

A Research Report on The Impact of Single-Used Plastic Carry Bags on The Environment in An India City Like Delhi

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Abstract

When plastic bags were first put on the market in the 1970s, both customers and retailers adopted them with great favor. The widespread use of disposable plastic bags has raised serious environmental concerns. As the population grows, so do the number of shops, markets, malls, and vegetable vendors in large cities, often located along pavements. Consequently, people frequently purchase daily necessities and vegetables in single-use plastic carry bags on their way home from work or business. This has led to a continual increase in both the consumption and disposal of plastic products. A survey was conducted in North West Delhi to understand the usage and reuse of plastic carry bags among the general public and to assess their awareness of the environmental impact of plastic products. The present study aims to ascertain the usage and recycling patterns of single-use plastics and evaluate the degree of awareness regarding their detrimental effects on the environment. The study will make use of primary and secondary sources of information. A survey that is being performed in different parts of North West Delhi will be used to gather primary data. Tables and graphs will be used for descriptive data analysis. The results of the poll show that most participants use plastic bags on a regular basis and are aware of its impact on the environment, irrespective of their age, gender, career, or level of education. By identifying the elements that lead to environmental contamination, this study hopes to add to the body of existing literature. In addition, the government may enact stringent laws and carry out awareness campaigns to lessen environmental harm.

Keywords: Plastics, Plastic Bags; Consumers; Disposal; Environment; Damage.

Introduction

Over the past few years, Delhi has seen a sharp growth in the volume of solid trash produced. Variations in people's lives, large-scale building and development projects, labor movement from rural to urban areas, and fast population increase are all major contributors to environmental pollution.

Over 10,000 tons of waste are produced everyday on average in Delhi, with nearly 8,000 tons being disposed of in three large landfills located in Bhalswa, Okhla, and Ghazipur. But the amount of rubbish generated actually exceeds official records by a large margin, as over 15,000 ragpickers handle a large share of it. The Solid Waste Management Rules, 2016's standards and rules are not being followed by these disposal sites, making the situation worse. As per the "Master Plan for Delhi-202," these locations were fully utilized far in advance of 2008. As a result, the majority of these locations are currently contaminating the local wildlife and flora.

According to the most recent draft manual on urban solid waste management from the Union Ministry of Urban Development, a landfill with a 20-year lifespan may hold three million

tons of rubbish on 40 hectares of land. Based on the current circular rate, 800 hectares of land would be needed for Delhi, which would cost Rs 80,000 crore.

An average of 40% of the rubbish produced every day in Delhi and throughout India is made up of plastic debris, and about 50% of this waste is left uncollected. Uncollected plastic debris causes open-air burning that harms wildlife, people, and the environment, as well as obstructing drainage and river systems, contaminating soil and water, and affecting marine



ecosystems. In spite of these negative consequences, plastic bag usage is nevertheless rising quickly.

Plastic is not biodegradable by nature; it takes more than a millennium for it to break down in soil. The two main nonrenewable resources used in the manufacture of plastic are natural gas and petroleum. Plastic bags are typically made from three types of polyethylene: Linear Low Density (LLDPE), Low Density (LD), and High Density (HD).

Shopping bags made of linear low-density polyethylene (LLDPE) are frequently used by grocery stores, clothing stores, and malls to achieve the right thickness and glossy appearance. Low-density polyethylene (LDPE) thin bags, or *panni*, are commonly used for everyday tasks. People choose plastic bags because they are convenient, easily accessible, and reasonably priced. Nevertheless, excessive use and irresponsible disposal of plastic products significantly contribute to plastic pollution.

Currently, the management of plastic waste poses a significant challenge for various civic authorities in Delhi and NCR areas, primarily due to the absence of an effective waste management system and sufficient manpower. There is a noticeable issue with plastic waste not being properly processed for recycling or disposed of in landfill sites. This is attributed to the inability of authorities to cover the entire city for waste collection, as well as the high transportation costs associated with dumping it in landfill sites.

Research Objectives

The following are the main research goals for this study:

1. To determine how individuals use and recycle single-use plastic carry bags for everyday purchases.
2. To assess the general public's awareness of the harm that single-use plastics cause to the environment.

Research Methodology

To get the right thickness and glossy finish, shopping bags made of linear low-density polyethylene (LLDPE) are frequently used in supermarkets, clothing stores, and malls. Low-

density polyethylene (LDPE) thin bags are widely used for daily use. Plastic bags are preferred for their cost-effectiveness, accessibility, and convenience. Nevertheless, the excessive use and improper disposal of plastic products significantly contribute to plastic pollution. Plastics do not naturally decompose, and when incinerated, they emit harmful substances into the environment. When plastic waste is disposed of in landfills, it can react with water, generating dangerous chemicals. These chemicals have the potential to seep into the groundwater, compromising its quality. Furthermore, plastic bags can be carried by the wind, resulting in land pollution and obstruction of urban drainage systems.

Results & Discussion

Data were gathered at random from 100 respondents, of whom 45% were men and 55% were women. Nearly all of the responders are aware that plastic is bad for the environment. The demographic profile of the responders is displayed in Table 1 below.

Table 1. Demographic Variables of Sampled Respondents

AGE	Numbers	Percentage
<20	18	18%
20-35	56	56%
35-50	24	24%
50>	2	2%
Educational qualification	Numbers	Percentage
Up to 5 th Passed	4	4%
Up to 12 th passed	52	52%
Graduate & Post graduate	44	44%
Profession		
Student	36	36%
Service	22	22%
Business	12	12%
Other	30	30%

From the Table 1, Based on the data, it is evident that 74% of the respondents are under the age of 35, while 96% have educational qualifications ranging from 12th standard to postgraduate level. The survey findings reveal that a significant majority of respondents, irrespective of age, education, gender, or profession, incorporate plastic into their daily routines, whether it be for shopping or transporting goods. The primary reasons for the preference for plastic carry bags include their lightweight nature, cost-effectiveness, ease of transport, and popularity among vegetable vendors and retailers.

Out of the 100 respondents surveyed, only 10 individuals mentioned that they refrain from using plastic bags whenever feasible. This indicates that the remaining 90 respondents, constituting 90% of the surveyed population, utilize plastic bags either frequently or moderately in their day-to-day activities. The nature of usage frequency can be seen in table - 2.

Table-2: Usage frequency of plastic carries bags.

	Number	Percentage
High	45	45%
Moderate	35	35%
Low	10	10%
Never use	10	10%

It is evident that plastic bags are ultimately disposed of as waste. When questioned, 25% of respondents who use plastic bags stated that they reuse them, but eventually use them for household garbage disposal. Forty percent (40%) admitted to not reusing plastic bags and simply throwing them away as garbage. This practice is widespread in many households in Delhi. Only 35% reported that they store plastic bags and sell them to hawkers for recycling. This process can reduce to some extent the solid waste (see table-3).

Table 3. Disposal of Plastic Bags

Store	35	35%
Through away	40	40%
Reuse	25	25%

The data presented in table-4 illustrates the behavior of survey participants in bringing their own bags (Thaila) when buying vegetables. Merely 22% of individuals reported that they consistently bring their own bags for vegetable shopping, whereas the vast majority (78%) opt to shop without their own bags and request plastic bags from vendors.

Table 4. People carry own plastic bags or ask from Vendors

	Number	Percentage (%)
Carry own bag	22	22%
Don't carry own bag	78	78%

When the merchants asked the people to pay an extra two to three rupees for plastic carry bags, the people immediately refused to pay the extra amount. According to this report, if merchants and shops begin to charge customers for plastic carry bags, consumers may begin to bring their own bags, which might reduce pollution in the city.

Government Rules about the use of Plastic Carry Bags:

As per the regulations stipulated in the Plastic Waste Rules, 2011 by the Indian government's Ministry of Environment and Forests, shops and vendors are not allowed to give away free carry bags to customers. To recuperate the costs related to their manufacturing and disposal, the appropriate local authority is able to regulate the price of plastic carry bags based on factors such as size and quality.

The Delhi Pollution Control Committee has made it illegal to use plastic in Delhi that is smaller than 50 microns, but single-use plastics are not immediately forbidden. Although the term "single-use plastic" has no legal definition, it usually refers to products like straws, bags, cups, water bottles, wrappers, and sachets that are known to significantly contribute to soil and river pollution. The Delhi High Court issued an order in 2016 prohibiting the use of single-use plastic glasses in all Delhi and Delhi NCR hotels, restaurants, and parties; however, the order has not yet been put into effect.

Plastic Carry Bags and its Impact on Environment:

Shopping bags manufactured of linear low-density polyethylene (LLDPE) are widely used in supermarkets, malls, and clothing stores to provide the desired glossy finish and thickness. Low-density polyethylene (LDPE) thin bags are widely used for daily use.

Plastic bags are favored for their cost-effectiveness, accessibility, and convenience. However, the excessive use and improper disposal of plastic products significantly contribute to plastic pollution. Plastics do not naturally decompose, and when incinerated, they emit harmful substances into the environment. When plastic waste is disposed of in landfills, it can react with water to generate dangerous chemicals. These chemicals have the potential to seep into the groundwater, compromising its quality. Additionally, plastic bags can be carried by the wind, leading to land pollution and obstruction of urban drainage systems.

Chart 6 illustrates the feedback on the variable "delivery on time." The data shows that 35.67% of respondents agree, 28.03% strongly agree that products are received on time through online shopping, and around 14% of respondents disagree with this statement.

Conclusion

The findings from the survey show that the majority of participants, irrespective of their demographic characteristics, have a good understanding of the harmful effects of plastic on the environment. Through discussions, it became apparent that a significant number of individuals are open to transitioning to jute or cotton bags, either partially or completely, in order to contribute to the decrease in plastic consumption. While there is a strong desire among respondents for a plastic-free Delhi, it is crucial to encourage the practice of bringing reusable bags when shopping and buying produce.

The results of the poll indicate that people are not prepared to pay more for plastic bags. Consequently, charging more for each plastic bag at retail establishments might persuade patrons to start using their own reusable bags.

Delhi is home to a sizable population, numbering around 29.60 million people. Therefore, limiting the use and disposal of plastic bags requires more than just passing legislation and fining people. It is advised that the Indian government, in collaboration with the governments of the several states, collaborate with non-governmental organizations, academic institutions, and young people living in metropolitan areas to promote the use of eco-friendly substitutes such paper and cloth bags. The goal of this project is to shield urban areas from deteriorating environmental conditions and possible natural calamities.

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