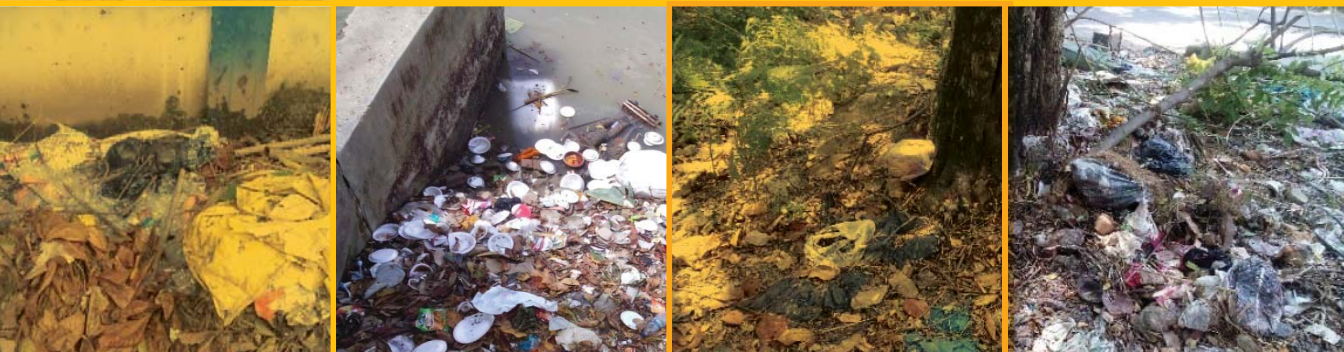




Toxics Link  
for a toxics-free world

# Kolkata and Environment **Plastic Menace**



ABOUT TOXICS LINK

Toxics Link emerged from a need to establish a mechanism for disseminating credible information about toxics in India, and for raising the level of the debate on these issues. The goal was to develop an information exchange and support organization that would use research and advocacy in strengthening campaigns against toxics pollution, help push industries towards cleaner production, and link groups working on toxics and waste issues.

Toxics Link has unique experience in the areas of hazardous, medical and municipal wastes, as well as in specific issues such as the international waste trade and the emerging issues of pesticides and POPs. It has implemented various best practices models based on pilot projects in some of these areas. It is responding to demands upon it to share the experiences of these projects, upscale some of them and to apply past experience to larger and more significant campaigns.



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# I. INTRODUCTION

## BACKGROUND

Plastic bags have become a be-all and end-all for every customer. Oblivious to the after effects, one is easily swayed away by the benefits it offers, such as convenience, flexibility, lightness, durability, water-resistance etc. “Life without plastic is difficult” says a local consumer. On one hand, plastic bags have made our life easier and on the other hand, it has led to serious environmental damage.

Kolkata, the capital city of West Bengal, is the largest city in the eastern India. It is also the main business, commercial and financial hub of East India and the north eastern states. Kolkata, which comes under five most polluted cities in India, however has paid little attention to the environmental concerns.

The municipal solid waste generated daily in the city of Kolkata has been estimated at 5372 Metric Tonne (MT)<sup>1</sup>. Out of this, around 1900 MT is recyclables, of which just 700 MT is recycled daily. The rest 1200 MT (mainly plastic) add to the untreated waste. With increasing consumption of plastic, generation of plastic waste is also growing tremendously in the city. Amongst the variety of things, plastic bags are seen as a big pollutant in the city.

## PLASTIC BAGS AND THE ENVIRONMENT

Plastic has a wide usage starting from packaging to construction to transport. Plastic bag has been one of the most popular usages of this material. The same properties that have made plastic bags so commercially successful and ubiquitous—namely their low weight and resistance to degradation—have also contributed to their proliferation in the environment. Due to their durability, plastic bags can take centuries to decompose, hence creating huge environmental menace such as choking the drainage systems, creating impervious layer arresting groundwater recharge and killing animals. Plastic carry bags are manufactured using organic and inorganic additives like colorants and pigments, plasticizers, antioxidants, stabilizers and metals. Colorants and pigments are industrial azodyes which are used to give bright color to plastic carry bags<sup>2</sup>. Some of these are carcinogenic and likely to contaminate food stuffs, if packed in these carry bags. Toxic metals like cadmium and lead when used in manufacturing of plastic bags also leach out and contaminate the food stuffs<sup>3</sup>.

## PLASTIC BAG BAN IN KOLKATA

The Ministry of Environment and Forests, Government of India issued the Recycled Manufacture and Usage Rules, 1999 under the Environment Protection Act, 1986 with the dual objective of limiting the environmental problems caused by the littering of plastic carry bags, and health

1 <http://www.indiaenvironmentportal.org.in/files/file/Pathways-to-Green-Cities.pdf>  
2 <http://pib.nic.in/newsite/ereIcontent.aspx?reIid=58057>  
3 <http://pib.nic.in/newsite/ereIcontent.aspx?reIid=58057>

problems arising from the ready-to-eat food in plastic bags made of recycled material. According to the rules of the Law, manufacture, storage, sale/ use of plastic carry bags having less than 20 microns i.e. equivalent to 0.2mm thickness is restricted. In order to bring this in effect, an amendment on plastic bags was issued in 2003, according to which MoEFCC prohibited the manufacture, sale and use of carry bags below the size of 8" x 12", retaining the 20 microns thickness restriction.

Recently, the government notified the Plastic Waste (Management and Handling) Rules, 2011, to replace the earlier Recycled Plastics Manufacture and Usage Rules, 2003, towards better management of plastic waste. According to the new rules, the minimum thickness of plastic bags has been raised to 40 microns and recycled carry bags made from compostable plastics need to conform to specific Bureau of Indian Standards (BIS) norms.

In addition to this, the West Bengal Pollution Control Board (WBPCB), Department of Environment and Government of West Bengal have taken various steps from 2001 onwards to curb the use of plastic bags below 40 microns. Over time, the Department of Environment, Government of West Bengal and the WBPCB too, have passed a number of regulations to restrict the use of plastic carry bags within the state of West Bengal. An account of the restrictions on plastic carry bags in West Bengal is given below<sup>4</sup>:

- Manufacture, storage and use of plastic carry bags of less than 40 microns thickness and with dimensions less than 16 inches x 12 inches is banned in West Bengal.
- Minimum weight of 50 nos. carry bags of size 16 inches x 12 inches and 40 microns thickness made of virgin or recycled plastics shall be 500 gms plus or minus 5 per cent variation and the carry bags of larger sizes shall be proportionate heavier in weight.
- In case of any violation of the restrictions by manufacturers, stockists or sellers, orders for closure and disconnection of electricity may be issued against the violators. Violators may also be punished with imprisonment for a term which may extend to 5 years and a fine which may extend to Rs. 1,00,000.
- Plastic carry bags are totally banned in the ecologically sensitive areas and 40 heritage/ tourist sites of West Bengal are declared as 'Plastic Carry Bag Free Zones' (list in Annexure).
- Plastic carry bags are also banned in all government buildings of West Bengal (including Writers' Buildings) and campus of Viswa Bharati Viswa Vidyalyaya, areas under Sriniketan-Santiniketan Development Authority and Bolpur Municipality in Birbhum district of the state.
- All kinds of plastic carry bags, plastic cups and plastic containers less than 4 inches in height and 40 microns in thickness is banned in all Government buildings and offices including Writers' Buildings, Kolkata.
- Entry, use, sale, accumulation, dumping and processing of plastic carry bags are prohibited within 50 metres area of both sides of the banks of the River Ganga. Such areas are declared as plastic free zones.
- Burning of plastic waste is banned. Combustion of plastic waste emit toxic gases like dioxins from some chlorinated plastics like PVC.

<sup>4</sup> <http://www.wbpcb.gov.in/html/pressrelease/plastic.shtml>

## NEED FOR THE STUDY

It's nearly been a decade, since the ban is in place in West Bengal; however the plastic carry bags are still ruling the state's markets, street corners, drainage system, landfills and obviously the resident's heart. Irrespective of the nuisances it creates for environment and health, people feel it's the most convenient good for carrying their stuffs. Therefore, need of the hour is to assess the effectiveness of the ban and identifying the reasons behind its success or failure and this study indicates particularly towards that direction.



Image credit: Zainub Razvi





## II. OBJECTIVE AND METHODOLOGY

### OBJECTIVE

Use of plastic carry bags below 40 microns is banned in Kolkata. In addition to that, there is blanket ban on usage of any kind of plastic in Government buildings, historical sites and eco-sensitive zones. Regulations have been in place for long time but there is a need to assess the effectiveness of the ban and also examine the reasons behind its success or failure.

The main aim of the study was to check the compliance level of the plastic carry bag notification through a detailed primary and secondary survey. The study has the following objectives:

- To check if the ban on use of bags less than 40 microns was effective in the city.
- To check if the complete ban on plastic carry bags in eco sensitive zones, government offices etc was being followed.
- To examine the various types of materials and methods used by shopkeepers, establishments and temporary vendors for the delivery of their goods and services
- To evaluate the level of awareness among vendors and consumers about the plastic bags ban and the issues associated with plastic use
- To examine the role of government agencies in implementing the plastic bags ban

### METHODOLOGY

#### Secondary Research

Secondary research comprised collecting documents relating to the waste generation, plastic industry, regulations etc. from the varied sources in the public domain. The following aspects were covered in the secondary research:

- Regulatory framework in the chosen areas for the plastic industry and in particular plastic bags
- Current status of waste generation in the city
- Current scenario of the plastic industry

#### Primary Research

The study included both qualitative and quantitative research. Survey was conducted to collate information from the target audience- regulatory agencies, vendors and consumers.

On the basis of the secondary research, a survey questionnaire was designed for vendors and consumers, to get information on consumption of plastic bags (< 40 microns) in the city and the



effectiveness of this restriction. The city was divided into five zones: East, West, Central, North and South. Market areas and some residential areas in all the five zones were visited to collect information using this questionnaire.

In addition to this, field visits were carried out in areas declared as “plastic free zones” by the Government of West Bengal. Various tourist/historical sites were visited to check the implementation of the rules as these were also plastic free zones.

The government offices, which were included in plastic free zones, were also visited during the study.

Sample

Sample size was designed for the consumer and vendor survey in the market and residential area, depending on the usage of plastic carry bags across sectors.

Table 1: Sample Size of Target Group

Target Group	North	South	East	West	Central
Vegetable/ Fruit vendor	15	15	15	15	15
Grocery Shops	10	7	8	9	5
Poultry/Fish Market	3	4	2	5	2
Government booth (Mother Dairy/Benfish)	5	7	5	5	3
Chemist Shop	5	3	4	6	5
Small Food Joints (sweet shop, thela)	10	15	7	10	7
Clothing and Shoe Brands	15	35	12	12	7
International					18
Indian	5	5	5	-	2
Local	10	15	7	9	5
Shopping Multi Brands					2
Consumers across all this sectors					630

LIMITATION OF THE STUDY

Due to resource constraints and limited access to information, it was difficult to have a large sample size. Also, vendors and government officials were reluctant in sharing information.

We did not have any means to verify plastic carry bag quality (in terms of microns) during the survey, hence had to rely on our observation and information provided by the local vendors.

III. EFFECTIVENESS OF PLASTIC NOTIFICATION IN KOLKATA- RESEARCH FINDINGS

It’s been almost a decade and a half since the West Bengal government took notice of the plastic bag concerns in the state and issued a plastic carry bag notification came in West Bengal. Though the initial notification restricted usage in certain notified areas, over the years notifications have been issued to expand those areas and have stricter control measures. But the plastic carry bags can still be seen in many areas, so has this ban been effective? It is important to check that and assess the current scenario to understand measure required to improve the current compliance levels.

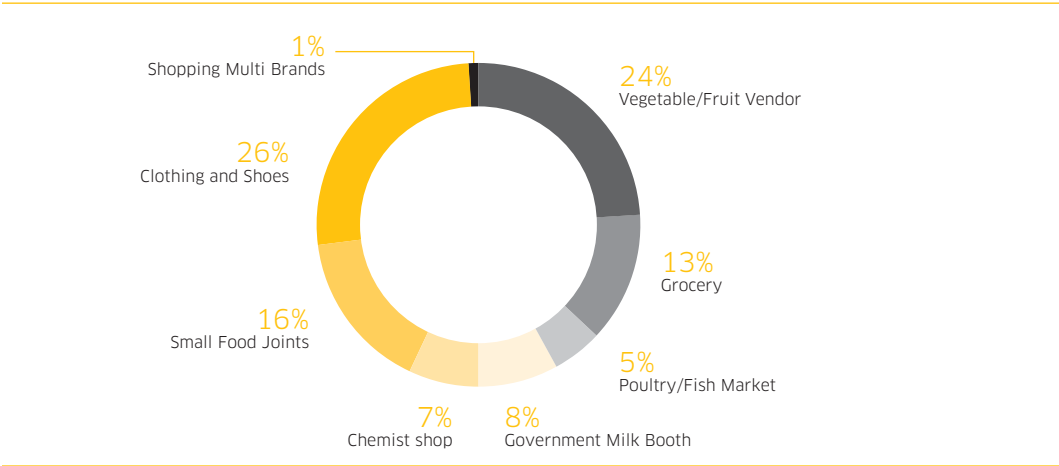
Market and Residential areas

In order to understand whether the notification related to <40 micron plastic bag ban was effective or not, a survey was conducted in the city. During the survey, famous market places in city and some residential areas were visited. The survey targeted two most important stakeholders – Vendor and Consumer.

SAMPLE

A total of 940 respondents were approached during the survey. The sample size of shopkeepers and consumers were 310 and 630 respectively. 8 types of vendors were included in the survey with 26% belonging to clothing and shoe shops followed by 24%, 16% and 13% from vegetable/ fruit shops, small food joints and grocery respectively.

Figure 1: Sample Size of Vendors

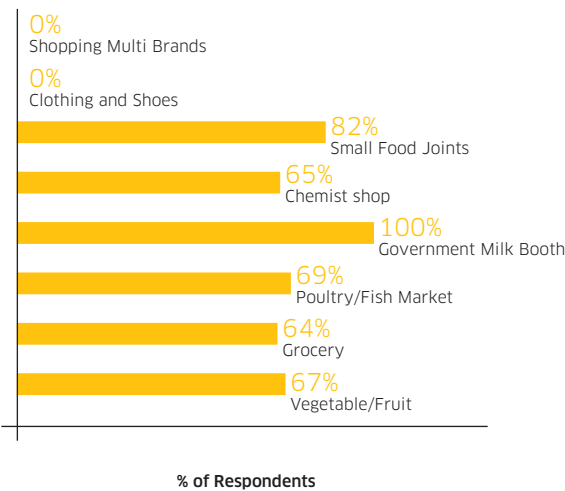




**Figure 2: Rag picker with collected plastic carry bags near market place**

vendors interviewed found using it. Usage was also high among fish and poultry, vegetable and fruit and chemist shops contributing to 69%, 67% and 65% respectively. The clothing & shoe (International) and multi-branded shops, included in the study, were a step ahead and had completely phased out plastic carry bags voluntarily, in local and Indian brands, though they were using plastic carry bags, all of them were complied with the State notification and were using plastic carry bags (>40 microns).

**Figure 3: Usage of Plastic Carry Bags (<40 microns)**



**USAGE**

During the survey, various famous market places of Kolkata such as new market, Gariahat market, shops in Behala and also shops in Northern part of the city were visited. Despite ban on plastic carry bags below 40 microns, most of the shops were found using the same.

Approximately 54% of the vendors and 58% of the consumers interviewed during the survey were using plastic bags (<40 microns) to sell or carry products.

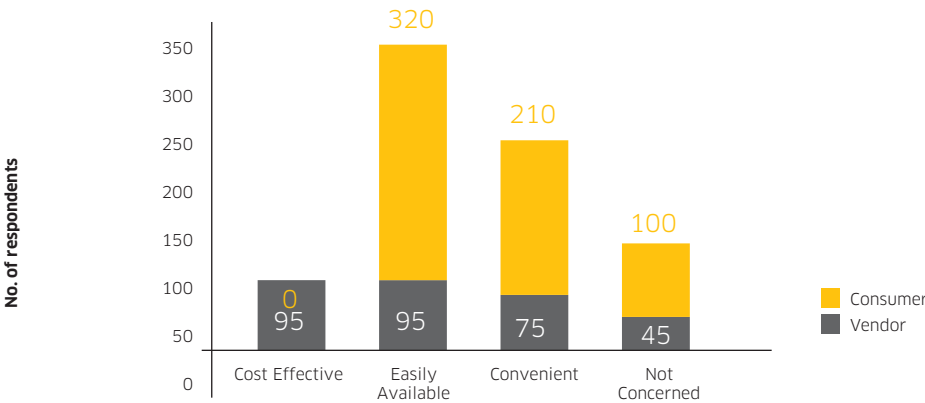
Though the usage was quite wide but it varied from vendor to vendor. Milk booth and small food joints were the largest users of the plastic carry bags (<40 microns) with 100% and 82% of the

While interviewing vendors in New Market and Gariahat market, different opinions regarding the plastic bag notifications came forth. According to few vendors, the restriction was redundant and few of them had no idea about the notification restricting usage of plastic bags less than 40 microns. Also, most of the vendors believed that if there was any restriction on using such bags (<40 microns), the supply would have declined but that is not the case and plastic carry bags are freely available to them. Most vendors opined that plastic bags are part and parcel of their life and they would lose customers if they stop using them.

**REASON FOR WIDE USAGE OF PLASTIC CARRY BAGS**

Since during the survey, it was found that plastic carry bags are being used very widely across vendors and consumers, it became quite important to find out the reasons which were driving the usage of these non-biodegradable bags. Among the vendors, almost 30% preferred plastic carry bags due to its easy availability and cost effective nature. Whereas among consumers, 50% of them felt easy availability is driving the usage. It was shocking to see that a large section of the respondents continued to use plastic as they were not concerned about plastic bag problems.

**Figure 4: Reason for Wide Usage**



Besides these, few other reasons that came out during the survey were:

- Alternatives available like paper bags are not durable
- Other alternatives are expensive
- Losing out on consumers if vendors either don't provide or charge for plastic carry bags
- Police is not strict enough and vendors can get away by giving bribes



## PLASTIC CARRY BAG CONSUMPTION

Plastic carry bags were found to be commonly used in Kolkata and in spite of the ban, usage had not gone down. During the survey, vendors were asked about the amount of plastic carry bags used on daily basis. Though they were not sure of the quantity in weight yet the amount they use costs on an average Rs 50 per day. This amount may vary depending on the demand and availability of particular product.

The consumption was high for vegetable or fruit vendors, poultry/meat shops, grocery shops and small food joints. Also, most of the clothing and shoe and multi-branded vendors have shifted to alternatives and have almost no plastic bag consumption.

In Burrabazar, there is a wholesale plastic carry bags shop. During the visits, it was found that the plastic carry bags below 40 microns were easily available in the market and has the largest consumer base. Therefore, due to complete lack of monitoring and any surveillance system in place, plastic bags of <40 microns are easily available throughout Kolkata. This is clear violation of the rules.



## DISPOSAL AND RECYCLING

### Disposal

Plastics are an environmental menace mainly because it takes millions of years for them to degrade. Hence, plastics stay in our environment for long time creating various environmental issues. It is not only because of this property but also due to complete lack of proper disposal mechanism in place that the issue is so serious in the current times.

One of the important components of the survey was to find out the disposal practices followed by the consumers for the plastic carry bags. Approximately 56% of the consumers responded saying that they throw it in the bins.

Very few consumers which are around 35% and 10% either reuse it or give it separately to waste collectors respectively.

In the survey, consumers mentioned that they do not throw plastic bags on roads or other open areas. Though consumers denied littering of plastic bags on roads, drains or open spaces, yet the scenario was very different in the city. The plastic bags were found to be choking many drains and were littered on the road sides. Plastic bags were found in the landfills also.

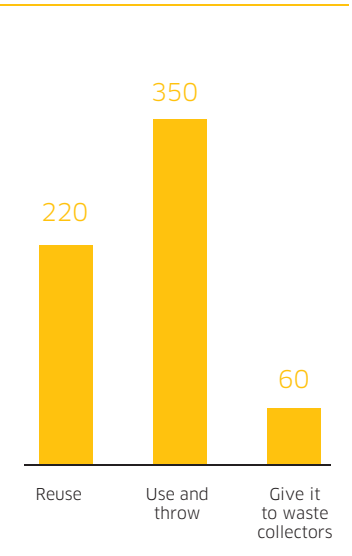


Figure 5: Disposal Practices

### Role of Municipal Corporation

All operations of solid waste management (SWM) in Kolkata Municipal Corporation's area are performed under four heads – sweeping, collection, transportation and disposal.



Figure 6: Plastic carry bags littering on road sides or at open space





**Figure 7: Plastic carry bags in Municipal Vat**

In the city area, street cleaning and collection involves collection of MSW from the streets (road sweeping) and households in handcarts. Thereafter, the waste is dumped at one of the collection points (vat<sup>5</sup>/primary collection). MSW is then loaded into transportation vehicles (trucks) (secondary collection), which transport the waste (transfer) to disposal sites, mainly at Dhapa. In Kolkata province and its towns, open dumping is the only option that is presently used for the management of the MSW. Kolkata’s municipal solid waste generally consists of waste generated from residential, commercial and institutional areas, parks and streets, and is not sorted at the source, but stored in the same waste containers. This includes plastic waste also.

While homes in Kolkata continue to club all wastes, the segregation happens at dump points and disposal sites where rag pickers extract recyclable materials. Only few corporates in Kolkata have begun segregation at their office.

Recently Kolkata Municipal Corporation has introduced scientific solid waste compactor stations and modern portable compactors at various locations of Kolkata, a step towards becoming a vat-free metropolis. The Portable Compactor and Compactor station are being introduced for garbage handling & disposal. The garbage collection stations are planned to replace vats.

Instead of depositing garbage in the vats, the KMC conservancy labourers unload the entire garbage including plastic waste of a locality into these compactors. The compactors, placed inside the garbage station, squeeze the garbage and store it inside a container. Water generated from the compacted garbage will be drained out. After collecting garbage for the whole day and during the night, a prime mover (fitted with a hook loading system) lifts a compactor filled with garbage. The garbage are then be transported to the Dhapa dumping ground.

### Processing and Recycling

All kinds of plastic carry bags come to the vats (Vat is a space where municipal labourers generally unload the entire garbage of a particular locality, it can be both opened and closed space) or the landfills and are picked up by the ragpickers in the area. These include carry bags of quality (>40 microns) as well as the low quality carry bags (<40 microns). The good quality plastic bags are further sold to plastic dealers/traders. Since there is no demand for <40 microns bags from traders, these are either dumped or burnt.

<sup>5</sup> Vat is a space where municipal labourers generally unload the entire garbage of a particular locality, it can be both opened and closed space.



**Figure 8: Mathpukur**



**Figure 9: Topsia**

During the study, an area named Mathpukur was visted which was a large plastic trading hub. While interviewing few of the traders in this area, it was found that they received plastic carry bags of various qualities from the ragpickers and they usually avoid buying the extremely low qualities ones. On an average they deal with 100-200 kgs of plastic carry bag daily.

Similar to Mathpukur, there were other areas spread across Kolkata & its suburbs like Topsia, Cossipore, Chowbagha and Killkhana. In Topsia-Chowbaga stretch, one of large centres, there were around 1500 units (traders/dealers) which dealt with all types of waste plastic materials. During interview with the traders, it was found that they receive waste from various parts of the city and dealt with around 2-5 tonnes of plastic carry bag in a week. After segregating the carry bags on the basis of its thickness, colour and material, it is further sold at a rate of Rs. 40-50/kg. Each trading unit had around 6-7 workers working at a daily wage of Rs. 150-200.

There were more than 500 units in Killkhana & in Cossipore the number was around 50.

Plastic traders further sold the carry bags to the grinding units from where it is reduced to small granules and is re-used again to make wires or other utensils of plastic. Due to the informal nature of the work, it was very difficult to get information on the areas where grinding or moulding work are carried out.

The plastic bags of <40 microns usually hoard the landfill and are not picked up.



## DUMPING IN LANDFILLS

During the study, two landfill sites were visited to understand the scenario there.

### Dhapa landfill

Dhapa is an operational landfill site which is under the local municipality and regularly receives truck-loads of waste. Local ragpickers often visited this landfill to pick material that are of use; women and children were found picking up waste in the landfill site. It was flooded with plastic carry bags.



Figure 10: Huge quantity of plastic carry bags dumped at Dhapa Landfill

### Bhagar (Graden Reach) Landfill

Similar view was found in another landfill site called Bhagar at Garden Reach, Kolkata. The landfill is non-operational due to some land issues and no municipality is responsible for this landfill currently. There are around 20-30 ragpickers who came regularly to pick up plastic waste which was sold further at a rate of Rs 10-15 per kg. Plastic bags of all quality is usually picked but >40 microns bags are further sold.

### Alternatives to Plastic Bags

Though most vendors in Kolkata were using plastic carry bags, yet there has been some move towards alternatives, especially after



Figure 11: Bhagar Landfill



Figure 11: Bhagar Landfill

## ROLE OF MUNICIPAL CORPORATION

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the plastic bag notification. One of the findings from the survey was that only 26% vendor are using some kind of alternatives. Rest 74% of the vendors were found using plastic carry bags. Most vendors saw the notification as a problem rather than a good initiative, primarily due to unavailability of proper and cost effective alternative.

Among the alternatives, paper bags seemed to be the most preferred choice of vendors, with almost 41% of the vendors using it (among those using alternatives). Paper was particularly popular among the international clothing and shoe brands and in few vegetable & fruit vendor. Major users of cloth bags were by grocery vendor with 14 out of 30 vendors using them. Few of the vendors like chemists and small food joints were also found using non-woven bags, though it was not that popular.

Though majority of the consumers, contacted during the survey, were using plastic bags; yet around 42% said that they prefer alternatives made of cloth, jute, paper or non-woven bags.

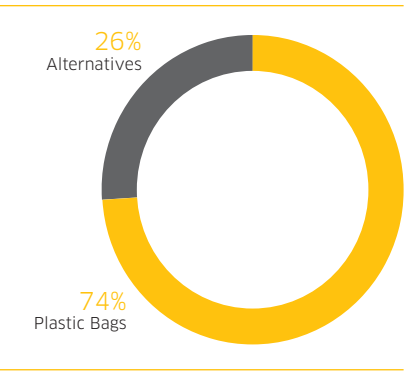


Figure 12: Plastic Vs Alternate

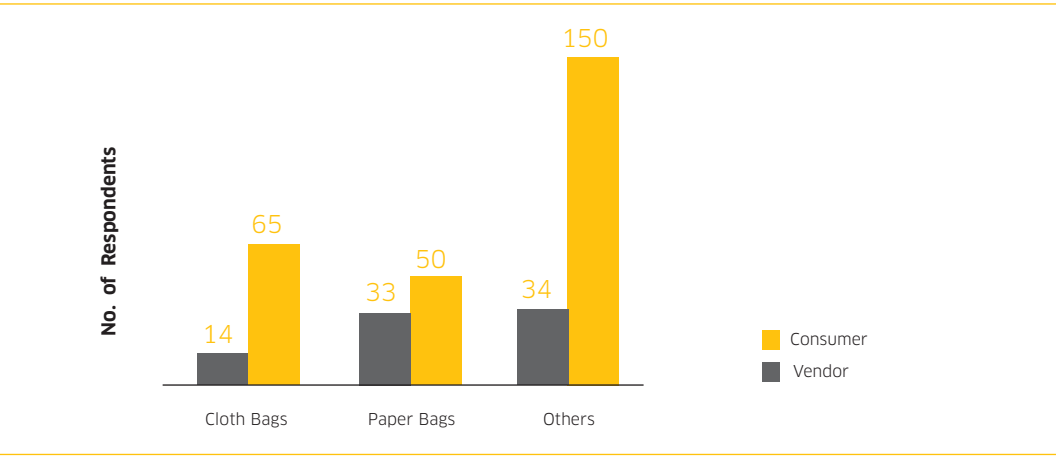


Figure 13: Preferred Alternatives among Vendors and Consumers

Awareness on Plastic Bag Ban

Local authorities of Kolkata have taken few initiatives to spread awareness on plastic bag ban among vendors and consumers. The awareness was quite high among the vendors, where 89% were aware of the plastic bag notification.

During the survey, various zones in Kolkata were visited. In the northern part of the city, usage of plastic carry bags was quite high. Though most of the vendors were aware of the notification,

they complained about the availability of alternative. In the eastern and the western part of the city, most of the vendors felt that the notification is non-functional. Also, as the ban is only on usage of <40 microns plastic carry bags, the police in these areas were not bothered if the rules were being followed or not. The police would only come for inspection in monsoon as plastic bag clogs the drainage system and during festival times as it would be a source of income for them during that time of the year.

Eco-sensitive Areas in Kolkata

West Bengal Pollution Control Board under its plastic notification has identified certain areas in West Bengal as Eco-sensitive Zones, where usage of any kind of plastic carry bags is banned. Various such zones fall under the city of Kolkata. Few of the well known parks such as Allen Park, Rabindra Sarovar, Subhash Sarobar, Hedua Park, Paddapukur, Shradhanand Park are not eco sensitive zones, but entry & use of plastic carry bags are banned at these tourist sites. These sites were found to be flooded with plastic carry bags.

While the care takers of these park complain that people tend to break the rules and throw plastic everywhere in the park, it was also seen that no measures have been taken by the authority to prevent such nuisance. However there are few parks which are well maintained and is completely plastic free such as Deshopriya Park, Swabhumi, Citizen Park, Banobitan, Energy Education Park, Millennium Park and Nicco Park. These places unlike those mentioned above had boards stating that these are plastic free. There was proper checking done at the entrance gate to ensure people don't carry any kind of plastics. Also few other places like Zoological Garden, National Library, Nehru Children's Museum, Birla Industrial and Technological Museum, Indian Museum and Science City were completely free of plastic and followed the rules as set forth by the Government.

Government Offices in Kolkata

It was astonishing to note that although the WBPCB has restricted the use of plastic carry bags in the government offices, in many of these offices plastic carry bags were used freely in their canteens etc. Offices like the Health Department, Bidyut Bhavan, Bikas Bhavan, Unnayan Bhavan, GPO, Railway Headquarters claimed that they did not use plastic in their premises but when canteen and other space were visited, plastic bags were being freely used. Even at the backyard plastic carry bags were found to be disposed off. When enquired by the canteen owners about usage of plastic to parcel food outside or within the premises, they were hesitant to reply.

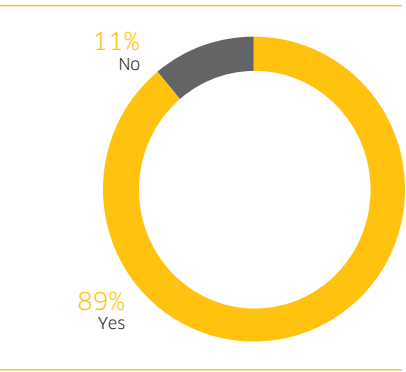


Figure 14: Awareness on Ban





**Figure 15: a): Plastic carry bags littering at plastic free tourist site – Allen Park**



**b): Plastic carry bags littering at plastic free tourist site – Subhash Sarobar**

### The tale of River Ganga

In addition to the list of plastic free zones, the banks of River Ganga was also declared to be plastic free. But when the banks of the river was visited to check the effectiveness of the ban, it was far from being clean. It was found flooded with plastic carry bags, wrappers, thermcol plates. Not only the water is polluted but the asthetic beauty of the place, which made it a tourist spot, has gone down.

### Monitoring Agencies

As a part of the study, regulatory agencies like WBPCB and KMC were also interviewed to get their viewpoint of the situation in Kolkata. While talking to WBPCB to learn more about the monitoring system of plastic bag ban, the senior officials of the PCB denied their role in monitoring. They were of the view that their role was confined to the formulation and notification of the ban and it was the responsibility of KMC and the Police to ensure effective implementation.

To get further clarity, KMC officials were also interviewed. Surprising, these officials clearly denied their responsibility and said that WBPCB is the responsible agency. The ambiguity and lack of coordination among departments has led to utter chaos in the city in terms of the plastic bag notification.



**Figure 16: Plastic carry bags littering at Bank of River Ganga – Princep Ghat**

### PLASTIC FREE BANGUR: A MODEL TO REPLICATE

Amidst the dirty city, there was one area found completely plastic free. Astonishingly, the vendors in the area of Bangur were found using only paper bags. This area is an example of how effectiveness of a rule depends on local authority and good governance. The local councillor of that area is completely against usage of plastic carry bags of any kind. The vendors if found using plastic carry bags are told to close down their shops for seven days at least. Blockage in the drain and excessive littering led to strict action by the authority in this area. Even the local residents carry their own bags as they are now accustomed to the ban and know that they would not be provided plastic carry bags. The big brands like Spencer's, Reliance Fresh, and Bikharam provide paper bags in their outlet in the Bangur area unlike other outlets where plastic carry bags are provided to the consumers. Though the system in place in this area is quite successful yet the vat in the locality gets a lot of plastic. This might be owing to the fact that plastic bags are still being used by the households that they outsourced from other parts and which when thrown in the dustbins come to the vat. Still the amount of plastic is very less compared to other areas in the city.





## IV. CONCLUSION

Despite a ban on using plastic carry bags of <40 microns and complete ban on plastic in eco-sensitive/tourist sites and Government offices in West Bengal, plastic bags are commonly being used in the city. Vendors and customers prefer these primarily due to the easy availability and also since there is lack of action by local authorities. In addition to this, non-availability of cost effective and proper alternatives has prevented major changes or decline in the usage frequency of plastic. Though the state is very well known for its jute bag manufacturing, it has hardly found favor as an alternative to plastic bag among users.

The major findings of the study are:

- The ban in plastic carry bags <40 microns in the state was a complete failure.
- There was no definite measures taken by local authorities and Government agencies to curb plastic use & disposal.
- While a list of zones have been declared plastic free by the Government, only few were actually plastic free. Rest of the places were flooded with all kinds of plastics.
- The effective ban in place in some of the parks showed that if there is strict enforcement, the ban can be successful.
- Consumers were hardly aware about the ban and were using and throwing plastic bags.
- The vendors were found using plastic carry bags of <40 microns as there was no proper monitoring or strict measures to penalize the defaulters.
- The officials were found ignorant on their responsibility and hardly any action has been taken to ensure effective implementation. PCB and KMC were trying to put the blame on each other for non-compliance.
- The current alternatives were either not cost effective or not easily available.

Through the study, it was found that although the ban came into effect a decade back, it was not being followed. Negligence and ignorance at the macro and micro level has resulted in complete failure of the plastic bag notification in Kolkata. It was very interesting to note that, neither Pollution Control Board nor the Municipality had any idea about ground realities, quantities of plastic waste generated, and how it was currently being treated.

The study also brought interesting examples of areas where there have been successful stories of plastic bag bans. Areas like Bangur showed that this initiative can be sustainable.

Though plastic bag ban and restrictions are in effect in many states across India, there is a big question on whether such measures have been successful. The earlier study of Toxics Link to check effectiveness of plastic bag bans in Delhi, Chandigarh and Sikkim also suggested that such bans have been largely ineffective. Most stakeholders feel that these have been half hearted efforts- with only a ban in place but not much thought given to its implementation.

Some key recommendations from the study:

- There should be clear understanding on which agency/authorities is responsible for monitoring.
- Strict and regular monitoring has to be planned to ensure effective implementation.
- Spot checks on consumers and vendors can deter plastic bag usage.
- Fines/penalty clauses should be strict to discourage use of plastic bags.
- Additional taxes or similar measures can make plastic bag usage more expensive.
- Financial incentives like tax sops should be planned to encourage the viability of alternatives to plastic bags.
- Awareness drives and campaigns should be done regularly to inform and educate vendors and consumers.
- A committee consisting of regulatory agencies, civil society organisation, consumer groups etc should be constituted to monitor the implementation and suggest suitable measures.



BLANKET BAN IN ECOLOGICALLY SENSITIVE AREAS

- The entire Sundarban area;
- The forest areas of West Bengal;
- Coastal Regulation Zone areas such as, Sankarpur, Frazerganj, Sagar, Bakkhali;
- Hilly areas of Darjeeling district; and
- The entire Siliguri Subdivision and the area under Siliguri Municipal Corporation which lies in Jalpaiguri District of West Bengal.

BLANKET BAN IN HERITAGE/TOURIST SITES

- |  |  |
|--|--|
| 1. Indian Botanic Garden, Shibpore, Howrah             | 22. Soakhal Energy Park, Hooghly   |
| 2. Zoological Garden, Kolkata                          | 23. Energy Education Park, Kolkata   |
| 3. Subhas Sarobar, Kolkata                             | 24. Strand Road (including Church Road), Chandannagar, Hooghly                                 |
| 4. Rabindra Sarobar, Kolkata                           | 25. Chhuti Amusement Park Chandannagar, Hooghly  |
| 5. Victoria Memorial Hall, Kolkata                     | 26. KMDA Park, Chandannagar, Hooghly   |
| 6. National Library, Kolkata                           | 27. Banobitan, Salt Lake   |
| 7. Millennium Park, Kolkata                            | 28. Citizen Park, Kolkata  |
| 8. Bandel Church, Bandel, Hooghly                      | 29. Deshyapriya Park, Kolkata  |
| 9. Belurmatah, Belur, Howrah                           | 30. Paddapukur (Lansdowne), Kolkata  |
| 10. Hajarduari Palace, Murshidabad                     | 31. Allen Park, Kolkata  |
| 11. Science City Complex, Kolkata                      | 32. Macpherson Square, Kolkata   |
| 12. Nicco Park, Kolkata                                | 33. Victoria Park, Kolkata   |
| 13. Nalban Boating Complex, Kolkata                    | 34. Leonard Square, Kolkata  |
| 14. Swabhum, Kolkata                                   | 35. College Square, Kolkata  |
| 15. Indian Museum, Kolkata                             | 36. Hedua, Kolkata   |
| 16. Birla Planetarium, Kolkata                         | 37. Deshbandhu Park, Kolkata   |
| 17. Eden Garden, Kolkata                               | 38. Shradhanand Park, Kolkata  |
| 18. Nehru Children's Museum, Kolkata                   | 39. Talla Park, Kolkata  |
| 19. Birla Industrial and Technological Museum, Kolkata | 40. Santragachi Lake (Jheel) [extending up to five metres from the highest water line], Howrah |
| 20. Barrackpore Gandhi Ghat, North 24 Parganas         |  |
| 21. New Digha Paryatan Kendra, Hooghly                 |  |