

**ASSESSING PEOPLE’S PERCEPTION AND ATTITUDE
REGARDING SOLID WASTE MANAGEMENT AFTER THE
BAN ON PLASTIC BAGS (A CASE STUDY OF G-6 & F-7
SECTORS OF ISLAMABAD)**



By

**SAJID HUSSAIN
MS EPM**

**Department of Earth and Environmental Sciences
Bahria University, Islamabad**

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SAJID HUSSAIN

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Approval for Examination

Scholar's Name: SAJID HUSSAIN, Registration No. 01-263182-005

Programme of Study: MS Environmental Policy and Management,

Thesis Title: Assessing People's perception and attitude regarding solid waste management after the ban on plastic bags (A case study of G-6 & F-7 sectors of Islamabad)

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To my beloved Parents and the family

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ABSTRACT

Solid waste management is usually regarded as a major environmental issues-particularly in larger cities, however until now its generation is unavoidable and highly neglected in most developing countries as it was not a big issue earlier, but now it turned out to be a great problem and widely known concept to municipal authorities throughout the world. This study aimed at understanding the perception and attitude of people of G-6 and F-7 sectors on the ban of plastic bags and the corresponding changes in various attributes and usage associated with it. This study used a cross-sectional survey method and data was collected from 281 households, 99 shopkeepers, and 20 C.D.A officials through a questionnaire survey. Data was analyzed using the Statistical Package for Social Science (SPSS). Results showed that 96 % of residents of G-6, 86 % of F-7, and 81% of kachi abadi are in favor of a ban on plastic bags. Results also showed that the perception and attitude of females are better than males towards the ban and use of alternative plastic bags. The results showed that the level of solid waste management awareness among households of F-7 sectors recorded a higher level of solid waste management awareness as compared to the G-6 sector & residents of kachi abadi. The government should enforce strict compliance by enforcing laws regarding the ban on plastic bags not only in Islamabad but all over the country to protect the environment.

ABBREVIATIONS

Pak-EPA	Pakistan Environmental Protection Agency
SW	Solid Waste
SWM	Solid Waste Management
ISWM	Integrated Solid Waste Management
SWMS	Solid Waste Management System
CDA	Capital Development Authority
SPSS	Statistical Package for Social Science
SRO	Statuary Regulation Order

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CHAPTER 1

INTRODUCTION

1.1 Introduction of Plastic Bags

The plastic word is derived from a Greek word, “plastikos” meaning the material that can be changed into various shapes. The basic material is used for manufacturing plastics is extracted from oil, coal, and natural gas. Plastic or polythene bags are usually known as shopping bags which are used for packaging food and other items and become part of waste after use. Most of the residents use plastic bags to gather their household waste and place them roadside until they are carried away by waste collectors. It is predicted that trillions of polythene bags are used in the world annually. The use of plastic is rapidly increasing at the rate of almost 5% annually, and the production of plastic has reached about 150 million tons per year worldwide. The earth would become polluted at an alarming rate due to the frequent use of plastic bags ([Ramaswamy & Sharma, 2011](#)).

Petroleum and natural gas are the main elements that are used for manufacturing plastic bags. The use of plastic bags in shopping for carrying goods is very common because they are low-cost, light-weight, and strong enough. The environmental damage cost of plastic is very high that is why many campaigns were launched to reduce the extreme plastic bags use in different countries. Campaigns failure due to the resistance and protests from the retails, groceries, and plastic industry in most of the cases. On the other hand, regulatory and voluntary solutions are being implemented in many countries around the world ([Saidan, Ansour, & Saidan, 2017](#)).

The packing industry provides a variety of pouching goods to its customers. Such practice is commonly found in Malaysia that pouching products are mostly used to parcel hot or cold food items. It was observed that about 62% of the consumers like to purchase hot edible items in plastic bags on a daily or weekly basis due to their low cost and durability. Users are not serious by the public campaign against the use of plastic bags as

well as government protocols were also unable to decrease the use of plastic bags ([Jayaraman, Haron, Sung, & Lin, 2011](#)).

Plastics have been around us for more than 100 years, and it is assumed that plastics would be around us for many more years without a doubt, that plastics are extremely useful in our daily life. Some environmentally conscious consumers prefer to avoid plastic bags by using paper bags during shopping and some go even further, just reusing the same cloth bag over and over again to protect the environment ([Lajeunesse, 2004](#)).

The use of plastic bags became widespread in the 1970s to carry groceries and goods and became popular at the end of the 20th century. There have been no exact statistics made regarding the production of plastic bags so far, but today a large number of plastic bags are being used in the world annually. Plastic bags have become very common with both retailers and consumers. Although plastic bags are very useful especially for carrying different items they are also causing environmental degradation ([Jalil, Mian, & Rahman, 2013](#)).

Plastic bags have been introduced in the 1970s and available in different types all over the world. Almost 500 billion plastic bags are manufactured every year as they are cheap and convenient to use. People prefer to use and dispose of plastic bags after every single-use. Plastic bags can persist for up to 1000 years and responsible for environmental pollution. They disturb the natural beauty of the environment as it is changing day by day. According to the report of the U.S, Environmental Protection Agency EPA (2008) emission of carbon dioxide has increased by 2% and the emission of poisonous gases also increased almost 24% in the residential sectors due to the use of plastic bags from 1990 to 2006 ([Poladi Deekshitha, Padma, Kalyan, & Srikanth](#)).

Plastic bags have changed our way of life today. It is estimated that the use of plastic bags has reached up to 1 trillion each year throughout the world. The utilization of plastic bags across the world is very common. Many countries around the world are taking necessary actions to minimize the use and issues related to plastic bags ([Miller, 2012](#)).

Consistently, around 500 billion plastic bags are utilized around the world annually. This indicates that more than one million plastic bags are being utilized each moment and they're harming our environment. It is estimated that each man, on our planet utilizes 83 plastic bags each year. That is one plastic bag for every individual each four and a half-

day. Plastic bags hinder rivers, canals, and drains and also providing grounds for germs and microscopic organisms that cause illnesses ([Jacobsen, 2005](#)).

Plastic pollution on the earth is at present long-suffering overall attention in the world. Specifically, the removal of city wastewater flowing, sewage dirt landfill, and plastic covering from farming exercises is a significant problem and concern for soil contamination. Plastic pollution in the marine and freshwater biological systems is also important concerning issues for environmental scientists ([Chae & An, 2018](#)).

Plastic bags are commonly used for carrying consumer goods as well as to dispose of domestic waste. Several regulatory tools have been used worldwide to reduce plastic bag use, such as bans and advertising of alternative bags as well as taxes or levies. Many countries of the world like the African countries i.e. Eritrea, Zanzibar, and Somalia, etc. as well as Asian countries i.e. China, Bangladesh, Taiwan, Thailand, Nepal, the Philippines, and some states in India have banned plastic bags. Minimum thickness rules for plastic bags (i.e. a partial ban) exist in South Africa ([Rayne, 2008](#)).

The use of plastic bags is very common in our life due to its durability, lightweight and its low cost. Although these benefits are attractive for an individual user, the problems, as well as the cost of disposal of plastic items, would burden the whole society. Plastic takes anywhere from 15 to 1000 years to biodegrade after they enter the environment. Besides, plastic bags are also causing for choking the drains and responsible for breeding ground for mosquitoes when rainwater gets collected in them. Plastic bag packing for hot edible items can cause the migration of injurious chemicals to food products and also responsible for diseases like heart and liver ([Joseph et al., 2016](#)).

Discarded plastic bags can find their way everywhere including the far-flung areas, grounds, and Oceans which is not only a threat to aquatic life but also the agricultural lands. Many endangered species of turtle mistakenly swallow the microplastic instead of seaweeds making the situation worse. There is a great need to give more attention to the harmful effects that plastic bags are causing for precious agricultural lands which can compare with gold that produces trillions of tons of different types of vegetables and food grains to feed our hungry world ([Jalil et al., 2013](#)).

Many agricultural countries like Bangladesh, India, Pakistan, South Africa, etc. have banned plastic bags due to their harmful effect on the environment and agriculture. Some

countries have already forbidden the production and use of plastic bags bypassing parliamentary legislation by considering its large-scale damaging effect on the agricultural land for example South Africa, Somalia, Bangladesh, India, and some other environmentally concerned countries. It is indeed admirable that numerous European countries have announced a charge on plastic bags in taking into account the damaging impact of plastic bags on agricultural lands ([Jalil et al., 2013](#)).

1.2 Solid Waste Management

Solid waste contains solids or semi-solid materials including gases and liquids such as agricultural waste, industrial waste, municipal garbage, and sewage water. The most famous types of solid waste are municipal, industrial, agricultural and hazardous waste. Waste picking is an important source of income for poor urban dwellers. It also contributes vastly to the informal economy, as well as to the protection of the environment as through this activity the volume of solid waste can be reduced ([Sentime, 2011](#)).

The term Solid waste is used throughout the world to define unwanted goods from domestic, industrial, agriculture, and public services as well. The municipal solid waste consists of organic (fruits and vegetables) and inorganic (plastic, paper, glass, etc.). However, in Asia households, agricultural, industrial, and hospital waste are jointly called municipal solid waste. SWM is usually considered as a major environmental problem mostly in big cities, however presently its generation is inescapable and highly ignored in most developing countries as it was not a big issue earlier, but now it has become a great problem and widely known concept to municipal authorities all over the world. Integrated Solid Waste Management (ISWM) would be suggested as the most suitable way to manage solid waste issues ([Haider, Amber, Ammara, Mahrukh, & Aisha, 2015](#)).

SW is the main cause for spreading harmful diseases. The rapid increase in population is the major for an increase in SW. Some people throw this waste into streets, roads, and other public places, so that flies, insects, rats, etc. attract, and as a result, the disease may spread. ([Puri, Kumar, & Johal, 2008](#)).

Municipal solid waste is causing drastic problems for the world environment, due to its rapid urbanization intends and mobilization. There were 2.9 billion urban inhabitants

throughout the world who generated about 0.64 kg of MSW per person daily (0.68 billion tons every year) in the last decade. Today this amount has increased to about 3 billion residents producing 1.2 kg per individual every day (1.3 billion tons for each year). It is projected that by 2025 this will probably increment to 4.3 billion urban residents producing about 1.42 kg/capita/day of metropolitan solid waste (2.2 billion tons for each year) ([Hoorweg & Bhada-Tata, 2012](#)).

Solid waste management is a task for the authorities of big cities especially in developing countries mostly after the rapid increase of generating solid waste, the weight transfer towards the municipal budget due to high costs linked to its solid management, the absence of understanding over a variety of factors that affect the different phases of solid waste management and contacts required to enable the whole handling system working of solid waste ([Guerrero, Maas, & Hogland, 2013](#)).

Municipal solid waste management (MSWM) is one of the main environmental issues of major cities in the world. Inappropriate management of municipal solid waste (MSW) causes dangers to inhabitants. It is projected that about 90% of MSW is disposed of irrationally in open dumps and landfills, generating problems for public health and the environment ([Sharholy, Ahmad, Mahmood, & Trivedi, 2008](#)).

In urban areas throughout the world, but mostly in the rapidly growing cities and towns of developing countries, the management of solid waste has become a major challenge. Statistics show that the world population was six billion in 2001 with 46% people residing in urban areas. Total world municipal solid waste generated in 1997 was about 0.49 billion tons with an estimated yearly growth rate of 3.2-4.5% in developed and 2-3% in developing countries. As urbanization is growing faster, the management of solid waste has become a main environmental and public health issue in urban areas. Technical, financial, institutional, economic, and social factors are responsible for these problems that constrain the development of effective solid waste management systems ([Abd Manaf, Samah, & Zukki, 2009](#)).

In China, the total amount of industrial solid waste was around 580 million tons in 1990. About 6.5 billion tons of industrial waste was stored in China until 1990, occupying an area of 58 692 hectares, of which 4060 hectares was potential farming land. In Wuhan city the total amount of industrial solid waste was 5.6 million tons in 1992, in which 5.0

million tons were recycled, 30 000 tons were treated chemically or physically and finally disposed of, 0.31 million tons was deposited near the plant, and 0.26 million tons was discharged into rivers, lakes, and seas ([Wei, Herbell, & Zhang, 1997](#)).

1.3 Perception and Attitude of People Regarding Solid Waste Management

Environmental scientists, as well as common people all over the world, have attracted the attention of environmental problems. People are becoming aware regarding environmental issues like global warming, air, water, and land pollution. Manmade pollution is caused most of the environmental problems which can damage natural resources and pollute our environment. Human activities generate waste that can pose risks to the environment and public health, should be handled and disposed of properly. Waste disposal is a serious issue for the community in the current situation, and improper disposal of solid waste pollutes the environment. Waste management technologies like incineration and landfilling are not an appropriate solution to this problem. No one wants a waste management site in his or her locality. The attitude of people regarding waste must change just as types of wastes are changing. People must realize that the solution lies in using waste as a resource rather than being destroyed ([Desa, Kadir, & Yusooff, 2011](#)).

The construction of a new SWM facility was a major challenge because of limited space in Japan. Peoples were worried about SWM facilities and their attitudes towards SWM were examined. A questionnaire was developed which was based on a literature review. It was sent to residents in three municipalities with dissimilar backgrounds. The questions covered concerns on the impact of SWM facility, management aspects, and attitudes towards facility construction. “Pollution and health effect”, had the maximum rating followed by “reliability”, “damage to nature” and “cost” of the many concerns. The rating was different between municipalities, reflecting their social and geographic backgrounds. As for attributes, the “opposed” attitude reduced for residents who had visited an SWM facility, even if they had only seen it from outside ([Rahardyan, Matsuto, Kakuta, & Tanaka, 2004](#)).

Policymakers and governments have realized a remarkably massive number of solid waste management (SWM) plans and projects, especially reusing and waste decrease

projects. The achievement of a solid waste management program mostly depends on household participation which depends on the attitudes and behaviors of the society on a very large-scale. A better understanding of the whole society's behavior and attitudes of individuals will help decision-makers to design and improve the efficiency of solid waste management policies ([Hilles & Abushbak, 2011](#)).

The nature of household waste management system, collection, and disposal of solid waste in households was studied in Nigeria. A sample of 30 households in Lagos State from eleven selected residential areas with an emphasis group of 60 respondents was used in Nigeria. The nominated residential areas were divided into high, middle, and low socioeconomic levels. A range of environmental behaviors, perceptions, and attitudes of respondents on household solid waste management was examined. The results were established with related to waste management behaviors between the respondents on the solid waste management system. Private Sector Participation has the highest support level in this regard ([Longe, Longe, & Ukpebor, 2009](#)).

1.4 Solid Waste Management in Pakistan

Pakistan having a population of over 160 million including 35% living in urban areas that generate more than 55,000 tons of solid waste per day. SWM includes the main practices of primary and secondary collection of solid waste only. However, only 60% of the generated waste is collected and out of this approximately 90% is disposed of in open spaces by using these waste collection means. The remaining uncollected waste is thrown in unfilled plots, alongside streets and roads where it accumulates over time and causes various diseases as well as destroys the aesthetic beauty of nature ([Haider et al., 2015](#)).

Improper solid waste management is causing hostile impacts on the environment in Pakistan. In most of the big cities existing solid waste management system is not working properly due to the high growth rate, high waste generation rate, lack of efficient management, and poor legislation. Lack of public awareness/community involvement, lack of funds, improper resources including improper equipment is the main reason behind the failure of municipal solid waste management systems. Failure of the municipal solid waste management system has serious environmental impacts like land and air pollution,

transferable diseases, blockage of drains, and water pollution in streams and rivers. The problems like collection, transportation, and disposal of domestic solid waste are being faced by the big cities of Pakistan ([Nisar, Ejaz, Naushad, & Ali, 2008](#)).

Solid waste management is one of the current difficulties in urban areas of the world and it is turning into a significant issue because of the fast and rapid growth in the population. Solid waste management is significant for improving the world and to succeed the inhabitants. In Pakistan, solid waste management is most likely horrible. Concerning open areas of big cities, the organization of solid waste management is not very clear, and the re-use of solid waste is dynamic. Pakistan is an undeveloped nation. In Pakistan, there is unsatisfactory solid waste management. It was proposed solid waste management (SWM) in Pakistan for big cities like Rawalpindi, Islamabad, and Karachi, etc ([Iqbal, Shah, Mumtaz, Khan, & Khalique](#)).

Pakistan is the second biggest nation in South Asia, occupying a population of roughly 180 million and positioning as the sixth-biggest one in the world. The investigation rises here whether the Solid Waste Management (SWM) is adequate for the massive population and whether the administration of solid waste in the country is up to the perceived measures and whether would it be able to support the sixth biggest population of the world? SWM as a great matter, needs legitimate consideration, hereafter, it causes contamination issues. Improper SWM puts negative effects on the population and environment, in addition to Carbon Foot-Printing as well as groundwater contamination. Basic techniques in Pakistan utilize for the treatment of solid waste are dumping include landfills, size decrease, and screening. Mechanical reusing has also likewise been practiced ([Rahman, 2013](#)).

SWM is one of the significant reasons for ecological deprivation in Pakistan. Improper administration of solid waste makes risks inhabitants. There is a general way to deal with the SWM in Pakistan. A solid waste collection framework exists as it is gathered just 51-69% of the complete waste created in significant urban areas. Civil collection of family waste is very unpredictable and controlled to costly areas. There is a poor administration of hazardous waste and due to present removal practice, no appropriate strategy has been utilized ([Mahar et al., 2007](#)).

1.5 Solid Waste Management Practices in Islamabad

Pakistan is facing a speedy deterioration in environmental conditions due to the traditional system of collection and dumping of solid wastes. Therefore, urban waste management has become the main issue in the big cities of Pakistan. Slight efforts have been made by the management to improve the waste collection and disposal facilities. This has some serious consequences ranging from the decline of soil quality to reduced plant diversity. The dumping waste site is located in an open reserved area of sector H-10, of Islamabad ([Ali, Pervaiz, Afzal, Hamid, & Yasmin, 2014](#)).

Expanded solid waste makes extra ecological issues the same number of urban communities can't oversee it. Sadly, none of the urban areas of Pakistan has a legitimate strong waste administration framework directly from an assortment of waste up to its appropriate removal. Being the capital city of Pakistan, Islamabad with a 90% education rate faces comparable strong waste administration issues. Around 91% of all-out metropolitan waste is made out of green and family unit squander which can strengthen fertilizing the soil in Islamabad. As of now, there is no legitimate arranging arrangement of metropolitan solid waste which shows deficient and wasteful reusing of natural/inorganic waste materials. A significant part of the recyclable domestic waste gathered is gone squandered and covered at dumping locales in H-12, and H-10 sectors of Islamabad city ([Qasim, Anjum, Iftikhar, Manzar, & Baber, 2011](#)).

Islamabad city has experienced rapid commercialization, the unplanned establishment of private residential areas, and continued growth of industrial bunches within residential sectors over the years. This has affected the beauty of Islamabad city due to waste disposal problems. Despite the infrastructure available to the (C.D.A), a proposed landfill site project has not been started to date and past practices of dumping refuse of all kinds in the area close to the residential sectors continue. ([Waheed, Siddique, Hamid, & Chaudhry, 2010](#)).

1.6 Effects of Plastic Bags on Solid Waste

Tons of plastic bags are produced by thousands of plastic factories worldwide that are usually used by the people because of their comfort and cheapness of use but their hazardous harmful impact is never highlighted. Plastic bags impact agriculture, environmental degradation, and sustainable development. People use plastic bags for their daily requirements mainly for shopping purposes as a result of which, the environment and agricultural lands are being polluted ([Jalil et al., 2013](#)).

Polythene chokes the drains and pollute the land and water bodies and become poisons for living things slowly but surely. Polythene is the main risk to animals also. Polythene pollution has become widespread now. They resistant to moisture, travel long distances because of their lightweight, and may also trap birds. Plastics cause pollution as they contribute to municipal solid wastes and are a great threat to air, oceans, soil, livestock, wildlife, and marine life too. Soil fertility also decreases when these plastic bags become part of manure and reach in agricultural fields ([Ramaswamy & Sharma, 2011](#)).

The burning of plastic waste in an open area is an important source of air pollution. The Municipal Solid Waste containing about 12% of plastics are burnt, discharging harmful gases into the environment majority of the occasions. The harmful materials hence discharged are representing a danger to vegetation, human and creature comfort, and condition in general. Harmful gases are unsafe for the Central Nervous System. In this manner, consuming plastic wastes increase the danger of illness, irritates the respiratory system, for example, asthma and causes cerebral pains, and harms the sensory system ([Verma, Vinoda, Papireddy, & Gowda, 2016](#)).

Improper disposal of plastic bags is responsible for environmental problems. Plastic bags can block storm drains and sewage systems which are responsible for flooding and the spread of diseases. Water trapped in the plastic bags also provides a perfect breeding ground for mosquitoes. Since most landfills are not normally covered with soil, the plastic bags are easily transported around the countryside where wildlife and livestock eat the plastic materials which may cause animal injury and death in Africa. Where the plastic bags are incinerated either for energy or mass reduction purposes, heavy metals and toxic

organic compounds can be produced. In agricultural areas, plastic bags can decrease the productivity of the land ([Rayne, 2008](#)).

Plastics resist biodegradation and pollute for many decades and centuries affecting human health and the environment after they enter the environment. Plastics can cause visible pollution as they contribute to a huge volume of total municipal solid wastes and are the main threat to air, oceans, soil, livestock as well as marine life. These plastics reduce rainwater percolation and also affect the groundwater ([Poladi Deekshitha et al.](#)).

In Kenya, more than 24 million plastic bags are used from month to month. The greater part of the plastic bags ends up in the strong waste stream. In Nairobi, the capital of Kenya, plastic bags presently establish the greatest test to strong waste administration, and home to 3,000,000 individuals. Therefore, plastic bag waste has pulled in extraordinary political and open consideration, particularly because the waste has to heap one a kind ecological issue ([Njeru, 2006](#)).

1.7 Solid waste after the ban on plastic bags in Pakistan

The natural effect of buyers has been consistently expanding, and the utilization of plastic bags has become an image of such an effect. Plastic bags have impacts on natural life, normal landscape, and waste administration.

On August 14, 2019, the Ministry of Climate Change had declared the use of polythene bag illegal banned the use of plastic under S.R.O 92 (KE)/2019, in Islamabad due to its harmful effect on the environment but the ban is being flouted due to ineffective implementation by the authorities concerned ([The Gazette of Pakistan, 2019](#)).

Solid waste management is a major issue in big cities of Pakistan and plastic bags are a major source of solid waste. In 2013 ‘Prohibition of Non-biodegradable Plastic Bags’ has been started by the Pakistan Environmental Protection Agency (Pak-EPA) to protect the environment of Islamabad. Pakistan is the 128th country to stop the use of the non-biodegradable material made from various types of polymers that are harmful to the environment and has been running awareness campaigns much ahead of imposing the ban but not all have adopted and accepted the new law in the capital. Pakistan Environment Protection Agency (Pak-EPA) has not been able to stop plastic bag use in supermarkets,

bazaars, and streets. People are continuing to use plastic bags and not co-operating with the ban either. According to the ministry of climate change plastic bags are far more hazardous to the environment and human health.

This study was carried out to find the current level of awareness of the environment and hazards related to the use of plastic bags among people who live in the G-6 & F-7 sectors in Islamabad. This study aimed at understanding the perception and attitude of people after the ban on plastic bags and the corresponding changes in various attributes and usage associated with it. The survey was conducted in the G-6 & F-7 sectors of Islamabad city. By keeping in mind, the harmful effects of plastic bags on the environment, I have decided to do research work on the perception and attitude of people after the ban on plastic bags. This is one of the burning issues and its consequences not only in Islamabad but also all over Pakistan.

1.8 Study Objectives

- 1- To study the perception and attitude of participants regarding solid waste management after the ban on plastic bags.
- 2- To assess the perception and attitude of participants of sectors G-6 and F-7 towards alternative plastic bags after the ban on plastic bags.
- 3- To suggest appropriate measures for policymakers based on research findings.

CHAPTER 2

MATERIALS AND METHODS

2.1 Study Area

The research was conducted in the capital city of Pakistan. A large number of residential sectors are present in Islamabad. The study area of the current study was the G-6 and F-7 Sectors of Islamabad city.

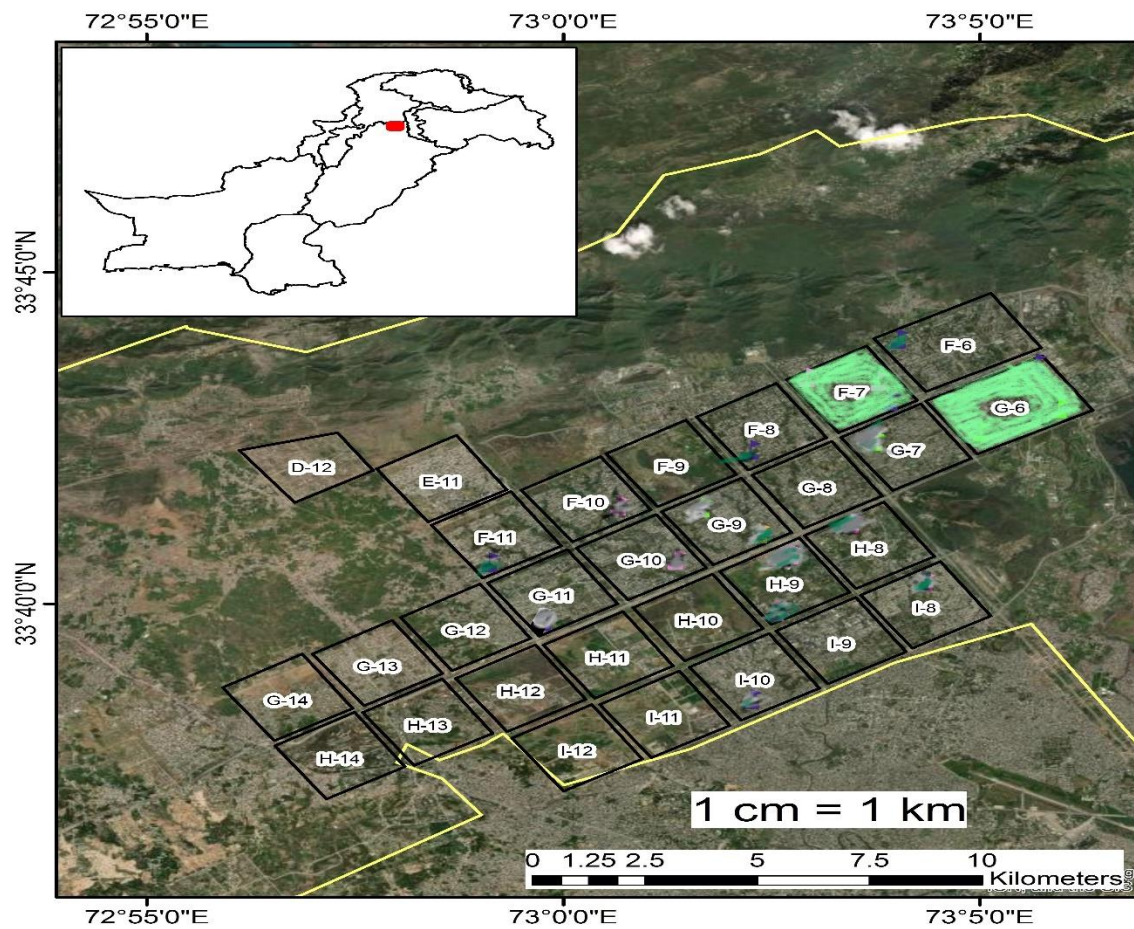


Figure 2.1 Map of the study area (Source: Google)

2.2 Research Design

A cross-sectional survey design was used in this study. Quantitative and qualitative approaches were used in this research. For the proposed study, through the questionnaire, the primary data was collected, processed, and analyzed for inferences and conclusions. Survey guidelines were designed to assess the attitude as well as the perception of different people either residents or shopkeepers in the study area.

The survey was conducted in various houses, shops/shopping centers, and the C.D.A office, etc. Even though participants continuing to use due to the easy availability and durability. There were collected 400 samples from the study area. The data collection method was the Survey method. The questionnaire was used as a data collection tool. For this purpose, a structured questionnaire was developed under the guidance of the supervisor. Data from the questionnaire survey were analyzed using the Statistical Package for Social Science (SPSS). The purposive convenient sampling technique was adapted for results and discussions.

2.3 Data collection

Data was collected by a questionnaire survey from each of the selected households, shopkeepers, and C.D.A official by the researcher personally in this regard. A total of 400 sampled from households /shopkeepers of G-6 and F-7 sectors as well as officials/workers of C.D.A head office was interviewed using a questionnaire.

2.4 The Population of the Study

The population of this study was the residents of the G-6 & F-7 sectors of Islamabad. There are Government/private accommodations in both sectors. Kachi Abadi is also located in the F-7 sector. C.D.A head office is located in sector G-7. So, there is a diversity of people of the upper, middle, and lower classes exist in both sectors. Similarly, Shopping malls and local markets are located in both sectors. So, the population of the study was

both households /shopkeepers of G-6 and F-7 sectors as well as officials/workers of the C.D.A head office.

2.5 Sampling Procedure

The researcher worked with a purposive convenient sample of 400 respondents (281 households, 99 shopkeepers, and 20 C.D.A officials) since it was difficult to cover the entire population of households and shopkeepers in the study area. This sampling method was helpful in the questionnaire survey.

2.6 Research Instruments

Research instruments are tools that were used by the researcher to gather or collect data or information. In this study, the questionnaire was used as a data collection instrument.

2.7 Questionnaire

Closed and open-ended questionnaires were both used in this research. A total of 400 samples were collected by using a questionnaire. A structured questionnaire was developed and distributed to selected participants. The researcher administered the questionnaires personally by hand directly.

The research questions and objectives of the study influenced the questions used in the study. Information collected was characterized into two categories that are, basic demographic characteristics of respondents; information on perception and attitude of people after the ban on plastic bags, and information on problems being encountered as well as recommendations. The questionnaire was therefore divided into two sections that are, A and B.

Section A was meant to obtain people's basic demographic data. Section B sought information on the peoples' awareness and attitude regarding the ban on plastic bags

identifying the problems being encountered in the ban on plastic bags as well as awareness and their recommendations to improve the information flow to them.

2.8 Data Analysis

Data obtained from the questionnaire were analyzed through the Statistical Package for Social Science (SPSS). An SPSS database capturing all elements of the questionnaire was created. All data collected was cleaned and screened to eliminate errors before entry. Eliminating errors ensures that subsequent analysis was not affected. Responses were coded and arranged thematically using SPSS. Descriptive statistics were used through the Chi-square test and tables and figures developed for graphical representation and visual comparison.

CHAPTER 3

RESULTS AND DISCUSSION

3.1 Demographic Data of Respondents

The general percentage and frequency of the demographic data of the respondents including gender, education level, residential sector of households, and types of participants are as follows:

3.1.1 Gender

The total number of respondents for the survey was 400. The majority of the participants were male (81%) while female respondents were (19%) as shown in figure 3.1. The higher male representation could be attributed to the cultural aspects of Pakistan, whereas females are more reluctant to talk to a stranger.

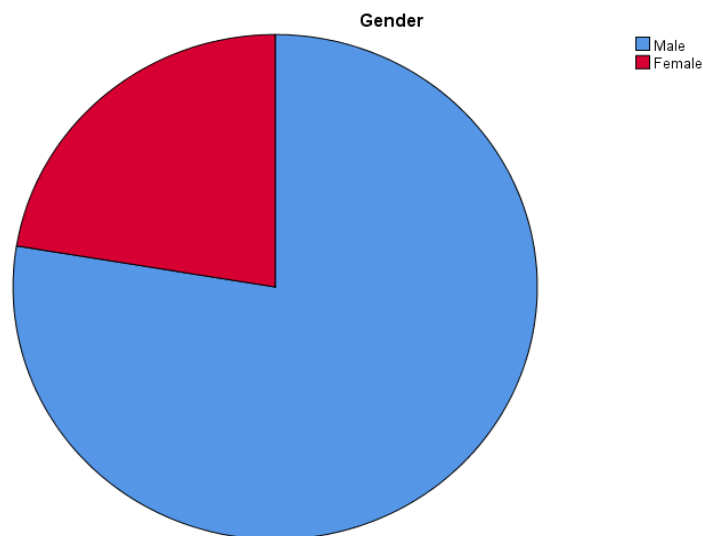


Figure 3.1 Total percentage of the gender of participants

3.1.2 Education Level

Islamabad is the capital of the Islamic Republic of Pakistan. There are renowned educational institutions and universities are present in Islamabad so as a result education level of the people of Islamabad is comparatively high as compared to other cities of Pakistan. The majority of the respondent are highly educated. However, there is a chance that this study might give biased results due to the greater respondents of higher education class. The education level was divided into four categories, i.e.,

- 1) Under matric
- 2) Matric
- 3) Inter
- 4) Graduation and above

From figure 3.1.2, it can be seen that according to education level approximately 18% of participants were under matric, 22% matric, 21% inter, while 39% were graduate and above. The majority of respondents were graduates of the sample population.

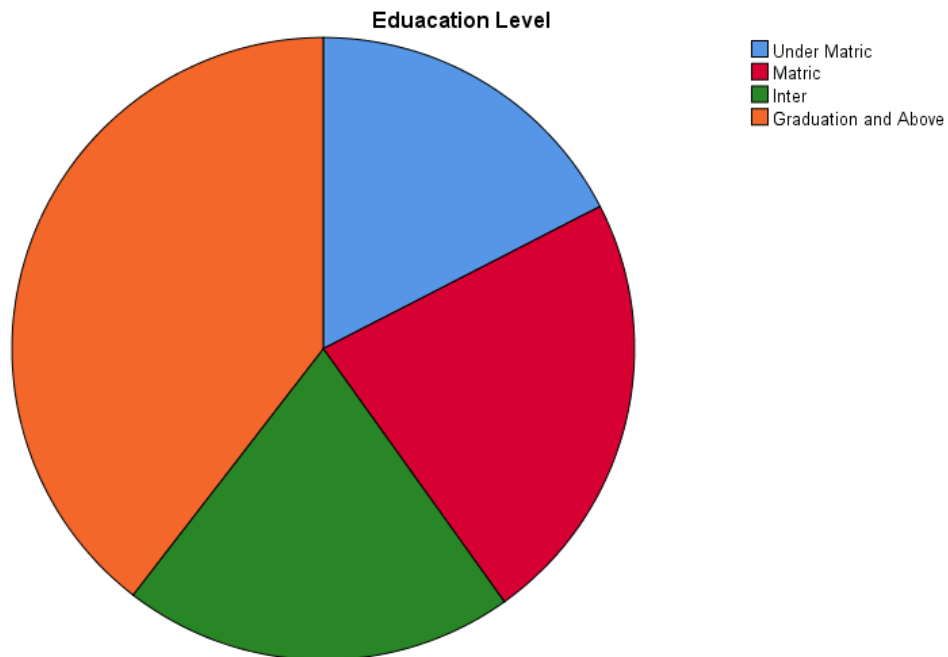


Figure 3.2 Total percentage of various education level of participants

3.1.3 Residential Sectors of Household

Islamabad is divided into basic zones which are administrative, diplomatic enclave, residential areas, educational sectors, industrial sectors, and commercial areas. Each residential sector has its shopping areas. The study was based on two sectors of Islamabad due to the diversity of population i.e., elite/upper class, middle class, and lower class. Both sectors were selected due to the availability of all three classes. In sector F-7 mostly residents belong to the upper class whereas in sector G-6 mostly residents are government servants and they belong to the middle class. The people of kachi abadi belong to the lower class, which is located in sector F-7. The residential sectors of households were divided into three categories, i.e.,

- 1) Sector G-6
- 2) Sector F-7
- 3) Kachi abadi

From figure 3.1.3, it can be seen that majority of 53% of participants from sector G-6, 27% from sector F-7, and 20% from kachi abadi. This is because that Sector G-6 is a densely populated sector due to government accommodations.

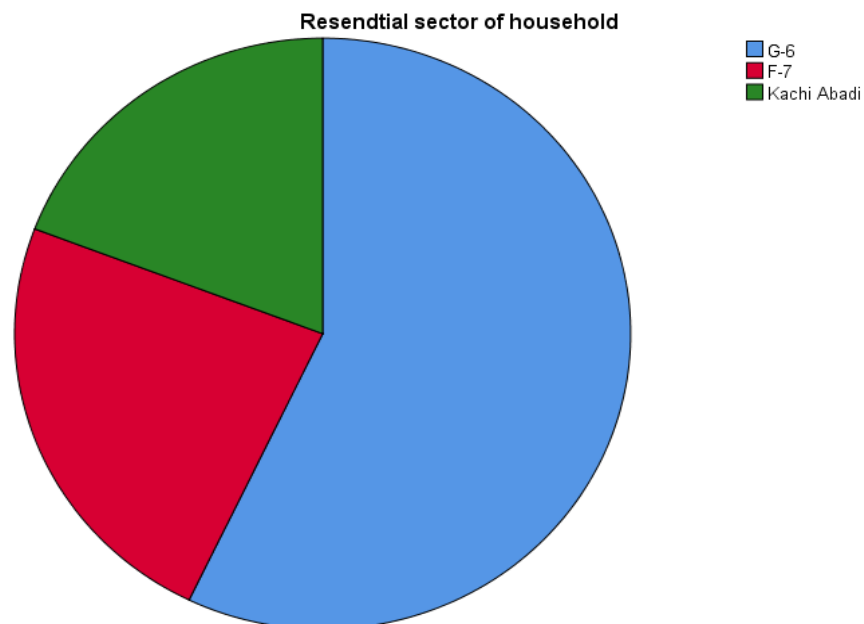


Figure 3.3 Residential sectors of households

3.1.4 Types of Participants

There were different participants in both sectors; G-6 and F-7. Types of participants were divided into three categories, i.e.,

- 1) Households
- 2) Shopkeepers
- 3) C.D.A officials

Figure 3.4 depicts that majority of the respondents were 70% of households, 25% shopkeepers, and 5% C.D.A officials. This is because the majority of the population in both G-6 and F-7 sectors consists of households as compared to shopkeepers and C.D.A officials.

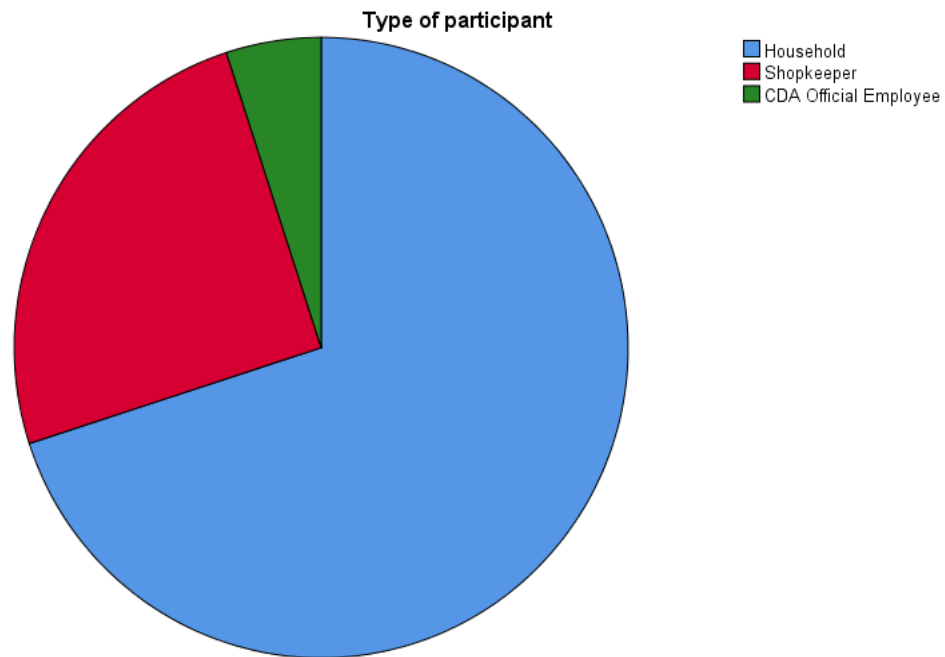


Figure 3.4 Types of participants

3.2 Analysis of Perception and Attitude among Sampled Participants

Table 3.1 Awareness of participants regarding any campaign to reduce plastic bags in the city

Variable		Yes	No	<i>P</i>
Residential Sectors	G-6	175(87%)	27(13%)	0.000
	F-7	97(93%)	7(7%)	
	Kachi abadi	43(58%)	31(42%)	

Table 3.1 exhibits that 93% of households of F-7 and 87% of people of G-6, whereas 58% of residents of kachi abadi agree with the campaign regarding the ban on plastic bags in the city. This is because participants of G-6 and F-7 are well aware as compared to the participants of kachi abadi. The table also explains that the p-value of residential sectors on the statements that “Awareness of participants regarding any campaign to reduce plastic bags in the city” is 0.000 respectively, which is less than the significance value of 0.05. It shows that there is a significant difference between respondents on the statement.

Table 3.2 Problems faced by participants in shopping after the ban on plastic bags

Variable		Very much	Normal	Less	P-Value
Residential Sectors	G-6	68(47%)	44(31%)	31(22%)	0.000
	F-7	15(22%)	34(49%)	20(29%)	
	Kachi abadi	10(17%)	32(53%)	18(30 %)	

Table 3.2 exhibits that the majority of the household of G-6 about 47%, whereas only 22% of households in F-7 are facing problems in shopping after the ban on plastic bags. This is because participants of G-6 are middle class and they mostly go shopping weekly and cannot afford alternative bags. The table also explains that the p-value of residential sectors on the statements that “Problems faced by participants in shopping after the ban on plastic bags” is 0.000 which is less than the significance value of 0.05. It shows that there is a significant difference between respondents on the statement.

Table 3.3 The willingness of participants about the ban on plastic bags

Variables		Yes	No	<i>P</i>
Education Level	Under Matric	57(85%)	10(15%)	0.037
	Matric	72(85%)	13(15%)	
	Inter	73(92%)	6(8%)	
	Graduation +	139(95%)	8(5%)	
Types of Participants	Households	245(87%)	36(13%)	0.003
	Shopkeepers	98(99%)	1(1%)	
	CDA Officials	18(90%)	2(10%)	
Residential Sectors	G-6	194(96%)	8(4%)	0.000
	F-7	89(86%)	15(14%)	
	Kachi abadi	60(81%)	14(19%)	

Table 3.3 indicates that 96% of persons in G-6, 87% of households of both sectors whereas 95% of graduates are willing to participate in the campaigns regarding the ban on plastic bags in the city. This is because almost all the participants are well aware and willing to promote a ban on plastic bags. This is because that shopkeepers are major affected and their business is effacing due to non-availability and high cost of alternative bags. Similarly, in sector G-6 middle-class government servants are living. They are not willing to pay extra charges for alternative bags, so they are in favor of a ban on plastic bags. The table also explains the p-values between educational level, types of participants, and residential sectors on the statements that “The willingness of participants about the ban on plastic bags” are 0.037, 0.003, and 0.000 respectively, which are less than the significance value 0.05. It shows that there is a significant difference between respondents on the statement.

Table 3.4 The willingness of participants to promote the ban on plastic bags across the country

Variables		Yes	No	<i>P</i>
Education Level	Under Matric	49(73%)	18(27%)	0.000
	Matric	61(72%)	24(28%)	
	Inter	67(85%)	12(15%)	
	Graduation +	139(95%)	8(5%)	
Residential Sectors	G-6	183(91%)	19(9%)	0.000
	F-7	81(78%)	23(22%)	
	Kachi abadi	54(73%)	20(27%)	

Table 3.4 exhibits that the majority of households in G-6 about 91%, and 95% of graduates, whereas 73% of participants of kachi abadi are willing to promote the ban on plastic bags across the country. This is because participants of G-6 are well aware as compared to the participants of kachi abadi. The table also explains that p-values between education level and residential sectors on the statements that “The willingness of participants to promote the ban on plastic bags across the country” are 0.000 and 0.000 respectively, which are less than the significance value 0.05. It shows that there is a significant difference between respondents on the statement. The results of the study show that 78% of households of Sector F-7 are willing to promote a ban on plastic bags across the country. The same view has been discussed by ([Macintosh, Simpson, Neeman, Dickson, & Recycling, 2020](#)) that 68% of respondents support the plastic bag ban.

Table 3.5 Affecting the daily routine of life of participants after the ban on plastic bags

Variable		Yes	No	<i>P</i>
Education Level	Under Matric	14(31%)	31(69%)	0.001
	Matric	34(65%)	18(35%)	
	Inter	37(70%)	16(30%)	
	Graduation +	76(58%)	54(42%)	

Table 3.5 exhibits that 31% under matric level, 70% of inter-level, and 65% of matric level participants concerning shopping after the ban on plastic bags is affected. This is because participants of inter and matric levels having a frequent visit to markets as compared to participants of graduation level and above. Most graduation-level participants belong to the upper class they don't go shopping frequently and they can pay extra charges for alternative bags as compared to matric or under matric level participants which belong to the middle or lower-middle class. The table also explains that the p-value of education level participants on the statements that "Affecting the daily routine of life of participants after the ban on plastic bags" is 0.001, which is less than the significance value of 0.05. It shows that there is a significant association between respondents on the statement.

Table 3.6 Perception of people regarding the trend of utilization of plastic bags after the ban on plastic bags

Variables		Yes	No	<i>P</i>
Types of Participants	Households	186(68%)	87(32%)	0.017
	Shopkeepers	80(81%)	19(19%)	
Residential Sectors	G-6	154(76%)	48(24%)	0.000
	F-7	84(81%)	20(19%)	
	Kachi abadi	28(42%)	38(58%)	

Table 3.6 exhibits that 81% of shopkeepers’ participants and F-7 residents are supporting the trend of utilization of plastic bags is decreasing after the ban on plastic bags. This is because alternative bags are costly and not easily available in markets. The table also explains that p-values between the type of participants, and residential sectors on the statements that “Perception of people regarding the trend of utilization of plastic bags after the ban on plastic bags” are 0.017, and 0.000 respectively, which are less than the significance value 0.05. It shows that there is a significant difference between respondents on the statement.

The guideline in South Africa delivered sensational abatements in the deals of plastic bags, yet it likewise made occupation misfortune in the plastic business. Suginami City achieved around a thirty-five percent decrease in plastic bags through an intentional methodology. Hence, an expense on plastic bags ought to be composed with an intentional methodology, and government and residents ought to perceive that the plastic bags decrease is just an initial phase in making bigger way of life changes ([Sugii, 2008](#)).

Ireland introduced a 15 Euro cent tax on plastic shopping bags, previously provided free of charge to customers at points of sale in 2002. The effect of the tax on the use of plastic bags in retail outlets has been dramatic a reduction in use was about 90%. The response of the public and the retail industry in this regard was very positive ([Convery, McDonnell, & Ferreira, 2007](#)).

Table 3.7 Perception of participants about the harmfulness of plastic bags

Variables		Yes	No	<i>P</i>
Education Level	Under Matric	60(90%)	7(10%)	0.003
	Matric	68(82%)	15(18%)	
	Inter	71(90%)	8(10%)	
	Graduation +	142(97%)	5(3%)	
Residential Sectors	G-6	188(94%)	12(6%)	0.000
	F-7	100(96%)	4(4%)	
	Kachi abadi	55(74%)	19(26%)	

Table 3.7 indicates that 96% of households of F-7 and 97% of participants of Graduation plus think that plastic bags are harmful to our environment. This is because participants of F-7 and graduation plus are well aware of the harmful effects of plastic bags due to different campaigns at the government level. The table also explains that p-values between education level and residential sectors on the statements that “Perception of participants about the harmfulness of plastic bags” are 0.003 and 0.000 respectively, which are less than the significance value 0.05. It shows that there is a significant association between respondents on the statement.

Table 3.8 Participants awareness regarding the negative impacts of plastic bags on the environment

Variables		Yes	No	<i>P</i>
Education Level	Under Matric	46(69%)	21(31%)	0.037
	Matric	61(72%)	24(28%)	
	Inter	65(82%)	14(18%)	
	Graduation +	124(84%)	23(16%)	
Types of Participants	Households	230(82%)	53(18%)	0.003
	Shopkeepers	70(70%)	31(30%)	

Table 3.8 exhibits that 82% of households and 84 % of participants of Graduation plus think that plastic bags are harmful to the environment. This is because participants of graduation and above and households are highly qualified and education raised their perception regarding the negative impacts of plastic bags on the environment. The table also explains that p-values between education level and type of participants on the statements that “Participants awareness regarding negative impacts of plastic bags on the environment” are 0.037 and 0.003 respectively, which are less than significance value 0.05. It shows that there is a significant difference between respondents on the statement.

Table 3.9 Perception of participants regarding easy and low-cost availability of alternative bags

Variable		Yes	No	<i>P</i>
Residential Sectors	G-6	71(35%)	131(65%)	0.012
	F-7	55(53%)	49(47%)	
	Kachi abadi	31(42%)	43(58%)	

Table 3.9 shows that 65% of households of G-6 and 58% of participants of kachi abadi think that alternative bags are not cheaply and easily available in markets/shops. This is because households of F-7 are upper-class households and they can afford the extra expenditure of alternative bags even they are costly. The table also explains the p-value of residential sectors on the statements that “Perception of participants regarding easy and low-cost availability of alternative bags” is 0.012, which is less than the significance value of 0.05. It shows that there is a significant difference between respondents on the statement.

Table 3.10 The attitude of participants regarding usage and throwing away plastic bags

Variables		Daily	Weekly	Monthly	<i>P</i>
Types of Participants	Households	158(58%)	103(37%)	14(5%)	0.002
	Shopkeepers	70(74%)	17(18%)	8(8%)	
Residential Sectors	G-6	148(75%)	36(18%)	14(7%)	0.000
	F-7	53(53%)	41(41%)	6(6%)	
	Kachi abadi	27(37%)	43(60%)	2(3%)	

Table 3.10 exhibits that 75% of households of sector G-6 and 74% of participants of shopkeepers use and throw plastic bags daily because waste collectors almost come daily, whereas 60% of participants of kachi abadi throw plastic bags weekly because waste collectors come in kachi abadi weekly. The table also explains the p-values between types of participants, and residential sectors on the statements that “The attitude of participants regarding usage and throwing away plastic bags” are 0.002 and 0.000 respectively, which are less than the significance value of 0.05. It shows that there is a significant difference between respondents on the statement.

Table 3.11 The attitude of participants regarding the storage place of rubbish

Variables		Plastic Bags	Drums	Others	<i>P</i>
Gender	Male	74(26%)	178(61%)	37(13%)	0.047
	Female	32(37%)	50(57%)	5(6%)	
Education Level	Under Matric	16(24%)	39(58%)	12(18%)	0.008
	Matric	32(38%)	47(57%)	4(5%)	
	Inter	24(30%)	41(52%)	14(18%)	
	Graduation +	34(24%)	99(68%)	12(8%)	
Types of Participants	Households	80(29%)	181(64%)	20(7%)	0.000
	Shopkeepers	26(27%)	47(50%)	22(23%)	
Residential Sectors	G-6	62(31%)	102(52%)	34(17%)	0.000
	F-7	28(27%)	68(65%)	8(8%)	
	Kachi abadi	16(22%)	58(78%)	0(0 %)	

Table 3.11 exhibits that both genders store rubbish in drums 61% male and 57% female respectively, similarly 68% of participants of graduation level store rubbish in drums and 78% of participants of kachi abadi also store rubbish in drums because they don't want to store rubbish in their houses and drum are usually placed on allocated areas. The table also explains that the p-values between education level, type of participants, and residential sectors on the statements that "The attitude of participants regarding the storage place of rubbish" are 0.008, 0.000, and 0.000 respectively, which are less than the significance value 0.05. It shows that there is a significant association between respondents on the statement.

Table 3.12 Perception of participants regarding polluted areas of Islamabad city

Variables		Parks	Markets	Sewage	Open Places	<i>P</i>
Gender	Male	52(18%)	94(33%)	101(36%)	38(13%)	0.037
	Female	18(21%)	32(37%)	35(40%)	2(2%)	
Types of Participants	Households	56(20%)	90(32%)	110 (39%)	25(9%)	0.053
	Shopkeepers	14(15%)	36(40%)	26(29%)	15(16%)	
Residential Sectors	G-6	48(25%)	83(42%)	61(31%)	4(2%)	0.000
	F-7	22(21%)	39(37%)	31(30%)	12(12%)	
	Kachi abadi	0(0%)	4(6%)	44(61%)	24(33%)	

Table 3.12 exhibits that 61% of participants of kachi abadi think that that the sewage of Islamabad is seriously polluted whereas 42% of participants of sector G-6 and 40% of shopkeepers think that the market areas are seriously polluted with plastic bags because people don't care and throw away plastic bags after a single-use. The table also explains the p-values between gender, type of participants, and residential sectors on the statements that "Perception of participants regarding polluted areas of Islamabad city" are 0.037, 0.053, and 0.000 respectively, which are less than significance value 0.05. It shows that there is a significant difference between respondents on the statement.

Table 3.13 Perception of participants about the solid waste management

Variables		Yes	No	<i>P</i>
Types of Participants	Households	179(65%)	98(35%)	0.001
	Shopkeepers	78(82%)	17(18%)	
Residential Sectors	G-6	151(77%)	45 (23%)	0.000
	F-7	75(72%)	29(28%)	
	Kachi abadi	31(43%)	41(57%)	

Table 3.13 shows that 82% of shopkeepers, 77% of participants of sector G-6, and 72% of participants of sector F-7 knowing solid waste. The table also explains that p-values between the type of participants, and residential sectors on the statements that "Perception of participants about the solid waste management" are 0.001 and 0.000 respectively, which are less than the significance value of 0.05. It shows that there is a significant association between respondents on the statement.

Table 3.14 Perception of participants about the plastic bags after disposal

Variables		Dustbin	Recycle	Burn	Landfill	<i>P</i>
Gender	Male	90(31%)	73(25%)	122(42%)	4(1%)	0.000
	Female	21(24%)	8(9%)	58(67%)	0(0%)	
Residential Sectors	G-6	57(28%)	20(10%)	123(61%)	2(1%)	0.000
	F-7	20(19%)	27(26%)	55(53%)	2(2%)	
	Kachi abadi	34(49%)	34(49%)	2(2%)	0(0%)	

Table 3.14 exhibits that 67% of females and 61% of residents of sector G-6 think that solid waste or plastic bags go for the burn. This is because most participants often victims of incineration of solid waste and this the easiest way to dispose of solid waste according to participants. The table also explains that p-values between gender and residential sectors on the statements that “Perception of participants about the plastic bags after disposal” are 0.000 and 0.000 respectively, which are less than significance value 0.05. It shows that there is a significant difference between respondents on the statement.

The results of the study show that 19% of households of Sector F-7 use dustbins to dispose of plastic bags. The same views have been expressed by ([Poladi Deekshitha et al.](#)) that 18% of male households said that they use dustbin to dispose of plastic bags waste.

Table 3.15 Perception of participants regarding the role of government to reduce plastic bags

Variables		Yes	No	<i>P</i>
Types of Participants	Households	139(50%)	142(50%)	0.029
	Shopkeepers	49(50%)	50(50%)	
	CDA Officials	16(80%)	6(20%)	
Residential Sectors	G-6	107(53%)	95(47%)	0.023
	F-7	55(53%)	49(47%)	
	Kachi abadi	26(35%)	48(65%)	

Table 3.15 indicates that 80% of C.D.A officials, 53% of participants of both G-6 and F-7 sectors, and 50% of shopkeepers think that the government is doing its positive role to reduce plastic bags. The table also explains that p-values between the type of participants, and residential sectors on the statements that “Perception of participants regarding the role of government to reduce plastic bags” are 0.029, and 0.023 respectively, which are less than the significance value of 0.05. It shows that there is a significant difference between respondents on the statement.

Table 3.16 Perception of participants regarding impose of the ban on the plastic bags

Variables		By Use of Force	Convincing Logically	With the help of media	<i>P</i>
Education Level	Under Matric	32(48%)	17(25%)	18(27%)	0.000
	Matric	58(70%)	8(10%)	17(20%)	
	Inter	49(62%)	19(24%)	11(14%)	
	Graduation +	69(47%)	42(29%)	36(24%)	
Residential Sectors	G-6	99(50%)	70(35%)	31(15%)	0.005
	F-7	63(61%)	14(13%)	27(26%)	
	Kachi abadi	46(64%)	2(3%)	24(33 %)	

Table 3.16 exhibits that 61% of participants of sector F-7, 50% of residents of sector G-6, and all participants of different education levels think that government should implement the ban on the plastic bag by use of force because people normally don't obey rules without strict compliance. The table also explains that p-values between education level and residential sectors on the statements that "Perception of participants regarding impose of the ban on the plastic bags" are 0.000 and 0.005 respectively, which are less than the significance value 0.05. It shows that there is a significant difference between respondents on the statement.

In Buenos Aires City (Argentina) two field studies were done to examine the effects of a charge for single-use plastic bags was implemented. Study 1 showed an excessive increase in consumers' bag use after the charge was announced in supermarkets where the policy was introduced in comparison to control supermarkets where the charge was not announced. Study 2 investigated factors underlying policy support and own bag use as well as charge was announced after six months when the policy was announced. Policy supporters highlighted the environmental benefits of the charge, while opponents stressed the financial costs. Moreover, most consumers indicated that they carried their own bags just to protect the environment ([Jakovcevic et al., 2014](#)).

Table 3.17 Observation of participants regarding the reduction in solid waste after the ban on plastic bags

Variables		Yes	No	<i>P</i>
Education Level	Under Matric	48(72%)	19(28%)	0.025
	Matric	51(63%)	30(37%)	
	Inter	50(63%)	29(37%)	
	Graduation +	75(51%)	72(49%)	
Types of Participants	Households	157(56%)	124(44%)	0.000
	Shopkeepers	67(70%)	28(30%)	
	CDA Officials	20(100%)	0(0%)	

Table 3.17 shows that 100% of C.D.A officials, 70% shopkeepers, and 56% households, and all participants of different education levels have observed the reduction of plastic bags after the ban on plastic bags. The table also explains the p-values between education level and type of participants on the statements that “Observation of participants regarding the reduction in solid waste after the ban on plastic bags” are 0.025 and 0.000 respectively, which are less than the significance value 0.05. It shows that there is a significant difference between respondents on the statement.

Tale 3.18 Perception of people regarding the role of eco-friendly bags in minimizing solid waste

Variables		Yes	No	<i>P</i>
Education Level	Under Matric	47(72%)	18(28%)	0.001
	Matric	60(72%)	23(28%)	
	Inter	61(82%)	14(18%)	
	Graduation +	129(89%)	16(11%)	
Residential Sectors	G-6	179(89%)	21(11%)	0.000
	F-7	80(77%)	24(23%)	
	Kachi abadi	38(58%)	28(42%)	

Table 3.18 exhibits that 89% of participants of the graduation level, 89% residents of sector G-6, and 77% of residents of sector F-7 think that eco-friendly bags are helpful to reduce solid waste because they are educated and having knowledge regarding solid waste. The table also explains the p-values between education level and residential sectors on the statements that “Perception of people regarding the role of eco-friendly bags in minimizing solid waste” are 0.001 and 0.000 respectively, which are less than the significance value 0.05. It shows that there is a significant difference between respondents on the statement.

Table 3.19 Collection of solid waste from the house/area of participants

Variable		Daily	Every other day	Weekly	<i>P</i>
Residential Sectors	G-6	64(56%)	83(44%)	0(0%)	0.000
	F-7	60(83%)	13(17%)	0(0%)	
	Kachi abadi	0(0%)	0(0%)	52(100 %)	

Table 3.19 indicates that 83% of residents of sector F-7 and 56% of residents of sector G-6 answered that collector of solid waste come to their home for a collection of solid waste daily on the other hand 100% of residents of kachi abadi answered that collector of solid waste come to their area for collection of solid waste weekly. This is because that sector F-7 and G-6 are proper sectors. C.D.A has appointed collectors of solid waste in both sectors but kachi abadi is not under the administration of C.D.A. Table also explains that p-value of residential sectors on the statements that “Collection of solid waste from the house/area of participants” is 0.000 respectively, which is less than the significance value 0.05. It shows that there is a significant difference between respondents on the statement. The results of the study show that 56% of households of sector G-6 said that waste collectors collect waste daily from their house/area. The same views have been endorsed by ([Indhira, Senthil, Vadivel, Appl. & Res, 2015](#)) that 69.3% of households said that their street dustbins are cleared or transported daily.

Table 3.20 Role of media to raise awareness regarding the effects of plastic bags and solid waste management

Variables		Yes	No	<i>P</i>
Gender	Male	138(47%)	55(53%)	0.038
	Female	52(60%)	35(40%)	
Types of Participants	Households	151(54%)	130(46%)	0.014
	Shopkeepers	39(39%)	60(61%)	
Residential Sectors	G-6	110(55%)	92(45%)	0.000
	F-7	64(61%)	40(39%)	
	Kachi abadi	16(22 %)	58(78 %)	

Table 3.20 exhibits that 60% female, 61% residents of sector F-7, and 55% residents of sector G-6 think that media has played its positive role to highlight the harmful impacts of plastic bags, whereas the shopkeepers are not satisfied with the role of media to reduce solid waste. The table also explains the p-values between gender, type of participants, and residential sectors on the statements that “Role of media to raise awareness regarding the effects of plastic bags and solid waste management” are 0.038, 0.014, and 0.000 respectively, which are less than significance value 0.05. It shows that there is a significant difference between respondents on the statement.

Table 3.21 Concern level of participants regarding the waste of plastic bags

Variables		Very much	Normal	Less	<i>P</i>
Gender	Male	99(39%)	173(59%)	21(7%)	0.000
	Female	41(47%)	31(36%)	15(17%)	
Types of Participants	Households	122(43%)	135(48%)	24(9 %)	0.000
	Shopkeepers	18(18%)	69(70%)	12(12%)	

Table 3.21 shows that 47% of females, 39% of male participants, and 43% of households are much concerned regarding solid waste because they consider it a major problem. The table also explains the p-values between gender and type of participants on the statements that “Concern level of participants regarding the waste of plastic bags” are 0.000, and 0.000 respectively, which are less than significance value 0.05. It shows that there is a significant difference between respondents on the statement.

Table 3.22 Perception of people regarding the impacts of improper solid waste management on the environment

Variables		Yes	No	<i>P</i>
Education Level	Under Matric	47(70%)	20(30%)	0.000
	Matric	71(84%)	14(16%)	
	Inter	75(97%)	2(3%)	
	Graduation +	135(92%)	12(8%)	
Residential Sectors	G-6	177(88%)	25(12%)	0.000
	F-7	99(95%)	5(5%)	
	Kachi abadi	54(75%)	18(25%)	

Table 3.22 exhibits that 88% of G-6, 95% of F-7 residents, and all participants of different education levels are convinced that improper solid waste is harming the environment. The table also explains the p-values between education level and residential sectors on the statements that “Perception of people regarding the impacts of improper solid waste management on the environment” are 0.000 and 0.000 respectively, which are less than the significance value 0.05. It shows that there is a significant difference between respondents on the statement.

Table 3.23 Attitude of participants to carry shopping contents

Variables		Plastic Bags	Cloth Bags	Paper Bags	<i>P</i>
Residential Sectors	G-6	68(46%)	65(44%)	14(10%)	0.000
	F-7	14(19%)	53(73%)	6(8%)	
	Kachi abadi	9(15%)	51(85%)	0(0 %)	

Table 3.23 indicates 73% of residents of F-7 and 44% of G-6 are carrying cloth bags for shopping because they have shifted to cloth bags after the ban on plastic bags. The table also explains the p-value of residential sectors on the statements that “Attitude of participants to carry shopping contents” is 0.000 respectively, which is less than the significance value 0.05. It shows that there is a significant difference between respondents on the statement.

Table 3.24 Attitude of participants to visit commercial centers/markets

Variable		Daily	Weekly	Monthly	<i>P</i>
Residential Sectors	G-6	76(52%)	47(32%)	24(16%)	0.000
	F-7	47(64%)	14(19%)	12(16%)	
	Kachi abadi	6(10%)	20(33%)	34(57%)	

Table 3.24 exhibits residents of F-7 about 64% visit markets because they can afford to purchase a thing, whereas 32% of residents of G-6 and 33% of people of kachi abadi go to markets weekly because they visit the market only when they needed something to purchase. The table also explains the p-value of residential sectors on the statements that “Attitude of participants to visit commercial centers/markets” is 0.000 respectively, which is less than the significance value 0.05. It shows that there is a significant difference between respondents on the statement. The results of the study show that 32% of households of Sector G-6 go to markets on weekly basis. The same results were mentioned by ([Starovoytova, Namango, Wetaka, & Science, 2016](#)) that 43% of respondents go shopping weekly.

3.3 Analysis of Qualitative Responses from Participants

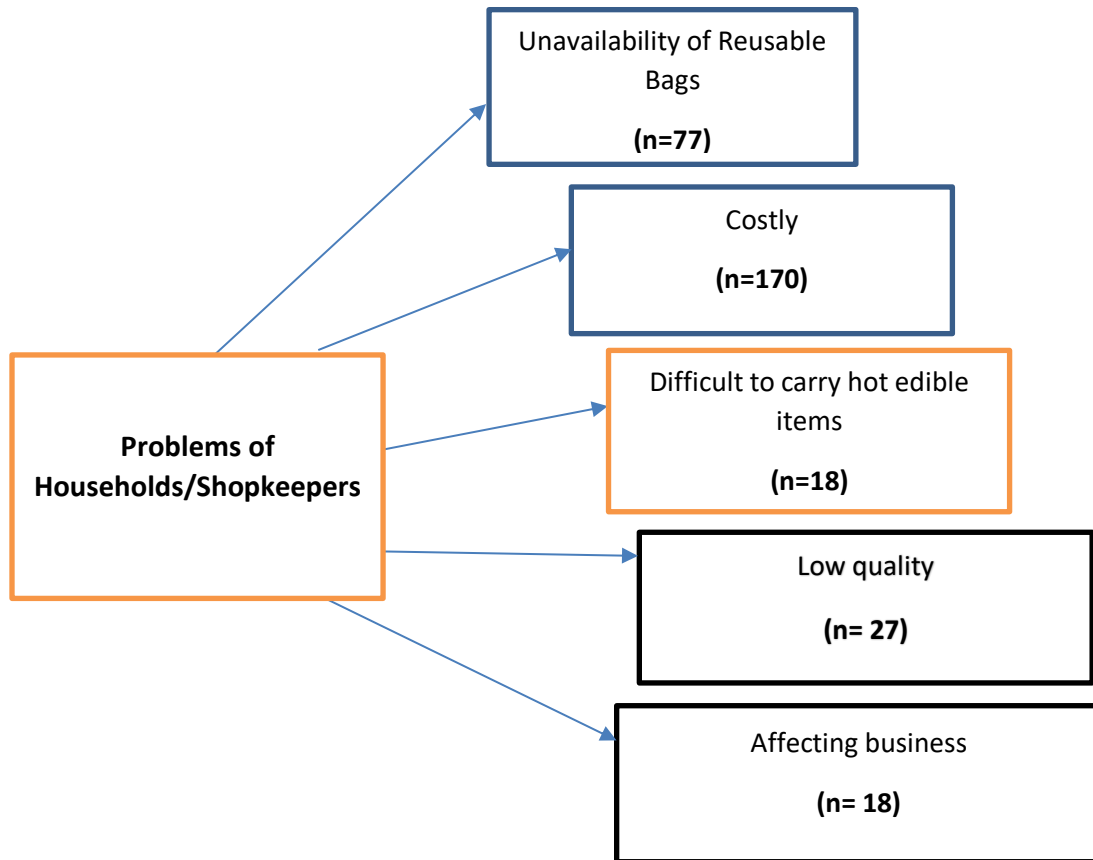


Fig 3.5 Problems of household/shopkeepers regarding reusable bags

Figure 3.5 indicates that most of the households and shopkeepers face problems after the ban on plastic bags like unavailability of reusable bags, poor quality of alternative bags, etc. The majority of the participants think that the high cost of alternative bags is one of the major problems. According to the shopkeepers' ban on plastic bags and the high cost of alternative bags is affecting their business.

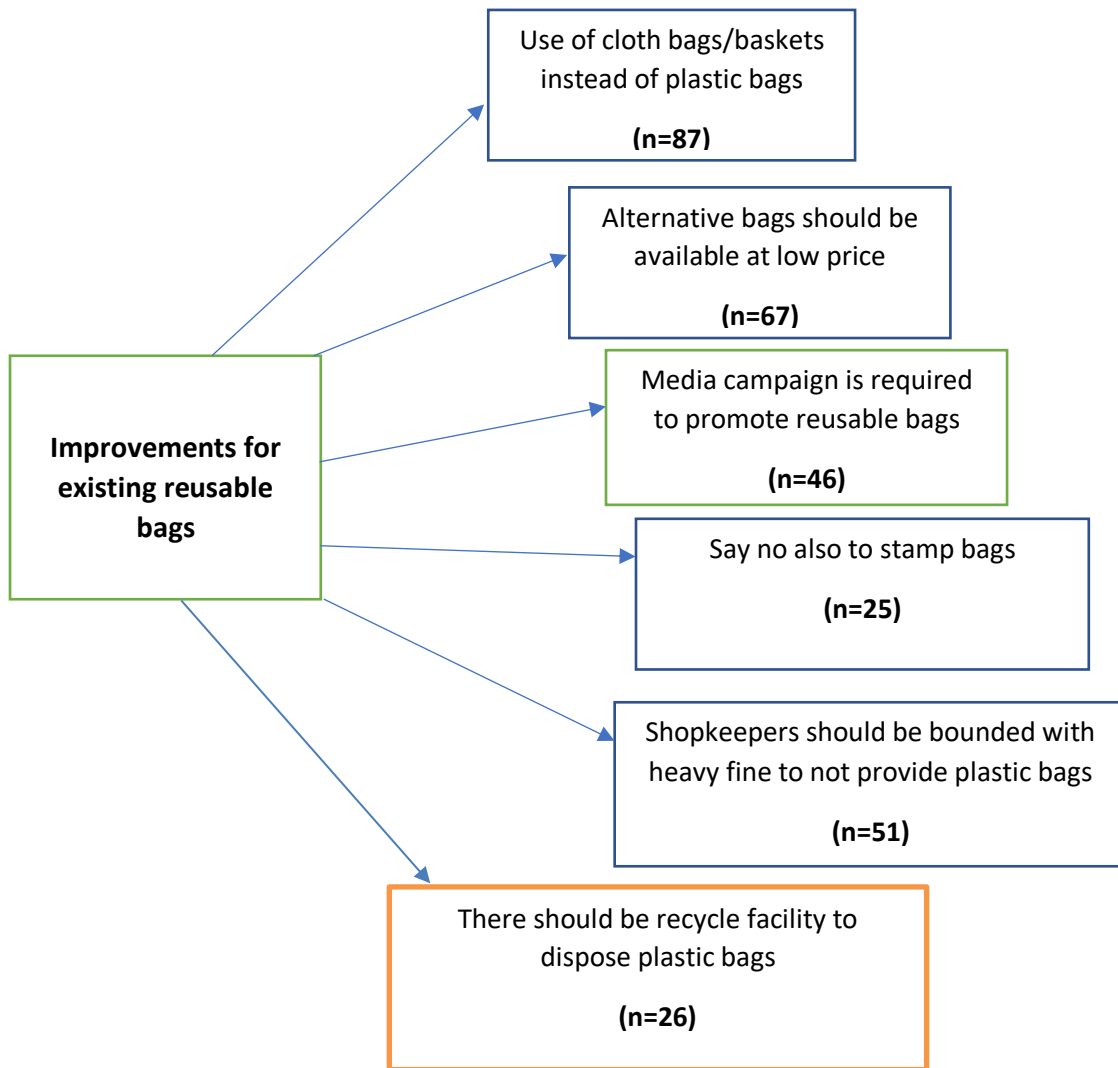


Fig 3.6 Improvements/suggestions for existing reusable bags

Figure 3.6 indicates that participants' suggestions about improvement in reusable bags like cloth bags are more durable, heavy fine on those shopkeepers who are still using plastic bags, recycling of disposed of plastic bags, and use of media can be effective in promoting alternative bags. The majority of the participants think that the existing situation can be improved by using cloth bags and baskets.

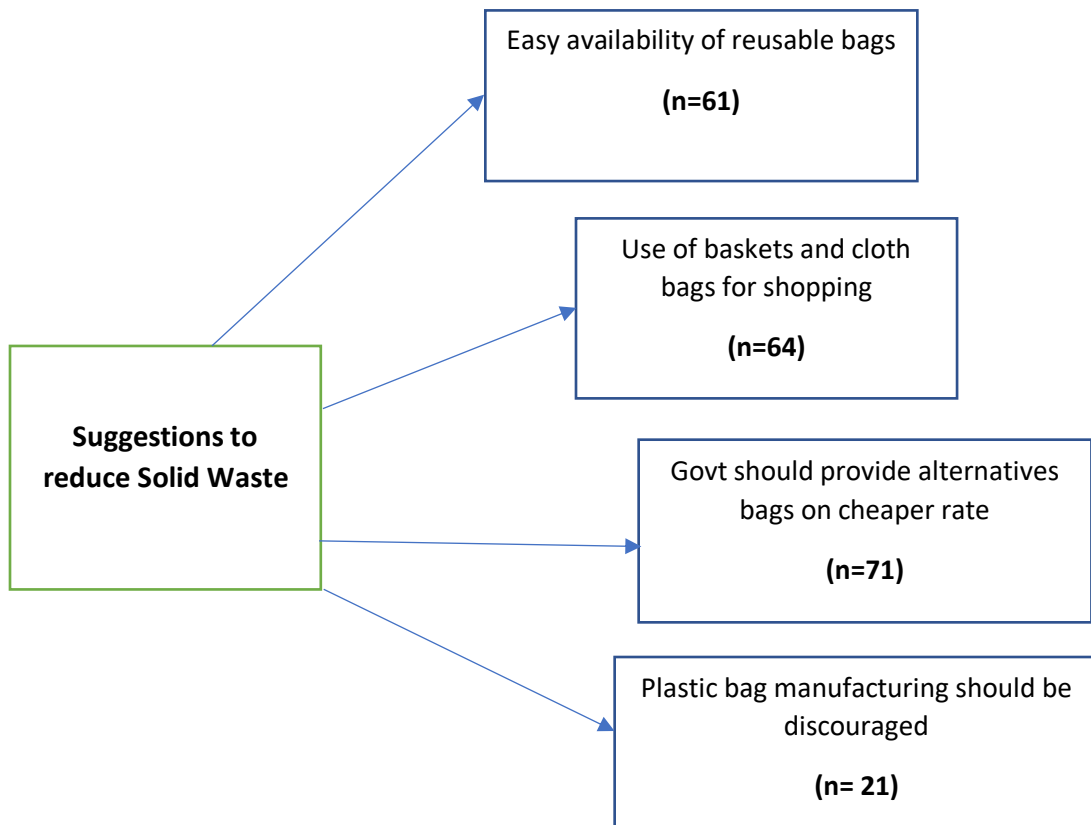


Fig 3.7 Improvements/suggestions to reduce solid waste

Figure 3.7 indicates that participants' suggestions to reduce solid waste like low cost of alternative bags, and plastic bag manufacturers should be discouraged. The government should provide alternate bags at a cheaper rate was one of the most common suggestions given by the majority of the participants because they think that this is the responsibility of the government.

CONCLUSIONS

From this study, it was included that:

- 1- It can be concluded that the use of plastic bags is perhaps one of the important environmental problems and we need to educate our future generations about its harmful impacts on the environment.
- 2- The results of this study revealed that households, as well as shopkeepers in both G-6 and F-7 sectors, had very limited information about solid waste as well as the harmful impacts of the plastic bag on the environment.
- 3- The level of solid waste management awareness and knowledge about the ban on plastic bags among households of the F-7 sector recorded a better level of solid waste management awareness as compared to households of the G-6 sector. Whereas shopkeepers were more aware as compared to households regarding solid waste management.
- 4- The majority of females were more concerned about solid waste as compared to males in both the G-6 and F-7 sectors.
- 5- The results showed that residents of G-6 were slightly more in favor of a ban on plastic bags as compared to residents of F-6 due to sewerage issues in G-6 because, for this reason, they have comparatively shown more willingness to support the ban across the country. Moreover, people of F-7 are more in favor of alternative bags due to a better level of education.
- 6- Further, the study also established that almost all participants supported the view that the government is playing a positive role in reducing plastic bags. Plastic bag manufacturers should be given incentives to shift their business from plastic bags to alternatives bags.

RECOMMENDATIONS

To improve the situation after the ban on plastic bags and to reduce solid waste, the recommendations are:

- 1- Ban on plastic bags should be imposed throughout the country.
- 2- All waste generated, should be collected strictly daily to reduce the burden on solid waste.
- 3- The government may start a mass awareness program through media on a large scale to reduce the use of plastic bags.
- 4- Alternative bags should be durable, easily, and cheaply available in markets.
- 5- The usage of stamped bags should be discouraged.
- 6- The use of baskets and cloth bags should be promoted for shopping.
- 7- The government should enforce strict compliance by enforcing laws regarding the ban on plastic bags to reduce the impacts on the environment through the ministry of climate change and Pak-EPA.
- 8- Plastic bag manufacturers should be given incentives to shift their business from plastic bags to alternatives bags.

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APPENDICES

Questionnaire for Households about Perception and Attitudes after the Ban on Plastic Bags and Solid Waste Management

Respected Household,

This questionnaire is made to check your knowledge, awareness, perception, attitude about the ban on plastic bags as well as the solid waste management system. Answer these questions carefully because your answers have key importance in my research. Thank you for your help.

Sajid Hussain

(MS) Environmental Policy and Management

Section A – DEMOGRAPHIC INFORMATION

- 1- Gender Male Female
- 2- Age-Bracket 20-30 31- 40 41-50 51 and above
- 3- Education Level
- Under Matric Matric Inter Graduate and above
- 4- Residential sector/Area of the household is:
- G-6 F-7 Kachi Abadi

Section B – PERCEPTION & ATTITUDE

- 5- Are you aware of any campaign to reduce plastic bags in your city?
Yes No
- 6- Do you support the ban on plastic bags? Yes No
- 7- How often you visit commercial centers/markets? Daily Weekly Monthly
- 8- What do you normally use to carry your shopping content?
Plastic bags Cloths bags Paper bags
- 9- What kind of plastic bags are provided to you by shopkeepers?
 Stamped Without stamp
- 10- Are you satisfied with the quality and the price of alternative bags? Yes No
- 11- Is the ban on plastic bags affecting your daily routine? Yes No
- 12- Are alternative bags cheap and easily available in markets/shops? Yes No
- 13- Do you think that plastic bags are harmful to our environment? Yes No

14- What kind of problems are you facing after the ban on plastic bags?

15- Do you think that plastic bags are causing sewerage problems?

Yes No

16- Which part of Islamabad city is seriously polluted by plastic bag wastes?

Parks Market Places Sewage (Drain) Open places

17- Do you observe any reduction in solid waste after the ban on plastic bags?

Yes No

18- Do you use reusable grocery bags and plastic alternatives when you can?

Yes No

19- How often do you face problems in shopping after the ban on plastic bags?

Daily Weekly Monthly

20 -Where do you store your rubbish?

Plastic bags Rubbish bin/ Drum Others

21 - How often do you use and throw away plastic bags?

Daily Weekly Monthly

22- Do you know about solid waste management?

Yes No

23-How often waste collectors collect waste from your house?

Daily Weekly Monthly

24- Does improper solid waste management cause environmental problems?

Yes No

25- Do eco-friendly bags minimize solid waste?

Yes No

26- After you dispose of a plastic bag where does it go?

Dustbin Recycle Burn Landfill

27- How much you concerned with the waste of plastic bags?

Very much Normal Less

28- Do you think that people should be more educated about the negative impacts of plastic bags on the environment? Yes No

29- Do you think that the Government is playing its proper role in reducing plastic bags?

Yes No

30-Media has raised your awareness about the effects of plastic bags and solid waste management? Yes No

31- In your opinion ban on the plastic bag should lift or continue? Yes No

32- Are you willing to promote the ban on plastic bags across the country?

Yes No

33- In your opinion the trend of utilization of plastic bags is decreasing after the ban on plastic bags. Yes No

34-What kind of improvements do you think could be made to existing reusable bags? _____

35- Government should impose the ban by:

Use of force Convincing logically

With the help of media

36 - Any suggestion or idea to reduce solid waste and reduce the use of plastic bags:

Thanks for Your Time

Questionnaire for Shopkeepers about Perception, Attitudes after the Ban on Plastic Bags and Solid Waste Management

Respected Shopkeeper,

This questionnaire is made to check your knowledge, awareness, perception, attitude about the ban on plastic bags as well as the solid waste management system. Answer these questions carefully because your answers have key importance in my research. Thank you for your help.

Sajid Hussain

(MS) Environmental Policy and Management

Section A – DEMOGRAPHIC INFORMATION

- 1- Gender Male Female
- 2- Age-Bracket 20-30 31- 40 41-50 51 and above
- 3- Education Level
- Under Matric Matric Inter Graduate and above
- 4- Type of shop is:
- Super Store Mini Store/Shop Food/Vegetable Shop
- Weekly Bazar Stall

Section B – PERCEPTION & ATTITUDE

- 5- Are you aware of any campaign to reduce plastic bags in your city?
- Yes No
- 6- Do you support the ban on plastic bags? Yes No
- 7- What do you normally use to provide shopping content for customers?
- Plastic bags Cloths bags Paper bags
- 8- What kind of plastic bags are provided to customers from you?
- Stamped Without stamp
- 9- Customers are happy with alternative bags? Yes No
- 10- Are you satisfied with the quality as well as the price of alternative bags?
- Yes No

- 11- Is the ban on plastic bags affecting your business? Yes No
- 12- Are alternative bags cheap and easily available in markets/shops? Yes No
- 13- Do you think that plastic bags are harmful to our environment? Yes No
- 14- What kind of problems are you facing after the ban on plastic bags?
- _____
- _____
- _____
- 15- Do you think that plastic bags are causing sewerage problems?
Yes No
- 16- Which part of Islamabad city is seriously polluted by plastic bag wastes?
Parks Market Places Sewage (Drain) Open places
- 17- Do you observe any reduction in solid waste after the ban on plastic bags?
Yes No
- 18- Where do you store your rubbish?
Plastic bags Rubbish bin/ Drum Others
- 19- How often do you use and throw away plastic bags?
Daily Weekly Monthly
- 20- Do you know about solid waste management? Yes No
- 21- Does improper solid waste management cause environmental problems?
Yes No
- 22- Do eco-friendly bags minimize solid waste? Yes No
- 23- After you dispose of a plastic bag where does it go?
Dustbin Recycle Burn Landfill
- 24- How much you concerned with the waste of plastic bags?
Very much Normal Less
- 25- Do you think that people should be more educated about the negative impacts of plastic bags on the environment? Yes No

26- Do you think that the Government is playing its proper role in reducing plastic bags?

Yes No

27- Media has raised your awareness about the effects of plastic bags and solid waste management?

Yes No

29- In your opinion, the trend of the utilization of plastic bags is decreasing after the ban on plastic bags? Yes No

30 - In your opinion ban on the plastic bags should lift or continue?

Yes No

31- Are you willing to promote the ban on plastic bags across the country?

Yes No

32-What kind of improvements do you think could be made to existing reusable bags? _____

33- Govt. should impose the ban by:

Use of force Convincing logically
With the help of media

34- Any suggestion or idea to reduce solid waste and reduce the use of plastic bags:

Thanks for Your Time

Questionnaire for C.D.A Officers/Sanitary workers about Perception, Attitudes after the ban on plastic bags and Solid waste management

- 1- Gender: Male Female
- 2- Experience (Years) 1-10 10-20 20 and above
- 3- Designation: _____
- 4- Do you support the ban on plastic bags?
Strongly agree Agree Disagree
- 5- Do you observe any reduction in solid waste after the ban on plastic bags?
Yes No
- 6- Do you think that plastic bags are the major cause of problems related to sewerage?
Yes No
- 7- In your opinion, the trend of the utilization of plastic bags is decreasing after the ban on plastic bags. Yes No
- 8- Do you think that the Government is playing its proper role in reducing plastic bags?
Yes No
- 9- What kind of advantages and impacts on the environment after the ban on plastic bags?

- 10- What is the best way to enforce the ban on plastic bags?

- 11- Any suggestion or idea to reduce solid waste and the use of plastic bags:

Thanks for Your Time