods of Warangal and Hanamkonda is often reffered as tricity.

In the last decade, plastic has affected the health and life of human beings very badly. Some incidents have attracted the attention of the whole world and put a question mark about the use of plastic in daily life. Plastic bags have been introduced in 1970's and gained an increasing popularity amongst consumers and retailers. They are available in huge numbers and varieties across the world. It is estimated that around 500 billion plastic bags are used every year worldwide.

The study was conducted in Warangal City in Telangana state It is located at 140 km away from Hyderabad. The city has a total human population of 627449 of which 314234 were men and 313215 were women. (Warangal Urban 2011 Census). Now-a-days the most popular plastic pollution is caused is polyvinyl chloride (P.V.C.). When any food material or blood is stored in the said plastic containers then gradually the soluble chemical gets dissolved in them causing death due to cancer and other skin diseases. Polyvinyl chloride has also been found to destroy the fertility of the animals and their respiratory systems. When mixed with water, it causes paralysis and also damages bones and causes irritation to the skin.

AIMS & OBJECTIVE

- To create awareness about adverse effects of plastic pollution.
- To emphasize the reduced use of plastic and the beneficial management of plastic waste.
- To control the impact of plastic waste on the environment
- For efficient transformation of plastic into energy and fuel.
- To make our environment an eco friendly zone.
- To set up a plastic recycling plant and enable proper use of plastic
- To develop co-operation partnership among NGOs and other stake holders in order to share experiences on finding against plastic pollution as common challenge.
- To understand the problems of Plastic Pollution solid waste disposal, degradation of environment, loss of biodiversity.

REVIEW OF LITERATURE

A simple definition could be: any of a group of synthetic or natural organic materials that may be shaped when soft and then hardened, including many types of resins, resinous, polymers, cellulose derivatives, casein materials, and proteins: used in place of other materials, as glass, wood, and metals, in construction and decoration, for making many articles, as coatings, and, drawn into filaments, for weaving. In chemistry, plastics are large molecules, called polymers, composed of repeated segments, called monomers, with carbon backbones. A polymer is simply a very large molecule made up of many smaller units joined together, generally end to end, to create a long chain. The smallest building block of a polymer is called a monomer. Polymers are divided into two distinct groups: thermoplastics (moldable) and thermoses (not). The word "plastics" generally applies to the synthetic products of chemistry.

. This system of coding was developed in 1988 by the U.S.-based Society of the Plastics Industry to facilitate the recycling of post-consumer plastics. It is indeed, quite interesting to go through the fine lines.

1. Polyethylene terephthalate (PET or PETE) – Used in soft drink, juice, water, beer, mouthwash, peanut butter, salad dressing, detergent, and cleaner containers. Leaches antimony trioxide and (2ethylhexyl) phthalate (DEHP).

2 . DEHP is an endocrine disruptor that mimics the female hormone estrogen. It has been strongly linked to asthma and allergies in children. It may cause certain types of cancer and it has been linked to negative effects on the liver, kidney, spleen, bone formation, and body weight. In Europe, DEHP has been banned since 1999 from use in plastic toys for children under the age of three.

1. Polyvinyl chloride (V or Vinyl or PVC) – Used in toys, clear food and non-food packaging



(e.g., cling wrap), some squeeze bottles, shampoo bottles, cooking oil and peanut butter jars, Detergent and window cleaner bottles, shower curtains, medical tubing, and numerous construction products (e.g., pipes, siding). PVC has been described as one of the most hazardous consumer products ever created. Leaches di (2-ethylhexyl) phthalate (DEHP) or butyl benzyl phthalate (BBZP), depending on which is used as the plasticizer or softener (usually DEHP). DEHP and BBZP are endocrine disruptors mimicking the female hormone estrogen; have been strongly linked to asthma and allergic symptoms in children; may cause certain types of cancer; and linked to negative effects on the liver, kidney, spleen, bone formation, and body weight.

2. Low-density polyethylene (LDPE) – Used in grocery store, dry cleaning, bread and frozen food bags, most plastic wraps, and squeezable bottles (honey, mustard). Considered a safer plastic. Research on risks associated with this type of plastic is ongoing.

3. Polypropylene (PP) – Used in ketchup bottles, yogurt and margarine tubs, medicine and syrup bottles, straws, and Rubbermaid and other opaque plastic containers, including baby bottles. Considered a safer plastic. Research on risks associated with this type of plastic is ongoing

Effects of Plastic Pollution:

Since the development of plastic earlier this century, it has become a popular material used in a wide variety of ways. Today plastic is used to make, or wrap around, many of the items we buy or use. The problem arises when we no longer want these items and we have to dispose off them,

particularly the throwaway plastic material used in wrapping or packaging. Plastics are used because they are easy and cheap to make and they can last a long time. Unfortunately these same useful qualities can make plastic a huge pollution problem. The cheapness means plastic gets discarded easily and its long life means it survives in the environment for long periods where it can do great harm. Because plastic does not decompose, and requires high energy ultraviolet light to break down, the amount of plastic waste in our oceans is steadily increase

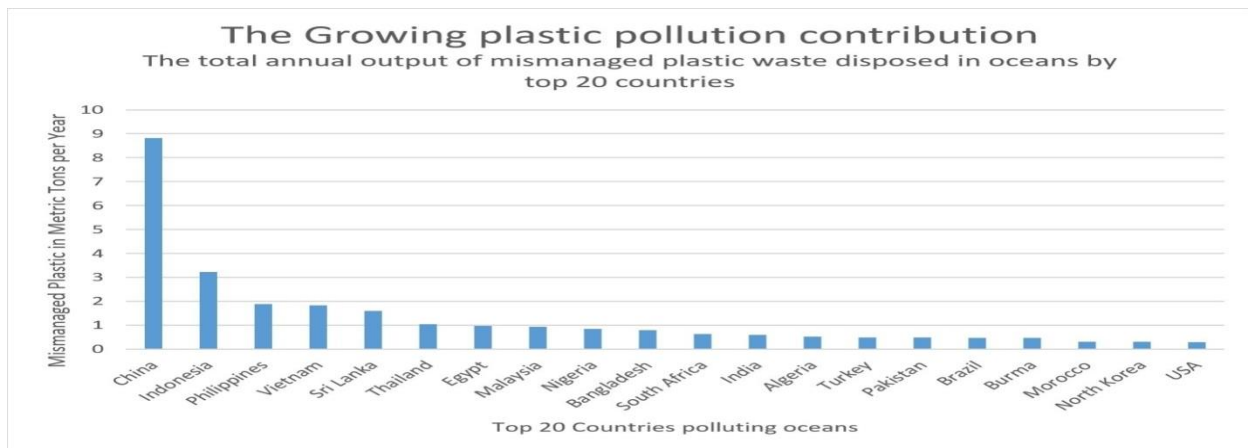
Effects on Human Beings:

The quality of the air we breathe, the water we drink or bath on, and the earth in which we grow our food has an immense effect on our health. A recent US Centre for Disease Control and Prevention Study found that about 93 percent of the US population has bi phenol A, a chemical that can be found in canned goods and in hard, clear plastic items (including baby bottles), in their body. The major chemicals that go into the making of plastic are highly toxic and pose serious threat to living beings of all species on earth. Some of the constituents of plastic such as benzene are known to cause cancer. Recycling of plastic is associated with skin and respiratory problems, resulting from exposure to and inhalation of toxic fumes, especially hydrocarbons. Thin plastics are thrown anywhere and everywhere causing the following environmental degradation problems:

- i. It blocks the open sewage system and results in stagnation of sewage paving way for the mosquitoes which leads to the spread of various diseases.
- ii. Plastic dumped on the soil prevents water percolation into the water table.
- iii. It affects the very structure of soil.
- iv. Water stagnating on the plastics strewn on the land becomes a breeding ground for mosquitoes which, in turn, produce diseases.
- v. Jelly fish-eating, Fishes mistaking the plastic floating in the water for Jellyfish eat them and then die their species is becoming extinct.
- vi. Cattle eat plastic and die as a result thereof.
- vii. Burning of plastics results in release of toxins in the atmosphere which, in turn, causes deadly Cancer.

ACCUMULATION OF PLASTIC WASTE IN THE NATURAL ENVIRONMENT

Substantial quantities of plastic have accumulated in the natural environment and in landfills. Around 10 per cent by weight of the municipal waste stream is plastic. Discarded plastic also contaminates a wide range of natural terrestrial, freshwater and marine habitats, with newspaper accounts of plastic debris on even some of the highest mountains. There are also some data on littering in the urban environment (for example compiled by Encamps in the UK; however, by comparison with the marine environment, there is a distinct lack of data on the accumulation of plastic debris in natural terrestrial and freshwater habitats



CONTROL OF PLASTIC POLLUTION

Plastic bags and bottles, like all forms of plastic, create significant environmental and economic burden. They consume growing amount of energy and other natural resources, degrading the environment in a number of ways.

In addition to using up fossil fuels and other resources, plastic products create litter, hurt marine life, and threaten the basis of life on earth. Here are some steps that we can take to reverse the tide of toxic, non-biodegradable pollution so that it may not overtake our planet.

- i. Put produce in paper, canvas, and other healthy-fiber bags.
- ii. If a clerk throws your box of soap into a plastic bag, ask him or her to replace it in one of your bags. Give the clerk a copy of “Why I Don’t Use Plastic Bags”. Our experience has been that they appreciate this information.
- iii. Use wax paper bags, cloth napkins, or re-useable sandwich boxes (e.g., Tiffin’s,).
- iv. Use only glass bottles or cans.
- v. Bottled water costs over 1000 times more per liter than water from your tap. Buying our most essential nutrient, water, from corporations represents an abdication of community control of the commons. If you have concerns about water safety, investigate a filter system such as Multi-Pure. Better yet, work with your water district to develop stricter standards for water purity.
- vi. Pre-bagged produce not only uses wasteful packaging, but also tends to come from farther away, consuming more of our dwindling oil supplies in transport.
- vii. Tiffin (stainless steel food containers) are a long tradition in India. They store food well, have longer life than Tupper Ware and its look-alikes (you’ve probably seen the fading, corroding, and chipping that occurs to these plastic containers), are more hygienic, and have a certain panache
- viii. Look for and reward earth-s friendly packaging choices, e.g.,
Buy greeting cards in paper boxes instead of clear plastic shells.
Ask you florist for flowers wrapped in paper, not clear film
Use pens that re-fill instead of land-fill.
- x. Support recycling schemes and promote support for one in your local area.
- xi. Fishermen throughout South Africa should not throw away waste line, net or plastic litter – this causes huge suffering and many deaths.
- xii. Practice and promote paper disposal of plastics in your home and at the beach. Always remember that litter generates litter. Never dispose of plastics in the sewage system.

Awareness of Plastic Pollution.

1. Zero Waste
2. Restriction of Plastic Industries
3. Finding alternatives – eco – friendly technology

What you can do about plastic pollution?

Personal Steps	Actions
Plastics bags	Discourage don't take buy cloth bag paper bass
Plastics bottles	Use glass or tin can bottles
Tiffin boxes	Stainless steel which more hygienic life long durable
Utensils	Use steel aluminum, earthen plots, or utensils made of glass
Stationery pens folders etc	Discourage pen made of plastic use stationery paper less offices
Create awareness	Lectures through NGOS

METHODOLOGY

The study was conducted mainly based on primary sources and secondary sources. . The sources of data include Different Research Papers regarding environmental pollution to carry out the study both primary and secondary data were used. These are given below:

Primary Sources:

Face to Face conversation with 126 respondents (prepared questionnaire and we have personally interviewed.)

Secondary Sources:

Different articles, research about Pollution Websites, Journals Search in Google.

The study was conducted in Warangal City; in Telangana state it is located at 140 km away from Hyderabad. The city has total human population of 627449 of which 314234 were men and 313215 were women. (Warangal Urban 2011 Census).

Table: 1 Demographic profiles of respondents of Warangal (Urban) City.

Variable	Category	Numbers	Percentage (%)
Sex	Male	79	62.69
	Female	47	37.31
Education Status	Illiterate	20	15.87
	School Education	75	59.52
	Higher Education	31	24.61
Occupation	Student	46	36.50
	Employee (Pvt & Govt)	48	38.10
	Others *	32	25.40

*House wives, Daily Workers

Table: 2 Commonly used Plastic Products.

Variable/Category*	Plastic Bags	Plastic Bottles	Plastic Baskets, Buckets	Plastic Shoes
Sex				
Male	58	56	54	36
Female	36	36	35	30
Total	94	92	89	66
Education Status				
Illiterate	12	12	12	12

School Education	62	60	60	50
Higher Education	20	20	17	04
Total	94	92	89	66
Occupation				
Student	53	12	12	12
Employee (Pvt& Govt)	17	60	60	48
Others **	24	20	17	06
Total	94	92	89	66

*Multiple Responses possible **House wives, Daily Workers

Table: 3 Factors for wide spread utilization of Plastic of Warangal (Urban) City.

Variable/Category*	Low Price	Easy Availability	Light Weight	Lack of alternative materials
Sex				
Male	75	74	50	48
Female	45	40	28	22
Total	120	114	78	70
Education Status				
Illiterate	18	18	18	18
School Education	72	70	36	28
Higher Education	30	26	24	24
Total	120	114	78	70
Occupation				
Student	44	44	16	16
Employee (Pvt& Govt)	46	40	35	32
Others **	30	30	27	22
Total	120	114	78	70

*Multiple Responses possible **House wives, Daily Workers

Table: 4 :Plastic waste disposal of Warangal (Urban) City.

Variable/Category*	Open dumping	Burning
Sex		
Male	64	56
Female	38	31
Total	102	87
Education Status		
Illiterate	18	10
School Education	64	63
Higher Education	30	14
Total	102	87
Occupation		
Student	44	38
Employee (Pvt& Govt)	28	26
Others **	30	23
Total	102	87

*Multiple Responses possible **House wives, Daily Workers

Table: 5 :Responsible for increasing trend of Plastic usage of Warangal (Urban) City.

Variable/Category*	Lack of awareness
Sex	
Male	70
Female	39
Total	109
Education Status	
Illiterate	18
School Education	71
Higher Education	20
Total	109
Occupation	
Student	68
Employee (Pvt& Govt)	11
Others **	30
Total	109

*Multiple Responses possible **House wives, Daily Workers

Plastic wastes pose serious environmental pollutions and health problems in environment and humans. The objective of this survey was to assess usage of plastic and their environmental impacts in Warangal Urban. A questionnaire was used to collect data from 126 randomly selected respondents. The results indicated that the larger proportion of the respondents used plastic bags more frequently than any other plastic products regardless of their occupation, and economic and educational status. Low price and easy availability were the main reasons for the widespread utilization of these products.

GOVERNMENT DEGREE COLLEGE, WARANGAL - RANGASAI PET

The objective of this survey is to assess the use of plastic bags, their disposal and adverse impacts on environment in Warangal Urban. Your views are extremely important to the success of the survey as well as to the efforts being made to minimize environmental impacts of plastic bag wastes. Thus, are kindly requested to cooperate in giving responses to the items given in this questionnaire. Multiple responses are possible for the items. Please use mark.

Section I. Profiles of respondents

Sex: Male () Female () Age ()

Educational background

Illiterate () School education () Higher education ()

Occupation: student () Govt/Pvt. Employee () Others (Please, specify) _____

Section II. Survey questions

1. Do you use Plastic Bags? YES / NO

2 How often do you use plastic? Always / Sometimes / Never

3. Give rank 1 to 4 where you think plastic bags are used?

Super Market () Market () Departmental Stores () Garbage disposal (1 for most & 4 for least).

4. Which plastic products do you use excessively?

Plastic bags () Plastic bottles () Plastic buckets, baskets () Plastic shoes ()

5. Why do you prefer to use the plastic products? (Give rank)

They are cheap () they are light in weight () They are easily available () Lack of alternatives ()

6. Do you think that plastic bag wastes cause problems? Yes () No ()

7. How you do dispose the plastic bag waste of the plastic materials?

Open dumping () Burning () others ()

8. Problems faced using of plastic.' what are the problems?

- Animal death () Human health problem () Blockage of sewage ()
Deterioration of natural beauty of environment. ()
9. Have you heard environmental impacts of plastic bag wastes on environment?
Yes () No () No idea ()
10. if you want awareness programs by (how or where)?
T.V. () School () From professionals () Published materials ()
11. Is the trend of utilization of plastic bags increasing or decreasing?
Increasing () Decreasing () Others ()
12. Usage of plastic is “Increasing”, what are the possible reasons?
Low cost () low weight () Availability () Lack of awareness ()
13. Plastic usage for reducing (Decreasing”), what are the possible reasons?
Alternative materials () Awareness of the community ()
14. If you say plastic bags should not be used, what alternatives can be used?
Paper bags () Fiber bags () Cloth Bags () others ()
15. Additional comments (if any) _____

CONCLUSION

Presently India and world facing a problem with the plastic pollution. to control the plastic pollution Effective policy requires effective monitoring and the current state of plastic waste monitoring needs harmonization, which is being put into place by various guidelines on plastic debris in general. There is also a need for better education and awareness around plastic waste. Plastic footprints and labeling on products are possible but need the appropriate education to make them meaningful. Alongside this there could be labeling of products that contain known harmful additives. Banning of some harmful chemicals contained in plastic, such as Bi phenol A and some phthalates has already occurred, but for others restriction may have to be voluntary. A harmonized industry-wide effort is needed to communicate information about chemicals used in plastic, alongside public education about the chemicals.

Plastics have transferred everyday life usage increasing and annual production is likely to exceed. In this concluding project on Plastics, the Environment and Human Health, we synthesize current understanding of the benefits and concerns surrounding the use of plastics and look to future priorities, challenges and opportunities. It is evident that plastics bring many societal benefits and offer future technological and medical advances. However, concerns about usage and disposal are diverse and include accumulation of waste in landfills and in natural habitats, physical problems for wildlife resulting from ingestion or entanglement in plastic, the leaching of chemicals from plastic products and the potential for plastics to transfer chemicals to wildlife and humans.

To raise public awareness, the regional and national different levels of educational curriculums must include the waste management systems from the grass-roots as information resources. In addition to creating public awareness on the importance of a healthy environment, mechanisms of controlling the generation of wastes at the source, alternative disposal ways, establishing additional drop-off areas (landfills) and incineration mechanisms, plastic recycling facilities are also recommended. Helping communities to reduce their exposures to health toxicants will increase the likelihood for a healthy society and clean environment for the coming generations.

SUGGESTIONS

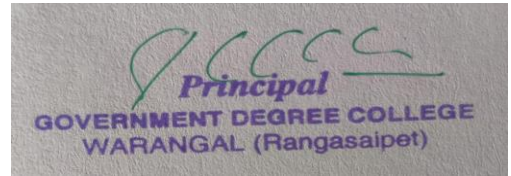
- Use reusable cups and bottles.
- Stop buying water bottles.
- Boycott micro breads.
- Stop using plastic straws.
- Wean yourself off disposable plastics.
- Use plastic free products.
- Stop chewing Gums.
- Avoid plastic packaging for food.
- Start a plastic bag ban.
- Re use glass containers.
- Use cloth diapers.
- Bring your own shopping bags.

REFERENCES

- * Sathyanarayana S. Phthalates and children's health. *CurrProblPediatrAdolesc Health Care*. 2008;38:34–49. [[PubMed](#)]
- * Balasubramaniya MH. Reservation Policy for Small Scale Industry: How it Delivered the goods? *Economic and Political Weekly*. 1995
- * Environment Protection Act, 1986.
- * Plastic Recycling Rules.
- * Times of India Reports
- * Wikipedia Websites
- * Defra 2008The milk roadmap London, UK: Department of Environment, Food and Rural Affairs; (accessed 10 July 2008).
- * The environmental impacts of the disposal of plastic pollution-Agendum Abraham gebrekidan (sacha environmental studies volume2 pp 81-94).
- * The pollution of the marine environment by plastic debris: Jose G.B. Derail A book of engineering chemistry by Jan and Jain.
- * Public health impact of plastic: an overview-Neeti Rustagi S.K. Pradhan *Plastics in Depth Recycling disposal Toxicity, Health Impacts*.



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