

## Perception of People about Ban on Plastic Bags in Mangalore : An Empirical Study

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### **Abstract**

*The usage of plastic bags has both convenience and inconvenience in our daily life. They cause environmental hazards as most plastic bags are not bio-degradable. Hygiene and wastage issue are also being alarmed as plastic bags can be seen littered all across the town. Usage of plastic bags for hot edible items not only causes such inconveniences but it may also cause health hazards to the consumer. Stakeholders such as the consumers play a pivotal role in the environmental and health consciousness. Therefore, this study is being conducted in order to understand the consumer perception of Eco impact and Ban of plastic bags. So that recommendations can be made to raise public awareness and minimize the usage of plastic bags ultimately. Consumers' perceptions and usage behaviors in connection with respective government's policies and implementation of recycling systems could be highly decisive in reducing the eco-impact of plastic shopping bags. The results reveal that mere knowledge does not help until measures are taken at policy level for its usage implementing strict measures to drive behavioral practices.*

**Keywords :** Plastic bags, Perception, Waste management, Environmental hazards

### **Introduction**

Plastic waste is a major environmental and public health problem in India, particularly in the urban areas. Plastic shopping or carry bags are one of the main sources of plastic waste in our country. Plastic

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bags of all sizes and colours dot the city's landscape due to the problems of misuse and overuse and littering in India. Besides this visual pollution, plastic bag wastes contribute to blockage of drains and gutters. Also they are threat to aquatic life when they find their way to water bodies, and can cause livestock deaths when the livestock consume them. Furthermore, when filled with rainwater, plastic bags become breeding grounds for mosquitoes, which cause malaria. In addition, plastics take many years (20-1000) to degrade and hence pose a disposal challenge.

There are two types of plastic shopping bags - one, the lighter, filmy bags you get from supermarkets food outlets etc., and the other, heavier bags you get from other retail outlets, like clothing stores. HDPE or High Density Polyethylene bags are stiff, thin and not transparent or opaque. HDPE (Ethylene Polymer with densities ranging from 0.941 to 0.965 grams per cubic centimetre) is normally used in grocery or T-shirt bags. LDPE (0.916 to 0.925 grams per cubic centimetre) or low density polyethylene bags are thick and soft and can be transparent and glossy in appearance. LDPE is used in shopping bags usually with attached handles. Like HDPE bags, LDPEs cannot be recycled.

We are so accustomed to the ubiquitous presence of plastic that it is difficult to envision life when woods and metals were the primary materials used for consumer products. Plastic has become prevalent because it is inexpensive and can be engineered with a wide range of properties. Plastics are strong but lightweight, resistant when degraded by chemicals, sunlight, and bacteria, and are thermally and electrically insulating. Plastics have become a critical material in the modern economy. Bags taken home are reused as bin liners or waste bags, lunch bags and general carry bags. Bags that are reused as bin liners end up in landfill, and it is likely that bags reused for other purposes also end in landfill.

It is estimated that somewhere between 500 billion and one trillion plastic bags are consumed throughout the world each year. In 1977, supermarkets began to offer plastic grocery bags as an alternative to paper bags. By 1996, four out of every five-grocery bags used were

plastic. There is a growing international movement to ban or discourage the use of plastic bags because of their environmental effects.

Research has adequately established the public costs of plastic bag usage. They are environmentally unfriendly in the extreme, take hundreds of years to degrade, and fill up Landfills. Plastic litter can also lead to clogged drains resulting in sanitation and sewage problems. Plastic waste may also cause soil degradation, which hampers the growth of trees. In addition, animals have been known to often ingest plastic bags while its indiscriminate incineration pollutes the air and releases toxic substances (Dikang and Visser, 2010). The Mumbai floods in India in which about a thousand people died were partly the result of plastic bags clogging the drains (The Economist, 2009). In 2002, Bangladesh banned the use of plastic shopping bags for the same reasons (Spivey, 2003). Plastic bags are also responsible for using up oil, a scarce natural resource.

These concerns have caused governments across the world, including many states in India, to introduce legislation to limit the use of plastic bags. They have used a variety of regulatory instruments for this purpose. These measures include the mandatory pricing of plastic bags, explicit levies on each bag, taxes at manufacturing level, discounts on use of own bags, awareness campaigns, command and control approaches and, in some cases, a total ban on the use of plastic bags.

Modernization and progress has had its share of disadvantages and one of the main aspects of concern is the pollution it is causing to the earth – be it land, air, and water. With increase in the global population and the rising demand for food and other essentials, there has been a rise in the amount of waste generated daily by each household. This waste is ultimately thrown using plastic bags into Municipal waste collection centers from where it is collected by the local municipalities for further disposal into the landfills and dumps. However, either due to resource crunch or inefficient infrastructure, not all of this waste gets collected and transported to the final dumpsites. Added to this if the management and disposal is improperly done, it can cause serious health impacts.

## **Literature Review**

A study by Fullerton and Kinnaman (1996) used original data gathered from individual households to estimate responses to the implementation of a price per bag of garbage in Virginia. They found the incremental benefit of unit pricing to be small because, although the number of bags from the households decreased, there was no reduction in the actual weight of their garbage. It is also possible that while households increased the amount of recycling, they might have resorted to illegal dumping. Thus the reduction in the weight of garbage was only 10 percent.

The discussion above shows the wide array of measures adopted by countries around. In a study on early Mater-Bi material composed of thermoplastic starch and polycaprolactone, McClure (1996) concluded that starch-based plastics are likely to be a lower risk to marine animals than conventional high density polyethylene (HDPE) plastics. Houvten and Morris (1999) examine the implications of a unit pricing demonstration project in Georgia for the year 1994, which required residents to pay by the unit for waste disposal services. Rather than pay a fixed monthly fee for collection, half of the residents in the project opted to pay a fee per reusable trash can while the other half paid for each non-reusable trash bag collected. Data from the sample of households covered indicated that the programs significantly reduced waste set-outs. The bag program caused larger reductions (36 percent) than the subscription can program (14 percent). Rough estimates for the program indicate savings for the residents as well as social welfare increases.

ExcelPlas Australia (2004) conducted an LCA (Life cycle Assessment) focusing on disposable and reusable bags as well as degradable plastic bags. The study found that GHG (Green House Gas ) emissions for all bag types are dominated by carbon dioxide through electricity and transport consumption, by methane through the degradation of materials in anaerobic conditions, and nitrous oxide emissions in fertilizer applications on crops. Their results indicated that the degradable polymers with starch content have higher impacts upon GHG emissions because of methane emissions

during landfill degradation and nitrous oxide emissions from fertilizing crops

Further, the study revealed that material density is more important than degradability in determining the risk of harmful impacts to marine wildlife. Biodegradable plastic bags may have a similar impact, because they biodegrade at a relatively faster rate when in a composting facility in the presence of microorganisms. In oceans they can take more than five months to partially decompose, leaving a substantial time period during which they may affect marine life.

The Boustead Associates (2007) study is United States-based and, based on EPA (Environmental protection Agency). The study assumed that 5 percent of plastic bags are recycled, 14 percent are sent for combustion, and 81 percent are land filled. These end-of-life assumptions more closely reflect the real world than the assumptions of no recycling for plastic bags.

Further, the Boustead Consulting Study (2007) compared paper, HDPE plastic, and compostable plastic bags, assuming that one paper bag can carry the same quantity of groceries as 1.5 plastic bags. Study results indicate that paper bag production, use, and disposal result in twice the GHG emissions of conventional PE bags. Compostable plastic bag manufacture, use, and disposal, however, result in 4.5 times the GHG emissions of plastic bags.

Recently, Herrera et al (2008) conducted a review of previous LCAs (Life cycle Assessment) and concluded that in almost all cases a switch over to reusable bags would result in the most environmental benefits. Most of the reviewed studies also showed that paper bags had a greater impact on the environment than single-use plastic bags, due to a larger resource requirement for production and transport.

The plastic bag industry has contended that although reusable bags present the best environmental impact throughout their life cycle, these bags may pose potential health hazards. They assert that these single-use bags are usually disposed of after their first use and they do not accumulate bacteria and other pathogens. A concern with regard to reusable bags, is that, their reuse could create unhygienic environments and promote food-borne illnesses, unless they are

laundered regularly. This may be a minor concern, because reusable bags do not require special washing care and would likely be washed on a regular basis .

It is apparent from the study that partially degraded smaller pieces of plastic are less likely to be consumed by large marine animals. It is still uncertain whether or not these smaller pieces pose a significant risk, as they may continue to degrade in the smaller animals digestive tracts.

The Herrera study suggests that all the three regulatory options would result in significant environmental benefits. A ban on plastic would result in more than 60 percent reductions of impacts to litter aesthetics and marine diversity, and significantly reduce environmental impacts from non-renewable energy, GHG emissions, resource depletion, and shopping bag waste. However, eutrophication would increase slightly. A fee placed on plastic or plastic and paper bags would result in a 50 percent reduction in impacts of litter aesthetics and marine diversity. Although both scenarios would result in other significant environmental benefits, the fee on both plastic and paper would lead to greater than 50 percent reductions in non-renewable energy, GHG Emissions, resource depletion, eutrophication, and shopping bag waste generation. The Herrera study also evaluated the economic impact of these options. A fee on plastic bags would result in costs to consumers and the region, while the City and retailers would experience gains.

The Finnish Environment Institute (SYKE 2009) conducted a study on paper, cotton, and recycled plastic biodegradable bags. The authors determined that biodegradable bags are the worst alternative from the point of view of GHG emissions because they contain substances of fossil origin that increase bag durability, These bags are, therefore, only viable from a GHG emission standpoint if they are burned in a waste-to-energy facility or used in biogas production.

### **Problem Statement**

Plastic bag is a serious problem all around the world for destroying environment. It creates wastages problem, harms the environment and causes health hazards if misused. However, people are still using

it due to easy availability, small storage place, weight convenience and cost effectiveness. As city being swarmed with plastic bag menace which causes flood, environmental and even health hazards, actions are being taken in many countries to minimize the usage of plastic bags. Some countries have imposed strict law and regulation to overcome the problem.

### **Background of the Study**

With regard to 'Plastic bag ban' the environmental consciousness of the public has been increasing due to emergence of campaigns through media and public education during the century. However, even though bigger organizations have started to take notice and participate in green concept, one must not ignore the smaller business owner. In Mangalore, small businesses can be seen all around the street – the most prominent being grocery sellers, the street vendors, the supermarkets, hawker who sells foods and drinks in coffee shop or even at roadside. The most common packaging materials that these people use for their business is normally plastic bag. It's even used to pack boiling hot food or drinks. This raises the concern for some individuals and even the authorities since this practice not only affects the environment, but might cause health issues as well. For example, misuse of plastic bag in direct contact with high temperature food or drink might cause chemical migration between the food and plastic.

It is noted that stakeholders such as government, consumer and business owners are very important for a successful implementation of plastic bag reduction. This study will concentrate on one of the most important stakeholders which is the consumer. Consumer plays a very important role as their opinion affects other stakeholders such as the organization government etc., which reacts on the issue in order to maintain the good reputation in public eyes. In this case – the small business owner is the stakeholder who might be affected if the consumer has the opinion regarding the packaging material of their products. Therefore, in order to reduce the usage of plastic bags, the perception and practice of the consumer should be studied. This enables to understand the influencing factors so that strategy can be planned to moderately reduce the usage of plastic bags in Mangalore. The research paper is aiming at answering questions with regard to ban of Plastic bags in Mangalore. However the specific Objectives are

## Objectives

1. To identify the parameters of the plastic bags ban on which the consumers have a favorable and unfavorable opinion.
2. To assess the respondents opinion on ban of plastic bags
3. To examine the views of consumers with respect to Income, Gender, Age and occupation regarding Plastic bag use.
4. To assess the extent of plastic use among people in Mangalore.
5. To raise major implications in the light of findings of the research study and to suggest the opportunities existing for further improvement

## Hypothesis

1. Ban on plastic is well accepted by people of Mangalore
2. There is a significant difference on the views of the male and the female respondents regarding ban on plastic bags
3. Re-usage of Plastic bags and gender are independent variables
4. There is a significant difference on the level of income and ban on plastic bags

## Study Design

In the current research paper, Mangalore City has been selected for collection of primary data related to the opinion of people on ban of plastic bags. A survey was conducted among students, home makers, employed professionals in various professions of different age groups, who are the users of Plastic bags and who have the knowledge on the usage and disposal. This survey was mainly aimed at understanding consumers' perceptions on ban of plastics

We have solicited anonymous response to a questionnaire given to the people around Mangalore city. by concentrating on areas such as Lady Hill, Urwastore, Chilimbi and Kottara. The questionnaire contained three sections. The first section is used to collect the personal profile of the respondents and opinion about plastic as a major pollutant, the second section was used to elicit information regarding some good things and bad things about plastic bags and the third section was used to solicit information regarding their views and perceptions on various dimensions regarding ban on plastic bags. The questionnaire was hand delivered to selected households by a



group of students who collected the response personally. The respondents were requested to respond fairly, with a lot of care as well as responsibilities

### Sampling Framework

**Table No. 1: Sampling Framework**

<b>Sampling Unit</b>	<b>Households</b>
Sampling Area	Lady hill, Urwastore ,Chilimbi & Kottara of Mangalore Taluk
Sampling Method	Non-Probability Sampling Method: Convenience Sampling Technique
Sampling Size	100

The above Table indicates the Sampling framework adopted for the purpose of research study.

### Results and Discussion

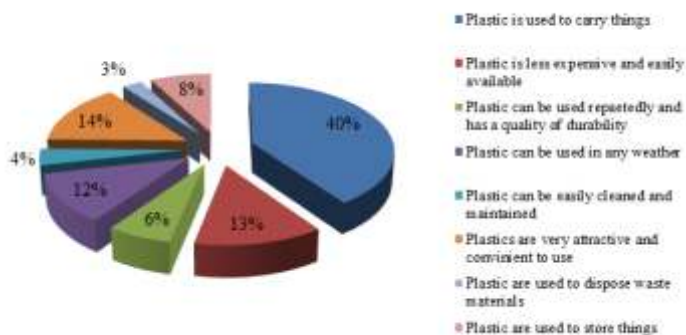
#### Demographic Profile of the Respondents

**Table No. 2: Demographic Profile of the Respondents**

The responses regarding good and bad things about plastics were obtained from the respondents through an open ended questions. After a thorough study, the following responses were elicited which is depicted in chart no. 1 and 2 given below.

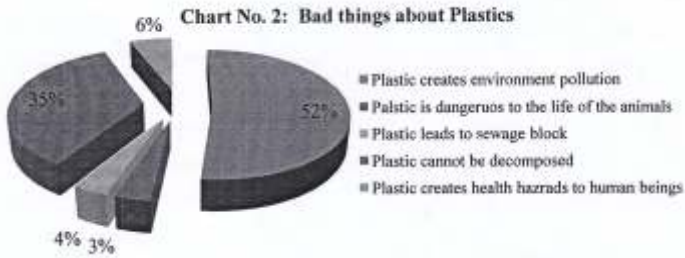
## Good things about plastics

Chart No.1: Good Things about Plastics



**Interpretation:** An open ended question was asked to the respondents to mention good things about plastics and accordingly 40 percent of the respondents opined that plastics are used to carry things, 14 percent of the respondents expressed their view that the plastics are very attractive and convenient to use, 13 percent of the respondents stated that plastics are less expensive compared to other substitutes and easily available, 12 percent of the respondents mentioned that the plastics can be used in any weather especially in rainy season so the things carried in plastics do not get wet. Out of the total, 8 percent of the respondents conveyed that plastics are used to store things, 6 percent of the respondents' states that plastic bags can be used repeatedly and are durable than paper bags, 4 percent of the respondents mentioned that plastic bags can be easily cleaned and maintained, 3 percent of the respondents opined that the plastics bags are much used to dispose waste materials. Thus we can state that the plastic bags being water proof material are convenient, user friendly and can be used for several purposes.

## Bad things about plastics



**Interpretation:** An open ended question was asked to the respondents to mention bad things about plastics and accordingly 52 percent of the respondents opined that plastics creates environment pollution, 35 percent of the respondents expressed their view that plastics cannot be decomposed, 6 percent stated that the plastics create health hazards to human beings, 4 percent of the respondents stated that plastics lead to sewage block and 3 percent believed that plastic is dangerous to the life of the animals. Thus it can be inferred that respondents are aware about the negative effects of the plastic bags as plastic bags prove to be a major threat to environment as well as to the life.

### Respondents' opinion regarding Plastic bags on various dimensions

**Table No. 3: Opinion regarding Plastic bags on various dimensions**

Dimensions	Yes		No		Total	
	No. of Respondent	Percent	No. of Respondent	Percent	No. of Respondent	Percent
Respondents opinion regarding the preference for Plastics bags for purchases at Markets	47	47	53	53.0	100	100
Re-usage of plastic bags by the Respondents	56	56	44	44.0	100	100
Belief of Respondent of plastic bags as major pollutant	88	88.9	11	11.1	99	100

**Source :** Filed survey

*Note: n indicates number of respondents*

**Interpretation:** From the above Table we can infer that 53 percent of the respondents not at all preferred plastic bag for market purchases while 47 percent of respondents preferred plastic bags for market purchases.56 percent of the respondents favored the re-usage of plastic bags while 44 percent unfavoured re-usage of plastic bags.88.9 percent of the respondents opined that the plastic bags as the major pollutant while 11.1 percent disagreed the fact that plastic bags are major pollutant.

### Frequency of purchases

**Table No. 4: Frequency of household purchases**

Purchase Frequency	Yes		No		Total	
	No. of Respondent	Percent	No. of Respondent	Percent	No. of Respondent	Percent
Purchases done on weekly basis	23	23	77	77	100	100
Purchases done on fortnightly basis	6	06	94	94	100	100
Purchases done on monthly basis	22	22	78	78	100	100
carrying bags other than plastics for purchases	62	62	38	38	100	100

*Source : Filed survey*

**Interpretation:** From the above Table we can see that 23 percent of the respondents make purchases on weekly basis, 22 percent make purchases on monthly basis 6 percent make purchases on fortnightly basis. Further it was interesting to note that 62 percent of the respondents carry bags other than plastics for purchases.

### Change in the flavour of food when the food is stored for a long time in plastic bags

From the Table given below, we can infer that 61 percent of the respondents opine that when food is stored for a long time in plastics bags it does change the flavor of food and 39 percent of respondents opine that it does not change the flavor of food.

**Table No. 5: Change in the flavor of food when kept in plastic**

Parameter	Yes		No		Total	
	No. of Respondent	Percent	No. of Respondent	Percent	No. of Respondent	Percent
Respondents opinion regarding changes in flavor of food when food is stored for a long time in plastic bags	61	61	39	39	100	100

*Source : Filed survey*

### Respondents' degree of agreement to various parameters regarding Plastics

**Table No. 6: Respondents' degree of agreement**

Parameters	Strongly disagree	Moderately disagree	Neither Agree nor Disagree	Moderately Agree	Strongly Agree	Statistic	
	Percent	Percent	Percent	Percent	Percent	Mean	S.D
Plastic bag is must when buying groceries/vegetables	24	8	10	17	41	3.43	1.64
Plastic bags are harmful for the environment	8	2	3	18	69	4.38	1.17
Respondents wish of not quitting plastic bags	14	5	24	26	31	3.55	1.35
Respondents opinion to the statement "I try to avoid plastic bags as much as I can"	4	6	10	28	52	4.18	1.09
Paper bag is not a useful substitute for plastic bags	13	10	10	34	33	3.64	1.37
Plastic bags are easy to clean	13	6	11	24	46	3.84	1.40

*Source : Filed survey*

**Interpretation:** The mean values of all the parameters mentioned are above the average level of 3. Hence we conclude that all the criteria mentioned above are favored by the respondents. The statement 'plastic bags are harmful for the environment' has lower

standard deviation (1.17) followed by the willingness to avoid plastic bags with standard Deviation (1.09)

### **Respondents' opinion about enforcement of plastic bag ban**

**Table No. 7: Opinion about enforcement of plastic bag ban**

**Interpretation:** From the above Table it is clear that 73 percent of the respondents are favoring the enforcement of plastic bag ban which is significantly higher and 27 percent of the respondents are not favoring plastic bag ban enforcement. So ban on plastic bags is well accepted.

### **Association between age of the respondent and enforcement of plastic bag ban**

**Table No. 8: Association between Age and enforcement of ban on plastic bags**

Null hypothesis- There is no association between age of the respondents and enforcement of ban on plastic bags

Alternative Hypothesis- There is association between age of the respondents and enforcement of ban on plastic bags

**Interpretation:** Since the P Value is 0.334 is more than 0.05, the Null Hypothesis is accepted at 5 percent level of significance. Hence we conclude that there is no association between age of the respondent and enforcement of ban on plastic bags. Both the variables (Age and ban enforcement) are treated as independent variable. But based on the percentages, we can understand that all the respondents falling under different Age brackets are exhibiting supportive attitude towards ban on plastic bags.

### **Association between Gender and enforcement of ban on plastic bags**

Null Hypothesis- There is No Association between gender and enforcement of ban on plastic bags

Alternative Hypothesis- - There is Association between gender and enforcement of ban on plastic bags

**Table No. 9: Association between Gender and enforcement of ban on plastic bags**

Gender	Respondents opinion about enforcement of plastic bag ban				Total	Total Percent
	Yes	Percent	No	Percent		
Male	31	75.6	10	24.4	41	100
Female	42	71.2	17	28.8	59	100
Total	73	73	27	27	100	100
c2 = 0.240, d.f = 1, p = .624, NS						

*Source : Filed survey*

**Interpretation:** Based on the percentages, we can understand that both male and female respondents with 75.6 percent and 71.2 percent respectively are supporting the enforcement of ban on plastic bags. Further from the results it is apparent that the p value of .0624 is

greater than 0.05, Null hypothesis is accepted at 5 percent level of significance. Hence we conclude that there is no association between gender and enforcement of ban on plastic bags

### **Association between level of education and enforcement and ban on plastic bags**

**Table No. 10: Association between level of education & enforcement ban on plastic bags**

Null Hypothesis- There is no association between level of education and enforcement and ban on plastic bags

Alternative Hypothesis –There is association between level of education and enforcement and ban on plastic bags

**Interpretation:** In the above Table, the 'p' value of 0.208 is greater than 0.05. Hence Null hypothesis is accepted at 5 percent level of significance. Therefore we conclude that there is no association between level of education and enforcement of ban on plastic bags .Based on percentages we can understand that respondents with different levels of education are favoring ban ranging from 62.5 percent to 77.8 percent, averaging 73 percent.

### **Association between annual income and plastic ban enforcement**

Null Hypothesis- Income and plastic ban enforcement are independent.

Alternative Hypothesis-Income and plastic ban enforcement are related



### **Table No. 11: Association between annual income and plastic ban enforcement**

**Interpretation:** The calculated p value 0.370 is greater than the assumed p value of 0.05. So the Null hypothesis is accepted. Hence we conclude that Income and plastic ban enforcement are independent. Based on percentages we can understand that respondents falling under different income brackets do support the enforcement of plastic bag ban.

#### **Association between the levels of degree of agreement for the statement 'The plastic bags are harmful for the environment and enforcement of plastic bag ban'**

**Null Hypothesis-** There is no association between the levels of degree of agreement for the statement 'plastic bags are harmful for the environment' and enforcement of plastic bag ban

**Alternative Hypothesis-** There is association between the levels of degree of agreement for the statement ' plastic bags are harmful for the environment' and enforcement of plastic bag ban.

**Table No. 12: Association between the levels of degree of agreement for the statement 'The plastic bags are harmful for the environment and enforcement of plastic bag ban'**



**Interpretation:** Since p value 0.027 is less than 0.05 Null hypothesis is rejected at 5 percent level of significance. Hence we conclude that there is association between the levels of degree of agreement for the statement 'plastic bags are harmful for the environment' and plastic bag ban enforcement. Based on percentages we can notice that about 74.0 percent of the respondents enforcing ban on plastic bag, strongly agree that plastic bags are harmful for the environment.

**Association between the levels of degree of agreement for the statement 'wish of not quitting plastic bags' and enforcement of plastic bag ban**

Null Hypothesis – There is no association between degree of agreement to the wish of not quitting plastic bags and enforcement of ban on plastic bags.

Alternate Hypothesis – There is association between degree of agreement to the wish of not quitting plastic bags and enforcement of ban on plastic bags.

**Table No. 13: Association between the levels of degree of agreement for the statement 'wish of not quitting plastic bags' and enforcement of plastic bag ban**

**Association between enforcement of ban on plastic bag and the paper bag as not a useful substitute for plastic bag**

Null hypothesis-There is no association between enforcement of ban on plastic bag and the paper bag as not a useful substitute for plastic bag

Alternative hypothesis- There is association between enforcement of ban on plastic bag and the paper bag as not a useful substitute for plastic bag

**Table No. 14: Association between enforcement of ban on plastic bag and the paper bag as not a useful substitute for plastic bag**

**Interpretation:** Since p value 0.590 is greater than 0.05, the Null hypothesis is accepted hence we conclude that there is no association between enforcement of ban on plastic bag and the paper bag as not useful substitute for plastic bags.

Based on percentage we can infer that 73 percent respondents favor enforcement of plastic bag ban, they also agree to the fact that paper bag is not a useful substitute. Thus it is evident that respondents though support the ban would need an innovative substitute so for plastic bag which can withstand weight.

**Association between enforcement of ban on plastic bag and the degree of agreement towards avoiding the use of plastic bags**

Null hypothesis-There is no association between enforcement of ban

on plastic bag and the degree of agreement towards avoiding the use of plastic bags

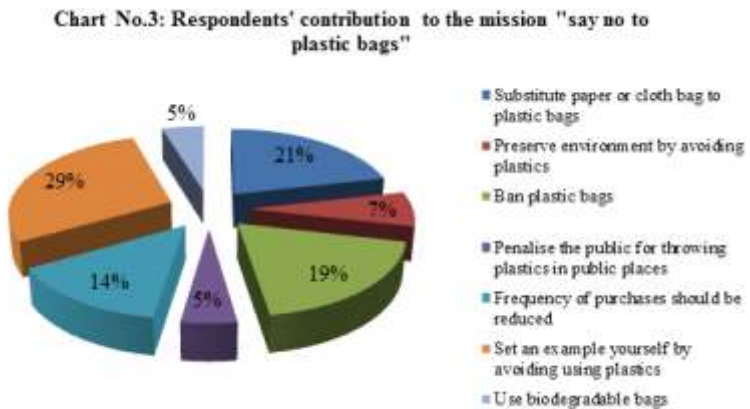
Alternate hypothesis -There is association between enforcement of ban on plastic bag and the degree of agreement towards avoiding the use of plastic bags.

**Table No. 15: Association between enforcement of ban on plastic bag and the degree of agreement towards avoiding the use of plastic bags**



**Interpretation:** Since p value 0.300 is greater than 0.05, the Null hypothesis is accepted. Hence we conclude that there is no association between enforcement of ban on plastic bag and the degree of agreement towards avoiding the use of plastic bags. Based on percentages, we can understand that the respondents agreeing to avoid plastic bags (moderately 28 percent, strongly 52 percent) are against the enforcement of plastic bag ban (moderately 14.8 percent, strongly 59.3 percent)

### Respondent's contribution to the mission "say no to plastic bags"



**Interpretation:** From the open ended questions related to the contribution to the mission “say no to plastics bags” 29 percent of the respondents opine that they have to set an example by avoiding use of plastics, 21 percent of the respondents contribute to the mission by substituting paper/cloth bag to plastic bags, 19 percent of the respondents support the enforcement of plastic bag ban, 14 percent of the respondents contribute to the mission by reducing the frequency of purchases, 7 percent of the respondents contribute to preserve environment by avoiding plastics, 5 percent of the respondents contribute to the mission by stating to penalize the public for throwing plastics in public places, and to use biodegradable bags.

## Findings

- The study reveals that majority of the respondents believe that plastic bag is a major environment pollution causing health hazards to human beings as well as animals. It is non degradable and cannot be disposed of easily.
- Findings relating to the contribution to the mission “say no to plastics bags” majority of the respondents opined that the plastic bag ban should be revised, giving prominent importance to the reduction in plastic bags by using appropriate substitutes such as cloth bags and biodegradable bags depending on the need.
- The study reveals certain good things about plastic bags. For example, the plastic bags are water proof, the material is convenient, user friendly and can be used for several purposes.
- The findings regarding bad things about Plastic bags are, that they create pollution, cannot be decomposed, and create health hazards, sewage blockage and a threat to the life of animals Thus it can be inferred that respondents are aware about the negative effects of the plastic bags as plastic bags prove to be a major threat to environment as well as to the life..
- We can infer that 53 percent of the respondents favored re-usage of plastic bags. About 88.9 percent of the respondents opined that the plastic bags are the major pollutant.
- With regard to the frequency of purchases, we can see that 23 percent of the respondents make purchases on weekly basis, 22 percent on monthly basis and 6 percent make purchases on fortnightly basis. Further 62 percent of the respondents carry bags other than plastics for purchases.
- From the study it is found that 61 percent of the respondents opine that when food is stored for a long time in plastic bags it does change the flavor of food and 39 percent of respondents opine that it does not change the flavor of food.
- The study reveals that 73 percent of the respondents are favoring the enforcement of plastic bag ban which is significantly higher and 27 percent of the respondents are not favoring plastic bag ban

enforcement. So ban on plastic bags is well accepted.

- The study reveals that there is no association between age of the respondent and enforcement of ban on plastic bags. Both the variables (Age and ban enforcement) are treated as independent variables. But based on the percentages, we can understand that all the respondents falling under different Age brackets are exhibiting supportive attitude towards ban on plastic bags.
- From the findings relating to gender, we can understand that both male and female respondents with 75.6 percent and 71.2 percent respectively are supporting the enforcement of ban on plastic bag. Hence, we conclude that there is no association between gender and enforcement of ban on plastic bags.
- The study reveals that there is no association between the level of education and enforcement of ban on plastic bags.
- We can conclude from the study that Income and plastic ban enforcement are independent. We can understand that respondents falling under different income brackets do support the enforcement of plastic ban.
- The study reveals that there is association between the levels of degree of agreement for the statement; the plastic bags are harmful for the environment and plastic bag ban enforcement.
- There is no association between degree of agreement as to the wish of not quitting plastic bags and enforcement of plastic bags ban. Based on the percentage it is evident that respondents who are supporting ban enforcement are exhibiting the wish of not quitting plastic bags. Hence it states that the plastic bags have dual impact.
- The various suggestions that were given by the respondents to the Mission “say no to plastics bags” were that we have to set an example by avoiding using plastics, and substituting paper/cloth bag to plastic bags, supporting the enforcement of plastic bag ban, by reducing the frequency of purchases, by asking the authorities to penalize the public for throwing plastics in public places, and to use biodegradable bags.



- We conclude that there is no association between enforcement of ban on plastic bag and the paper bag as the latter is not a proper substitute for plastic bags.
- It is evident from the study that respondents though support the ban, would need an innovative substitute for plastic bag which can withstand weight.
- Alternative bags are more likely to be used on shopping trips that are planned in advance, and for occasions on which a number of items are likely to be purchased. Consumers are less likely to have them when purchasing on impulse. On these occasions, retailers are obliged to provide bags for consumer convenience, and this is an opportunity to consider the most appropriate type of bag.

### **Suggestions**

- An analysis of the study on approaches to mitigating the problem of plastic bags indicates that it is appropriate to reduce the amount of plastic bags used in the first place, with initiatives aimed at consumers and using initiatives to improve plastic bag collection and recycling facilities.
- The Government has to develop legislative options, including a possible plastic bag levy and ban on plastic bags; retailers to develop and implement a strong National Code of Practice for the Management of Plastic Retail Carry Bags
- The city corporation can convince the supermarkets to charge for plastic bags or ban them altogether.
- Offering customers easily accessible recycling stations in major supermarkets and Shopping centers.
- Litter education is an important supporting element of other initiatives that may be undertaken to reduce plastic bags and their impacts
- The retailers can provide reused boxes for customers or for small purchases no bags; Banning outright the use of plastic bags is another option, and this has been undertaken in several Asian

countries

- A total ban on plastic bags would be seen as excessive and inappropriate, but a limited ban on high litter potential bags, implemented with other measures, could be considered.
- Develop a proposal for a coordinated national customer and retailer awareness program and encourage continued participation in current litter programs such as the Clean Up.
- Additives can be used to enhance a plastic's ability to degrade, and they can be used in combination with degradation inducers such as ultraviolet radiation, composting and thermal degradation. These combinations can greatly increase the rate of degradation of plastic, but the costs must be taken into account.
- The pay-as-you-throw program is currently one of the better methods as far as increasing awareness and decreasing excessive use of garbage bags. The municipalities that have adopted this program have seen a significant decrease in the amount of garbage generated, and the program also has the benefit of increasing revenue to the town. This revenue can be used to improve waste services, so the program has more than one benefit.

In general, the biodegradable bags have sufficient mechanical properties, but these properties are more sensitive environmental elements such as heat and humidity

## **Conclusion**

The conclusion needs to be drawn on how to reduce the environmental impacts of plastic bags. One of the possible ways to decipher this is by means of finding ways to reduce, reuse and recycle them. Many retail stores have started utilizing this philosophy of reducing, recycling and reusing the grocery bags. Building up public awareness and motivation to reduce, reuse and recycle both these bags will definitely help to resolve the environmental problems to a greater magnitude. By Charging extra money for plastic bags by the businessmen has also encouraged people to carry bags while shopping with them and thus contribute to less consumption of plastic bags.

Increasing public awareness, and legislating policies require

alternative arrangements. This will involve the work of many people and could take years to finalize. There are many things that can be done in the short-term to cut back on unnecessary bag use. This begins with public awareness – making the people understand that PE bags may be reused and recycled. Retailers can place sign boards throughout their stores reminding people of the environmental impacts of plastic bags and to reuse their bags instead of letting them go to landfills or litter.

Research may be undertaken on the areas like: changes in current bag usages and future material options. As manufacturing processes are refined and costs lowered, new materials may be introduced into the mainstream, possibly replacing polyethylene bags.

Any long-term changes such as what types of bags are used at the checkout, will not come about soon. In order to make an impact on plastic bag usage reduction, policies must be described which must be adopted everywhere. It will require the cooperation and co-ordination among governments, corporations, and the people. This will be a long-term change, and will take time to achieve.

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