

# SINGLE USE PLASTIC BAN IN INDIA



Toxics Link  
for a toxics-free world



## **About Toxics Link**

Toxics Link is an Indian environmental research and advocacy organization set up in 1996, engaged in disseminating information to help strengthen the campaign against toxics pollution, and to provide cleaner alternatives. We work with other groups around the country as well as internationally with an understanding that this will help bring the experience of the ground to the fore, and lead to a more meaningful articulation of issues. Toxics Link engages in the emerging issues of highly hazardous pesticides (HHPs), Persistent Organic Pollutants (POPs), hazardous heavy metal contamination, pharmaceutical pollutants etc. from the environment and public health point of view. We also work on ground in areas of municipal, hazardous and medical waste management and food safety among others. We have successfully implemented various best practices and have brought in policy changes in the aforementioned areas apart from creating awareness among several stakeholder groups. Our work on Endocrine Disrupting Chemicals (EDCs) management has spanned over a decade, entailing significant diverse body of work such as country-specific research data, policy engagement, involvement in setting standards, and capacity building of all stakeholders.

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Report by Toxics Link

# Abbreviations

<b>CPCB</b>	Central Pollution Control Board
<b>GSM</b>	Grams per square meter
<b>MoEFCC</b>	Ministry of Environment, Forest and Climate Change
<b>PE</b>	Product Eliminated
<b>SDGs</b>	Sustainable Development Goals
<b>SUP</b>	Single Use Plastic
<b>SUPP</b>	Single Use Plastic Product
<b>SUPPs</b>	Single Use Plastic Products

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# EXECUTIVE SUMMARY

Around 400 million tonnes of plastic waste is generated annually.\* Without proper and adequate management capacity, plastic pollution remains an enormous problem today. One of the main reasons behind this problem is the 'take, make, use, and dispose' principle that drives the plastic economy. Such an economy encourages use of 'Single Use Plastic Products (SUPPs)', that generate large amounts of non-biodegradable waste that is littered indiscriminately, and a huge part of it ends up in landfills and oceans. Subsequently, this waste breaks down into micro and nano plastics, further threatening the entire ecosystem.

\* <https://www.unep.org/interactives/beat-plastic-pollution/>



India introduced a ban on select SUPPs across the country from July 1, 2022. The ban was intended to reduce the use of low-utility and high-littering potential products that adversely impact environment and public health. Almost one year since the ban, understanding the efficacy and challenges to the implementation of the ban is crucial. Therefore, this study attempts to assess the effectiveness of the implementation of the SUP ban. Along with this, the study also evaluates the availability of substitutes to SUPPs and highlights barriers to their adoption. Further, the report summarises the findings and makes key recommendations to improve compliance and overall reduction in use of SUPPs.

To assess the availability of SUPPs and their substitutes, surveys were conducted in five cities across different regions in India. Later, the stakeholders concerned were interviewed to understand the barriers in switching to substitutes.

Overall, it was found that amongst the five surveyed cities, Delhi seems to be the least compliant in terms of implementation as banned SUPPs are still available at 88% of the survey points. While Bengaluru emerged as the city with the best compliance level, with SUPPs available at 55% of the survey points. Gwalior (84%), Mumbai (71%) and Guwahati (77%) also recorded a high percentage of SUPP availability at the survey points. Therefore, it is a matter of concern that almost one year after the ban, SUPPs are available in more than half the survey points across the five cities in question.

Though consumption of banned items has gone down, especially in branded sector, there is still large-scale use in many segments. The informal economy, largely, continues its SUPP usage, especially plastic carry bags, cutlery, straws, etc. In-depth analysis of the collected data gives an insightful view and points out the SUPs that have been affected by the ban and the ones that have suffered limited impact.

The most abundantly found SUPP in all cities was restricted carry bags (mainly plastic carry bag <120 microns); their average availability was as high as 64%. Similarly, SUPPs such as thermocol for decorations, balloon and earbuds with plastic sticks were widely available. This is highly disappointing as substitutes for all three SUPPs are easily available in the market. On the positive side, use of plastic stirrers and plastic sticks in ice cream was not noted in any of the five surveyed cities. Another positive outcome is the reduction of plastic cutlery, straws, cups and plates in eating places. The overall availability across cities for these SUPPs is below 30% while the availability of sustainable substitutes is higher.

Another key point noted from the survey findings is availability of SUPPs and its correlation with location type. For example, street food (*chaat*) vendors, coconut sellers, vegetable vendors and small stalls in markets, weekly and wholesale markets do not comply with the ban in all five cities, but formal eating places, malls and metro stations mostly obey the ban. This probably indicates that ban compliance is driven by the economics and the degree of enforcement at a location; formal or branded locations that can afford substitutes and are monitored strongly under



laws have to a large extent switched to substitutes. In comparison, a street vendor or a small shopkeeper are yet to switch to substitutes as they are weakly regulated and also because of the cost of substitutes. However, small, a price margin makes a substantial difference to them. Shopkeepers/ vendors also find the availability and their access to substitutes to be a challenge.

Another important factor that decides compliance appears to be consumer behaviour; many shopkeepers say that consumers demand SUPPs.

Regulatory agencies in one of surveyed state says that for the first year of the ban, the focus has been more on larger establishments and ensuring compliance there. Also, the attempt has also been to cut off supply. The issue of livelihood is also another factor to be considered, while being not so stringent in the informal economy, but the next phase is expected to focus on that. Another state agency points out the lack of economically feasible substitutes as a key factor.

Finally, the study presents recommendations based on the findings and stakeholder inputs. First, the enforcement and monitoring process needs to be stronger and uniform across locations. For this, the study suggests that, in addition to the regulatory agency increasing its vigilance, third monitoring could be helpful. Second, the study suggests that the availability of SUPPs can be reduced only when the supply of banned products is disrupted with effective monitoring at the manufacturing level. Regular checks are recommended at the manufacturing units.

Availability of economically and functionally feasible substitutes will need market-based policy tools to incentivise production and adoption. For instance, economic incentives should be provided to substitute manufacturers --- raw materials for substitutes could be made tax free or subsidies added to make production cheaper. Additionally, training and skills needed for the incubation of substitute micro-enterprises should be conducted.

Last, stakeholder engagement should be fostered and inputs from all stakeholders regarding the bottlenecks should be incorporated in the implementation process. Since customers are one of the most important stakeholders, environmental education and regular campaigns should be used to increase awareness and reinforce ban-compliant consumer behaviour. The study proposes that the penalties collected while enforcing the ban should be used to conduct regular monitoring, awareness campaigns, skill development and distribution of substitutes to SUPPs.

The most abundantly found SUPP in all cities was restricted carry bags (mainly plastic carry bag <120 microns); their average availability was as high as 64%



# KEY FINDINGS

- According to the survey data, SUPPs are still easily available across all five cities. Amongst the surveyed cities, Bengaluru is the most ban compliant with SUPPs in use at 55% survey points. Delhi is the least compliant city as 88% of survey points still provide SUPPs.
- The survey data points out that the outcome of the ban is different for different SUPPs. Restricted carry bags, mostly plastic bags (<120 microns), is the most commonly available banned item --- found at 64% of the total survey points.
- Despite having substitutes in the market, products such as thermocol for decoration (74%), balloon and earbuds with plastic sticks (60% each) are also widely available.
- The survey did not record any use of plastic stirrers and plastic sticks in ice-cream parlours across all five cities.
- All other SUPPs are available in all cities.
- An overall reduction in the use of plastic cutlery, cups, plates and straws is visible across eating joints in all cities. The average availability in total survey points is below 30% for these SUPPs, while availability of substitutes to these products is higher than 30% in most cities. It is also encouraging to see that around 90% of survey points used substitutes to plastic plates in nearly all five cities However, it is also disheartening to see that more than 50% of the survey points in Delhi still plastic cups and cutlery.
- In the case of SUPPs such as plastic straws, cutlery and sometimes carry bags, users often drink/ eat straight from their cups and plates and shopkeepers hand out products without any carry bag. This is a positive shift that leads to a reduction in total waste generation.
- Higher percentages of coconut water sellers, juice shops, street food (*chaat*) and vegetable vendors and shops in markets are not ban compliant.
- Another commercial location that could be the potential source of SUPPs are party decoration shops. Most party decoration shops across all cities, except Bengaluru, continue to sell SUPPs.
- Compliance is higher in locations that are strictly regulated, such as malls and metro stations. Most religious spots in all five cities are also ban compliant.



# BACKGROUND

Plastic is one of the most versatile material available currently. The 'plasticity' of the material makes it convenient for it to be moulded, extruded, or pressed into different objects of various shapes and sizes. This adaptability and a wide range of other properties, such as being lightweight, durable, and flexible; in combination with a low production cost, has led to the extensive use of plastic in various sectors. Probably no other material has experienced such a huge and unprecedented growth that plastic has in the last 60-70 years, both in terms of production tonnage and use. In the last five decades, plastic has flooded our world and changed the way that we live and use things.



Between 1950 and 2017, more than 9.2 billion tonnes of plastic are estimated to have been cumulatively produced. More than half this plastic has been produced since 2004. If the current global trends on plastic production continues, it is estimated that by 2050, annual global plastic production will reach over 1.1 billion tonnes, and total cumulative primary plastic production between 1950 and 2050 would touch 34 billion tonnes <sup>1</sup>.

The dominance of this material, especially with the flourishing growth in the segment of Single Use Plastic Products (SUPPs) and its non-biodegradable nature, has led to huge concerns worldwide. The plastic economy, till recently, has been mostly following a linear model of 'take, make, use, and dispose', leading to immense plastic waste generation. Most of this waste is simply landfilled or dumped into oceans. The same properties that make plastic an incredibly malleable and durable material also make it a huge environmental concern. Most plastics take thousands of years to degrade. Over time, plastic breaks down into micro and nanoparticles, creating another kind of environmental and health issue. Moreover, many of the chemicals added in plastics to improve functionality or appearance can be toxic, both for the environment and human health.

## Single use plastic products (SUPPs)

Single use plastic products (SUPPs) are used once or for a short period of time before being thrown away. The impact of this plastic waste on the environment and our health can be drastic. SUPPs are more likely to end up in our seas than being reused. The ten most commonly found Single-Use Plastic (SUP) items on European beaches represent 70% of all marine litter in the European Union (excluding fishing gear).

Large amounts of SUPs are improperly discarded at dumpsites, in the environment or burned out of necessity as cooking fuel, especially in countries with inadequate waste management systems and limited public awareness. Only a small percentage is disposed of properly in sanitary landfills, and an even smaller portion is recycled<sup>2</sup>. Hence, reduction in the use of SUP becomes an important measure in addressing plastic pollution.

## SUP ban in India

Single use plastic pollution has become a significant environmental concern in India. With the rapid growth of population, industrialisation and urbanisation, the country has witnessed a surge in the consumption of various disposable plastic products. These SUPs, such as bags, bottles, and food packaging, contribute to the mounting plastic waste and pose a serious threat to the environment and public health.

Recognising the severity of the issue, the Indian government has taken steps to address the problem through policy interventions and initiatives. One of the key policies is the Plastic Waste Management (Amendment) Rules, 2021; which states that the manufacture, import, stocking, distribution, sale, and use of select SUP items and other commodities shall be prohibited with effect from the 1 July, 2022.

In the 4th United Nations Environment Assembly held in 2019, India piloted a resolution on addressing pollution caused by SUPPs, recognising the urgent need for the global community to focus on this very important issue. Subsequently, India banned manufacture, import, stocking, distribution, sale, and use of identified SUP items across the country from 1 July, 2022, under the Plastic Waste Management Rules. According to official statements, this was done keeping in mind low utility and high littering potential, and recognising the adverse impact of littered SUP items plastic on both terrestrial and aquatic ecosystems, including the marine environment.

The list of banned items includes earbuds with plastic sticks, plastic sticks for balloons, plastic flags, candy sticks, ice-cream sticks, polystyrene (thermocool) for decoration, plastic plates, cups, glasses, cutlery such as forks, spoons, knives, straw, trays, wrapping or packing films around sweet boxes, cards (greeting/invitation), cigarette packets, plastic or PVC banners less than 100 microns, and stirrers. The Plastic Waste Management Amendment Rules, 2021, also prohibits manufacture, import, stocking, distribution, sale, and use of plastic carry bags of less than 75 microns thickness with effect from 30 September, 2021, and bags of thickness less than 120 microns with effect from the 31 December, 2022. The Government

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1 Geyer, R. (2020). Production, use, and fate of synthetic polymers. *Plastic Waste and Recycling*, 13–32. doi:10.1016/b978-0-12-817880-5.00002-5

2 UNEP (2018). *SINGLE-USE PLASTICS: A Roadmap for Sustainability* (Rev. ed., pp. vi; 6).

of India also mentioned taking steps to promote innovation and provide an ecosystem for accelerated penetration and availability of alternatives.

For effective enforcement of the ban on identified SUP items, national and state level control rooms were to be set up and special enforcement teams were to be formed for checking illegal manufacture, import, stocking, distribution, sale, and use of banned SUP items.

Though this is the first targeted policy measure under the plastic waste rules; there have been a few limited efforts earlier as well. The following table is a summation of Plastic Waste Management or PWM rules with regard to SUP items. It is quite evident that earlier there were efforts to tackle small-sized single use wrappers such as gutkha, tobacco and pan masala packets and regulation on thickness of the plastic carry bags.

**Table 1: SUP in Plastic Waste (Management) Rules**


Rules	Mention of SUP
<b>2011</b>	<ul style="list-style-type: none"> <li>Sachets using plastic material shall not be used for storing, packing, or selling gutkha, tobacco and pan masala.</li> <li>No person shall manufacture, stock, distribute or sell any carry bag made of virgin or recycled or compostable plastic, which is less than 40 microns thick.</li> <li>Explicit pricing of carry bags: The rules imposed a fee upon retailers/ sellers of plastic carry bags. The municipal authority concerned may by notification determine the minimum price for carry bags depending upon their quality and size which covers their material and waste management costs in order to encourage their re-use to minimise plastic waste generation.</li> </ul>
<b>2016 &amp; 2018</b>	<ul style="list-style-type: none"> <li>Sachets using plastic material shall not be used for storing, packing, or selling gutkha, tobacco and pan masala.</li> <li>Carry bag made of virgin or recycled plastic shall not be less than 50 microns thick.</li> <li>Explicit pricing of carry bags: Shopkeepers and street vendors willing to provide plastic carry bags for dispensing any commodity shall register with local body. The 2016 rules mandated a plastic waste management fee of minimum INR 48,000 at INR 4,000 a month. However, the 2018 rules deleted this clause.</li> </ul>
<b>2021</b>	<ul style="list-style-type: none"> <li>Manufacture, import, stocking, distribution, sale, and use of select SUP items.</li> <li>Regulation on micron of plastic carry bag: Virgin or recycled plastic bags thickness <math>\geq</math> 75 microns in thickness from 30 September, 2021 and <math>\geq</math> 120 micron from 31 December, 2022.</li> </ul>

Plastic pollution directly affects several SDGs, particularly Goal 14 (Life Below Water) and Goal 15 (Life on Land), which focus on protecting and conserving marine and terrestrial ecosystems. Plastic waste contaminates oceans, rivers, and land, endangering marine life, wildlife, and human health. It also intensifies climate change by contributing to greenhouse gas emissions during production and disposal. Furthermore, addressing the issue of plastic pollution through various means such as policy intervention, introduction of feasible alternatives, enforcement of rules and checking for compliance can pave the way to achieving Goal 12 (Responsible Consumption and Production) and Goal 13 (Climate Action) as well.

Bans are essentially a top-down approach or a tool that uses the command and control format. Bans have been extensively used for addressing environmental concerns. For SUPPs as well, many countries have used this approach. Complete and partial bans on select SUPPs have mainly been the norm for plastic carry bags. However, many of these initiatives have not met with the kind of success desired or envisioned.



# OBJECTIVE & METHOD



The ban on SUP in India was an ambitious and much-needed effort, which received praise from across the globe. The ban declaration was followed by the launch of several campaigns and initiatives at state and national levels. It has been almost a year since this ban came into effect and it is important to understand and evaluate the ban's effectiveness in reducing the usage of SUP products. This is especially crucial to the ongoing negotiations for a global plastic treaty, with countries considering bans and restrictions on SUPs and other measures to reduce plastic pollution.

The current study seeks to assess the efficacy of the SUP ban in India, with an overall goal of pushing for reduction in plastic pollution and contribute towards SDG goals. The study also seeks to assess the availability of substitutes and the barriers in their adoption. Additionally, it also tries to understand and capture the learnings, both in terms of bottlenecks and positive shifts.

## Specific objectives

- To assess the level of implementation of the SUP ban in select cities or regions
- To check the availability of sustainable alternatives to or substitutes for the banned SUP products in select cities
- To understand key barriers in adoption of alternatives to SUP products

## Scope of the study

As per the PWM Rules, 2021 the selected banned/restricted SUP products are:

- Earbuds with plastic sticks, plastic sticks for balloons, plastic flags, candy plastic sticks, ice-cream plastic sticks, polystyrene (Thermocol) for decoration.
- Plates, cups, glasses, cutlery such as forks, spoons, knives, straw, trays, wrapping or packing films around sweet boxes, cards (greeting/invitation etc.), cigarette packets, plastic, or PVC banners less than 100 microns, stirrers.
- Plastic carry bags less than 120 microns as of December 2022 and non-woven bags less than 60 GSM

**For the purpose of this study, we have identified and categorised few banned SUP products in a manner that suits the survey requirements, ground reality and ease in analysing data.**

1. **SUP cutlery** – SUP forks, spoons and knives grouped together.
2. **Plastic tray**- Not included in the study
3. **SUP cups** – SUP cups and SUP glasses grouped together
4. **Plastic carry bag (less than 120 microns)** – As per the PWM Rules 2016, it is mandatory to label plastic carry bags with details such as name, registration number of the manufacturer and thickness. Thin plastic carry bags, which do not have a label or stamp stating that those are more than 120 microns, have been considered as banned plastic carry bag. Plastic carry bags with labels but below 120 microns were also considered banned items.
5. **Non-woven carry bag (less than 60 GSM)** – Non-woven bags without label but claiming higher than the prescribed GSM have been treated as banned items.

Figure 1: Unlabelled plastic carry bags



Figure 2: Plastic carry bag (micron mentioned)





Figure 3 : Non-woven bag (above 60 GSM) with label



Figure 4: Non-woven bag with no label



## Methods

### The study was divided into two sections

- a. Observational survey
- b. Interviews with vendors and shopkeepers to understand key barriers in adopting substitutes to SUP products

#### a. Observational survey

Observational survey was conducted in different types of locations (defined below in Study Area) to check the availability of select banned SUPs and substitutes or alternatives, through a structured checklist (checklist is annexed). The checklist was designed based on secondary research and field knowledge related to businesses/ shops, which actively use the selected banned SUPs as per the notified PWM Rules. The study was observatory and not based on a questionnaire, as shopkeepers/ vendors would be cautious in sharing practices and could give out false information in order to evade legal action.

For the purpose of the study, observations were made at 23 study location in five cities (Study Areas). In one of the five cities (Study Area), an additional location type was included.

#### b. Stakeholder interview

Stakeholder interview was conducted to understand the key reasons behind vendors and shopkeepers' reluctance to switch to substitutes or their motivation behind adopting it. This was done using a structured questionnaire (questionnaire annexed). For the purpose of this study, 10 interviews were conducted at various location types. So, in total, 50 stakeholder interviews were conducted across five identified cities (study areas).

### Tool

The tool used to collect the data in all study areas was Kobo Toolbox. Kobo Toolbox is an online integrated set of tools for building forms and collecting interview responses.



Plastic carry bags with labels but below 120 microns were also considered banned items

**Figure 5: Data collection points**



## Study area

The current study focuses on assessing the SUP ban's implementation in urban areas of India. These urban areas are of particular interest because of their high SUP usage. These areas, interestingly, are also at the forefront of awareness campaigns and may have better access to the alternatives.

The study examined the availability of substitutes in these selected areas and understanding the key barrier in their adoption. Five cities, namely Delhi, Gwalior, Mumbai, Bengaluru, and Guwahati, were selected for survey and data collection. These cities were selected to represent a mix of metropolitan and non-metropolitan urban areas; to ensure more representational data from different geographies and populace. The selection also took into account the need for regional diversity in the data:

- North India – Delhi
- South India – Bengaluru
- Central India – Gwalior
- East India – Guwahati
- West India – Mumbai

Regional diversity and inclusion of different tiers of cities gives us a comprehensive picture from across India. For the purpose of this study, the city of Delhi was selected for data collection data while the neighbouring areas (Noida, Faridabad, Ghaziabad and Gurugram), which come under Delhi NCR, were surveyed separately, and reported as case studies. Lastly, in the case of Bengaluru, Gwalior and Guwahati, Bengaluru city, Gwalior city and Guwahati city respectively was surveyed.



The survey in Delhi was conducted by Toxics link, and for data collection in the other aforementioned areas, the organisation partnered with is Prayattn Society for Environmental Conservation (PSEC). The surveys for all cities were conducted between 16 February, 2023 and 15 April, 2023, and the survey for case studies was done in June 2023.

**Table 2: Demographic profile of study area surveyed**

Study area	Area km <sup>2</sup>	Population (2023)	Literacy rate
Delhi metropolitan <sup>3</sup>	1,484	22,547,000	87.59 %
Gwalior <sup>4</sup>	289	1,475,016	84.14 %
Mumbai (city + suburban) <sup>5</sup>	603	17,159,000	89.73 %
Bengaluru city <sup>6</sup>	709	11,644,000	88.71 %
Guwahati <sup>7</sup>	216	1,326,000	91.47 %

## Study location types

Based on secondary research and experiences on ground, key locations/businesses with regular SUP usage were identified. These identified study location types are mentioned below, along with the number of survey points taken in each of those locations. The survey points were selected randomly, but the effort was to cover the entire city. The total number of survey points in each city, counting all location types, was 130. Though the total number of surveys for each study area remained the same (130), keeping the difference in cities and the availability of various study location types in mind\*, the number under each location type in each of the surveyed cities differ slightly. In total, 650 surveys were conducted across five cities.

\* For example, there is no metro railway in Guwahati and Gwalior, so the numbers for some other location types were increased.

### Description of the study location type and number of samples to be collected

- 1. Food stalls (10)** – Enclosed establishments where one can take away and/or eat there with limited seating/standing capacity. For example, food truck, vada pav shop, etc.
- 2. Street vendors (10)** – Mobile (handcart) or roadside vendor selling different types of snacks/eatables. For example, golgappe/pani puri stall, pakora, egg/omelette, etc.
- 3. Small restaurant/café (7)** – A local establishment with limited seating and in the middle price-range; not a multinational chain. For example, local dhaba, café.

**Figure 6: Various location types**



3 <https://www.census2011.co.in/census/city/49-delhi.html>

4 <https://www.census2011.co.in/census/city/284-gwalior.html>

5 <https://www.census2011.co.in/census/city/365-mumbai.html>

6 <https://www.census2011.co.in/census/city/448-bangalore.html>

7 <https://www.census2011.co.in/census/city/191-guwahati.html>

4. **Metro stations (3)** - Shops/ stalls inside metro stations selling various snacks/ eatables. Shops/stalls outside metro stations were not observed. (Two cities in the survey do not have a metro service, hence the total number of restaurants were increased to keep the total number of surveys in a city constant. A similar method was applied to Mumbai where only one metro station was found to have shops.)

5. **Religious spots (10)** - Inside and/or outside multi-faith religious spots.

6. **Sweet shops (10)** - An establishment which is a mix of both local and established chain.

7. **Ice-cream parlour (3)** - An establishment which is a mix of local and established chain. Mobile ice-cream stalls were not included.

8. **Market (5)** - For these points, well-known markets (in this context, market stands for an area with a mix of goods and products). For these points, general observations were made, such as what SUPs are available, the frequency of use and also alternatives. So, several shops were observed within the market area.

9. **Toy shop (3)** - Toy stalls selling various toys and/or mobile vendors selling balloons

10. **Vegetable/fruit vendors (5 local vegetable markets)** - Mobile and/or stationed group of two to three vendors selling vegetables/ fruits in five different markets.

11. **Bhandara/ langar or local alternative (5)** - Any location which gives food/eatables as a form of community service or prasad (offering). A bhandara/langar is a common concept in Delhi, but in other survey cities, these are not common. Hence, to keep the total survey numbers constant, the number of survey points under food stalls and small restaurants were increased.

12. **Grocery shop (5)** - An establishment which is an organised daily needs store selling various commodities. A mix of small and large.

13. **Wholesale markets/ mandi (5)** - A location where several vendors selling certain types of commodities (vegetable/fruit/ grain/meat/flower/fish). For this point, wholesale commodities were observed.

14. **Weekly market (3)** - Markets which are temporary and shifts as per the day of the week. As the concept of weekly market is region specific, this location type was subject to availability and might not be present in all the study areas. Hence, to keep the total survey numbers constant, the number of survey points under food stalls and small restaurants were increased.

15. **Mall (5)** - An urban indoor shopping area featuring a variety of shops and eateries. For this point, a general overview of food courts and a few stores in the mall were taken.

Figure 7: Mobile balloon vendor



16. **Party/decoration shops (10)** - An establishment which is a mix of disposable cutlery shops and party/decoration shops selling SUP and/or alternatives.
17. **Tourist spots (5)** - Any place of interest that tourists visit, typically for its exhibited natural or cultural value, historical significance and offering leisure. \*Those tourist spot which are religious were considered as tourist spots and not religious spots.
18. **Juice shops (5)** - Established shops/stalls selling any type of juice and/or shakes.
19. **Coconut water sellers (5)** - Mobile or stationed vendors selling fresh coconut water.
20. **Railway platform (3)** - Shops/stalls selling various eatables on the platforms of a railway station.
21. **Bus depot (1-2)** - Shops/ stalls selling various eatables at terminal bus depots.
22. **Specialised banner shop (5)** - Establishments selling any type of banner or hoardings.
23. **Card shop (5)** - Establishments selling cards or gift shops selling greeting/cards.
24. **Shop (1)** - This particular shop was observed only in Delhi, as the brands selling cigarettes remain same pan India.



The summarised table of the sample collection is given below: -

Table 3: Location types and number of survey points for all the banned SUPs

Select banned SUP	Plastic carry bags below 120 microns	Non-woven bag below 60 GSM	SUP cutlery	SUP plates	Cups/ glasses	Plastic stirrers	Plastic straws	Candy with plastic sticks	Plastic sticks for balloons	
Location type										
Food stalls (10)	✓	✓	✓	✓	✓	✗	✓	✗	✗	
Chaat street vendors (10)	✓	✗	✓	✓	✓	✗	✗	✗	✗	
Juice shops (5)	✓	✗	✓	✗	✓	✓	✓	✗	✗	
Coconut water sellers (5)	✓	✗	✗	✗	✗	✗	✓	✗	✗	
Railway platform (3)	✓	✓	✓	✓	✓	✗	✓	✗	✗	
Interstate bus depot (1-2)	✓	✓	✓	✓	✓	✗	✓	✗	✗	
Metro stations (3) *	✓	✓	✓	✓	✓	✗	✓	✗	✗	
Religious spots (10)	✓	✓	✓	✓	✓	✗	✗	✗	✗	
Bhandara/langar or local alternative (5)	✓	✓	✓	✓	✓	✗	✗	✗	✗	
Grocery shop (5)	✓	✓	✗	✗	✗	✗	✗	✓	✗	
Toy shops/ vendors (5)	✓	✓	✗	✗	✗	✗	✗	✗	✓	
Sweet shops (10)	✓	✓	✗	✗	✗	✗	✗	✗	✗	
Ice-cream parlour (3)	✓	✓	✓	✗	✗	✗	✗	✗	✗	
Vegetable vendors (5 local vegetable markets)	✓	✗	✗	✗	✗	✗	✗	✗	✗	
Wholesale markets (5) (vegetable/meat/flower/ fish)	✓	✓	✗	✗	✗	✗	✗	✗	✗	
Weekly market (3)	✓	✓	✗	✗	✗	✗	✗	✗	✓	
Mall (5)	✓	✓	✓	✗	✗	✗	✓	✗	✗	
Party/decoration shops (10)	✗	✗	✓	✓	✓	✗	✗	✗	✓	
Specialised banner shop (5)	✗	✗	✗	✗	✗	✗	✗	✗	✗	
Specialised card shop (5)	✓	✓	✗	✗	✗	✗	✗	✗	✗	
Small restaurant (7)	✓	✓	✓	✓	✓	✗	✓	✗	✗	
Tourist spots (5)	✓	✓	✓	✓	✓	✓	✓	✓	✓	
Market (5)	✓	✓	✓	✓	✓	✓	✓	✓	✓	
Cigarette shop **	✗	✗	✗	✗	✗	✗	✗	✗	✗	

\*Optional as per city (in Guwahati and Gwalior, small restaurants instead)

\*\*Only observed in Delhi










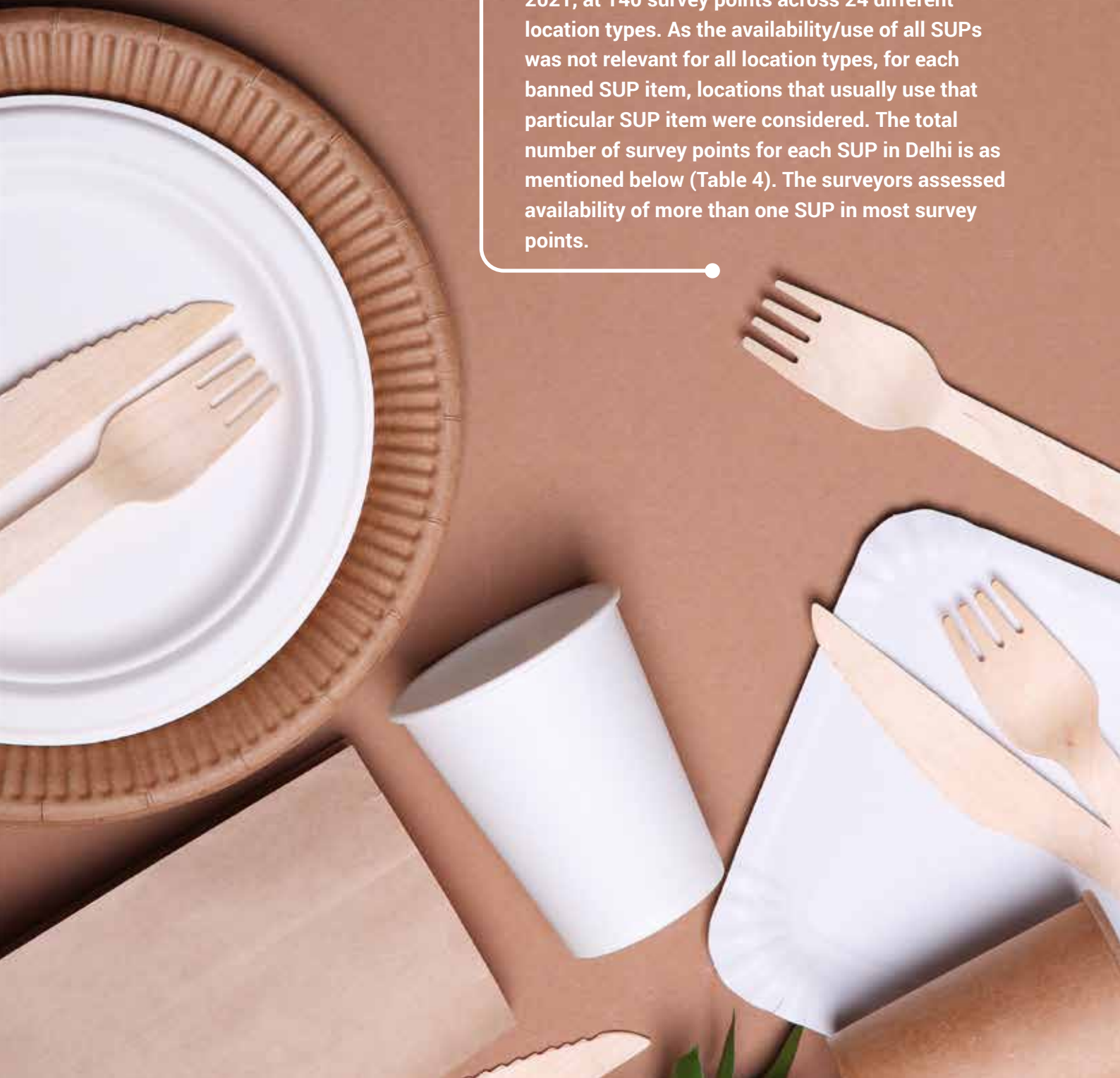
# Limitations

- The study was conducted in only five cities due to limitations of resources.
  - As the study was observational in nature, the team could only ascertain what was openly visible and if the banned SUPs were being used or provided openly. There might have been cases where the banned items might be used clandestinely or might be hidden or provided by the vendors when asked for, and hence the surveyors may not have been able to document that.
  - For plastic carry bags and non-woven bags, there were no means available to verify if the products were above the mentioned micron and GSM. Thus, the study relied on labels provided on the carry bags.
  - The total number of location types and total survey points were limited due to resource limitations.
  - A few of the study location types were subject to availability; in such cases, other location types were observed for that particular city. Thus, the total number of survey points under each location type may not be same for all the surveyed cities.
  - Mid-range or high-end restaurants could not be checked for use of SUPPs because of lack of access to such places.
- 

# SURVEY FINDINGS

# DELHI

The observational study investigated the availability of SUP items, banned from July 2022 as per the Plastic Waste Management (Amendment) Rules, 2021, at 140 survey points across 24 different location types. As the availability/use of all SUPs was not relevant for all location types, for each banned SUP item, locations that usually use that particular SUP item were considered. The total number of survey points for each SUP in Delhi is as mentioned below (Table 4). The surveyors assessed availability of more than one SUP in most survey points.



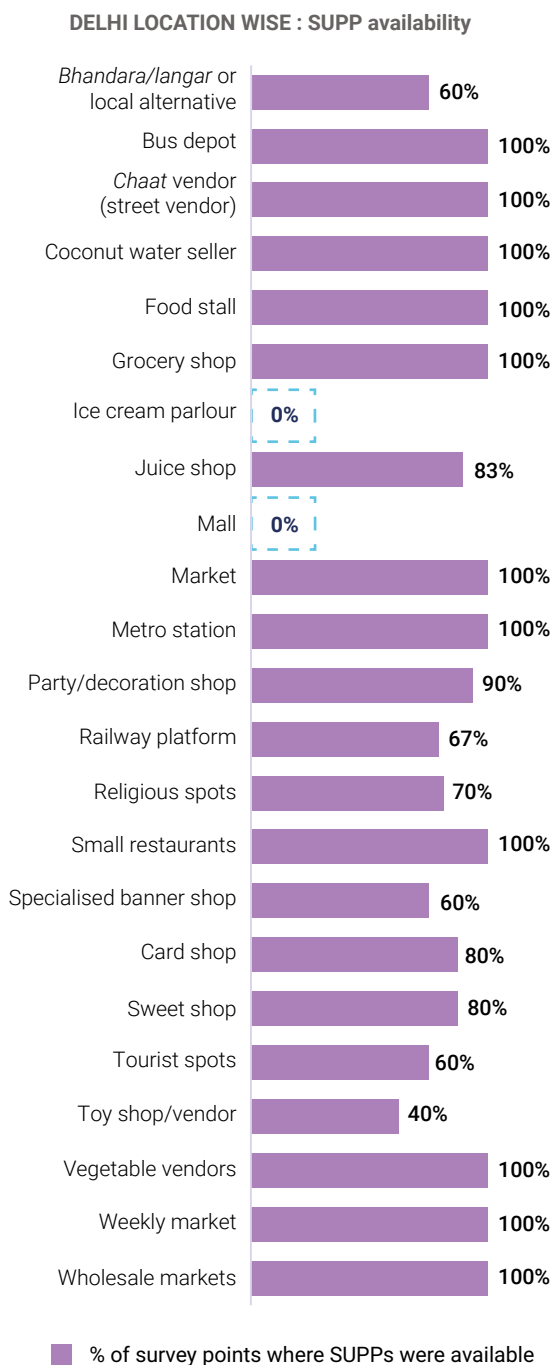
**Table 4: Number of survey points for each banned SUP Item in Delhi**

	<b>119</b> Carry bags		<b>3</b> Ice-cream with plastic stick
	<b>77</b> Plastic cutlery		<b>5</b> PVC plastic banner
	<b>50</b> Plastic cup		<b>10</b> Earbuds with plastic stick
	<b>60</b> Plastic plate		<b>12</b> Balloon with plastic stick
	<b>46</b> Plastic straw		<b>7</b> Thermocol for decorations
	<b>15</b> Wrapping film (card/sweets)		<b>6</b> Plastic stirrers
	<b>3</b> Candy with plastic stick		<b>2</b> Plastic flag

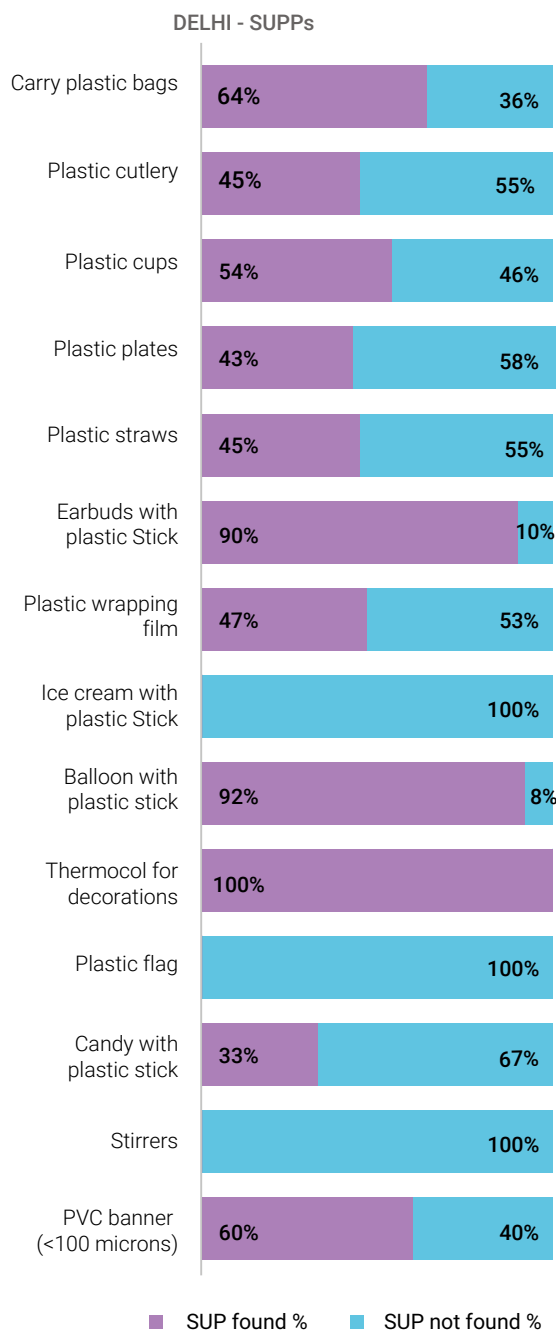
The survey results indicate that the ban has not been very effective, as most location types in Delhi continue to use/provide these items (Figure 8). Whether it was weekly markets or grocery shops, street food vendors or small restaurants, SUPPs are available in all these locations. Hundred percent of the surveyed vegetable shops, wholesale markets and *chaat* shops continue to provide restricted plastic carry bags. This is worrying as their numbers in the city are huge and these location types are large users of these carry bags. Though there is large usage of plastic carry bags in weekly markets, these are using another banned SUPP; 80% shops there are providing restricted non-woven bags (<60GSM). Plastic cups, cutlery and plates are commonly available at food stalls, local markets, bus depots and most party decoration shops. The only location type where no SUPPs could be observed are malls and ice-cream parlours.

If we look at it SUPP-wise, apart from plastic stirrers and ice-cream sticks, all other banned SUPPs are available in Delhi. Thermocol for decorations is available at all survey points checked for this product. The restricted carry bag carry bags (plastic carry bags <120 microns and non-woven bags <60GSM), one of the most used SUPPs, is still available at more than 60% of survey points (Figure 9). Balloons with plastic sticks and earbuds with plastic sticks are available at more than 90% of survey points assessed for these items, in clear violation of the rules. Another frequently used SUPP is the plastic cup, found at more than half the survey points. While plastic straws and cutlery are also abundantly available in around 45% survey points, the availability of PVC banners (<100 microns) at 60% survey points and candy with plastic sticks at 33% is also worrying.

**Figure 8: SUPPs in different location types in Delhi**



**Figure 9: Availability and use of all SUPPs in Delhi**

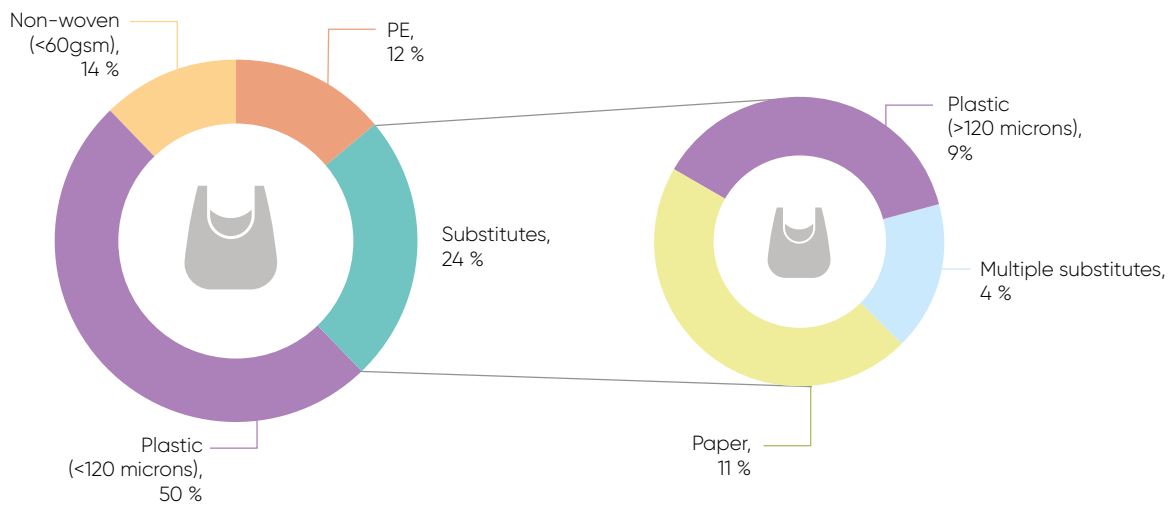


Though overall disappointing, the results also indicate a shift towards substitutes for some select SUP items. Across all locations, chrome plates (paper plates coated with aluminum foil could also be laminated with plastic), paper straws, paper cups and wooden cutlery generally seem to have replaced plastic plates, straws, cups, and cutlery respectively. However, it is also important to point out that substitutes such as paper cups and chrome plates have a layer of plastic film on many occasions.

To understand the bottlenecks in implementation, it is important to first study the SUPP-wise survey results. The following section presents a detailed analysis of findings from Delhi for each SUP product banned under PWM (Amendment), 2021.

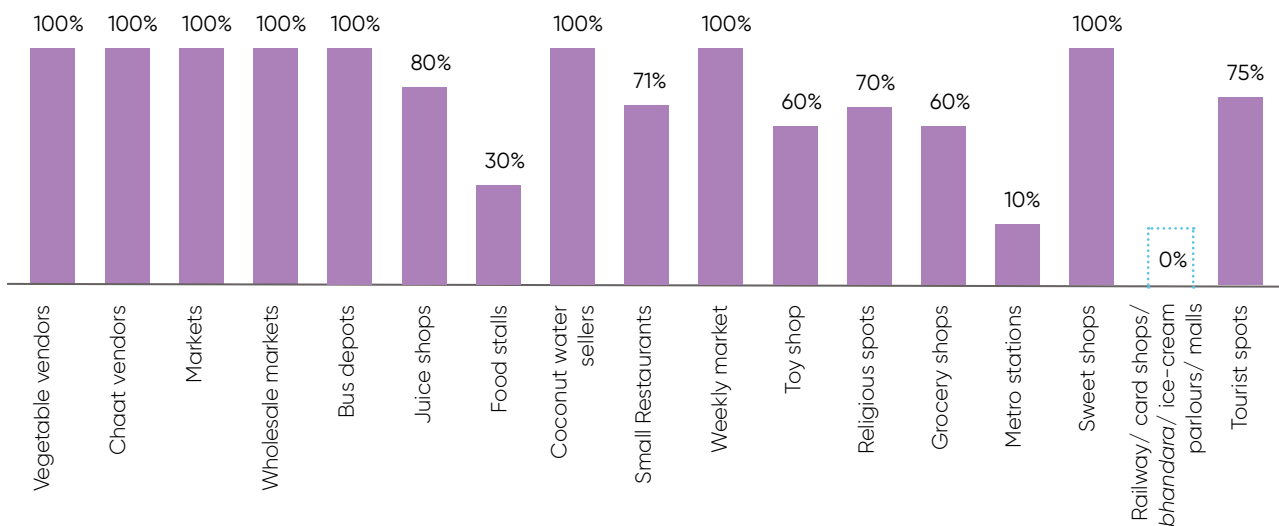
# 1. CARRY BAGS

Figure 10: Availability of restricted carry bags in Delhi



One hundred and nineteen survey points across 22 location types were assessed for availability or use of restricted carry bags. As seen in Figure 10, approximately 64% of these survey points still use/provide these products, either in the form of plastic carry bags (<120 microns) which are being used in 50% of the survey points, or non-woven (<60 GSM) at nearly 14% of the survey points.

Figure 11: Restricted carry bags - availability at different locations in Delhi



Some location types in Delhi use more restricted carry bags than others. All vegetable vendors, coconut water sellers, and *chaat* vendors surveyed during the study were using restricted plastic carry bags to hand out products. In locations such as local weekly markets, wholesale markets (*mandis*) and bus depots (Figure 11), restricted plastic carry bags and non-woven bags are used in large quantum. In food stalls and tourist spots, even though some vendors use substitutes, many continue using restricted carry bags. Interestingly, it was noticed that restricted non-woven bags are being used instead of restricted plastic carry bags at some location types. For instance, 75% sweet shops have replaced plastic carry bags with restricted non-woven bags. The use of restricted carry bags is less in malls and ice-cream parlours, with all survey points using substitutes.

Among the 24% survey points where a shift was visible, paper bags/ envelopes were found at 11% of the survey points spread across all locations. Thicker plastic carry bags (<120 microns) were also found at 9% of total survey points. In markets and weekly bazaars, while some vendors are using permissible non-woven bags and plastic bags, some have shifted to cloth, jute, and paper bags.

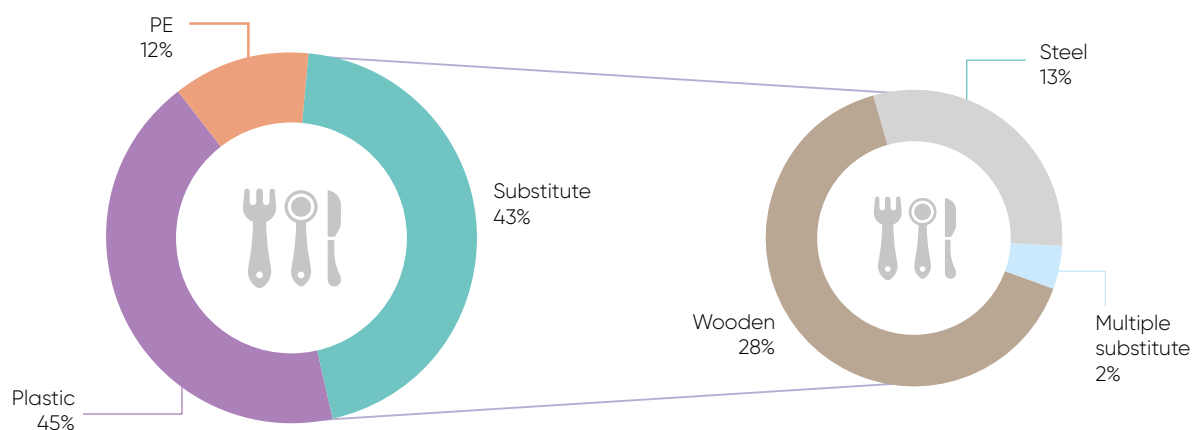
On a positive note, certain survey points, mainly shops on railway platforms, bhandaras, malls, ice-cream parlours and card shops, vendors have stopped providing single use bags of any material; overall reducing single use material waste.

## 2. PLASTIC CUTLERY

Seventy-seven survey points, spread across 14 location types that include: small restaurants, food stalls, tourist spots, religious spots, markets, railways, and metro stations, were checked for the availability of plastic cutlery. It was disappointing to see that 45% of these points continue to provide plastic cutlery, even months after the ban. According to the survey data, all bus depots and over 60% of food stalls and metro stations are still using plastic cutlery. And over half the *chaat* vendors surveyed are also doing the same. Shockingly, over 70% of party decoration shops continue to sell plastic cutlery.

Though it is disappointing to still find banned plastic cutlery, there has been some shift; around 43% of the survey points are using substitutes. Out of this, wooden cutlery was reported at 28% points, while steel cutlery was used at 13%.

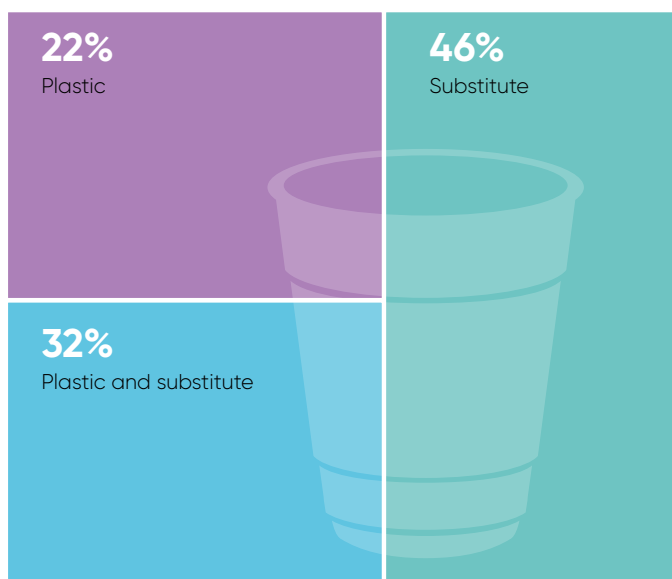
Figure 12: Availability of plastic cutlery in Delhi



## 3. PLASTIC CUPS

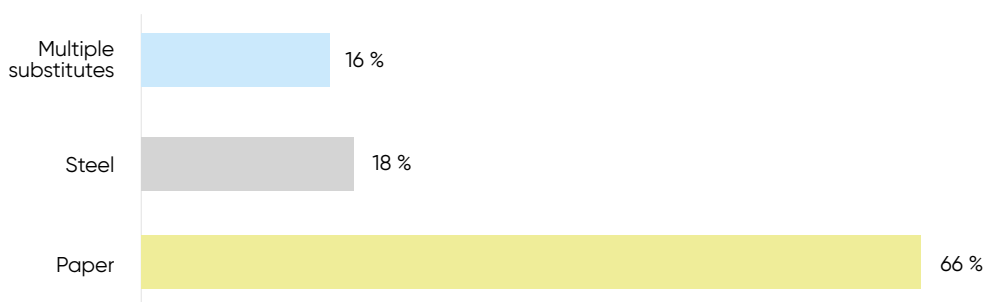
For banned plastic cups, observations were made in Delhi at 50 survey points across 12 types of locations, mainly juice shops, *chaat* vendors, food stalls, small restaurants, tourist spots, markets, and party/decoration shops. The results show that plastic cups are still being used in 54% of these survey points (Figure 13). While in 22% of these points, only plastic cups are used, in 32%, plastic cups are in use alongside substitutes (mainly markets, wholesale markets and tourist spots where there are multiple shops). Hundred percent of street food vendors that require a cup to sell food (such as sweet corn, *rabri*, etc.) use plastic cups and around 80% vendors in tourist spots also use these banned SUPPs. Adding to that, over 50% juice shops and other food shops in markets use plastic cups. Not surprisingly, 80% of party decoration shops continue to sell banned plastic cups.

Figure 13: Availability of Plastic Cup in Delhi



Substitutes are in use in 78% of the survey points. In this, 46%, mainly bus depots, small restaurants, and food stalls, have completely shifted to substitutes. Among those who have shifted (see Figure 14), paper cups seem to be the most popular (66%). While the use of steel cups is at 18% points, mainly small restaurants, a small number also uses 'kulhad' or earthen cups.

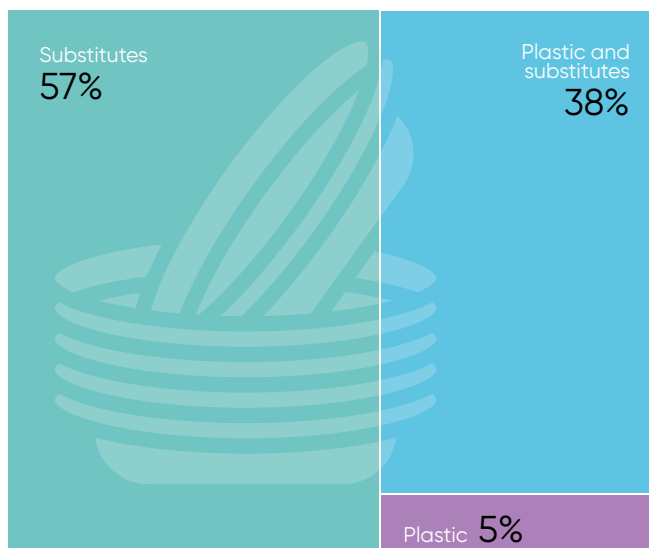
**Figure 14: Substitutes to plastic cups in Delhi**



#### 4. PLASTIC PLATES

The study assessed the availability of plastic plates at 60 survey points across 11 location types such as food stalls, *chaat* vendors, bhandaras, small restaurants, bus depots, railway platforms and party decoration shops. In 43% of these survey points, the plastic plate is still available. Among these points, 5% are using only plastic plates, whereas the remaining 38%, mainly food stalls and some shops in markets, a mixed usage was noted. Many bhandaras and religious spots use the banned thermocol or styrofoam plates to give out food. Thirty percent of the party decoration shops surveyed are selling plastic plates. However, in 95% of points, the usage of substitutes was observed; 57% of those points are using only substitutes. The main substitutes to plastic plates seen during the survey are chrome plates (paper with aluminum foil, many times with plastic also), non-disposable steel plates (15%) and paper plates (3%). Chrome plates are the most popular substitute, reported at 63% of survey points.

**Figure 15: Use of plastic plates in Delhi**

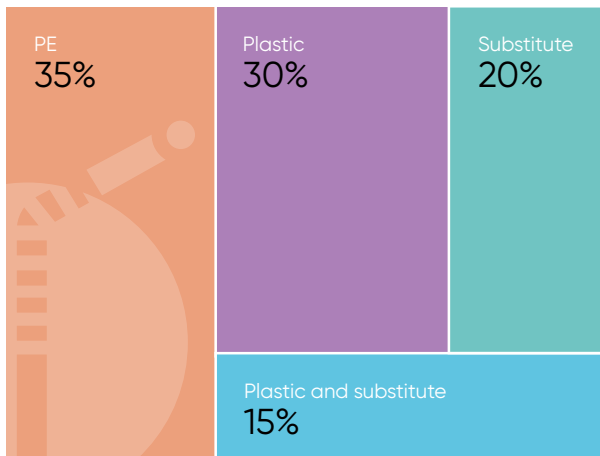


#### 5. PLASTIC STRAWS

Forty-six survey points across 10 location types (juice shops, small restaurants, coconut sellers, railway platforms, bus depots, metro stations, food stalls and malls) in Delhi were assessed for availability of straws made of plastic. The banned straws continue to be available at 45% of total survey points, with 30% of them using only plastic straws and in 15% survey points, multiple material including plastic is in use.

All coconut water sellers and tourist spots included in the survey provide plastic straws. Also, nearly 80% percent juice shops, 70% markets and 50% food stalls use plastic straws.

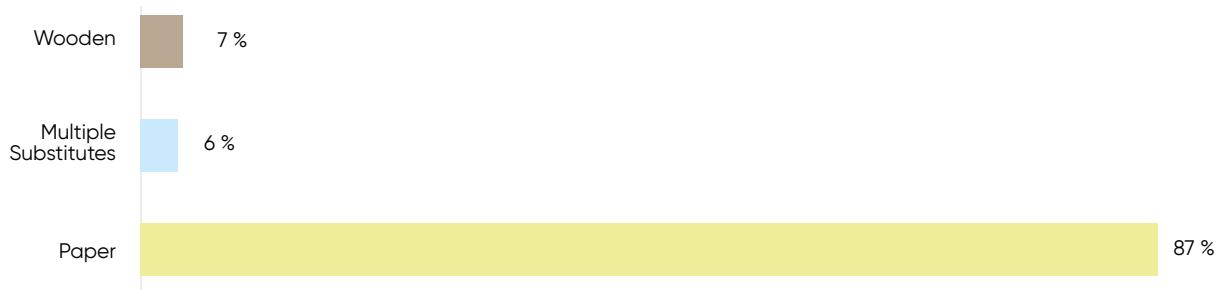
**Figure 16: Use of plastic straws in Delhi**



In 20% (mainly malls), a change was visible in the use of only substitute material straws. Among substitutes, paper straws were found at the highest number of survey points. This is mainly because paper straws are attached to branded packaged products available in many stations and shops. In a few shops in markets, the use of wooden straws was observed and in some eateries in malls, non-disposable glass straw was also provided.

It was also noticed that 35% of the survey points did not provide straws to consumers, which is a positive move. In these spots, consumers were observed to be drinking directly from cups or glasses.

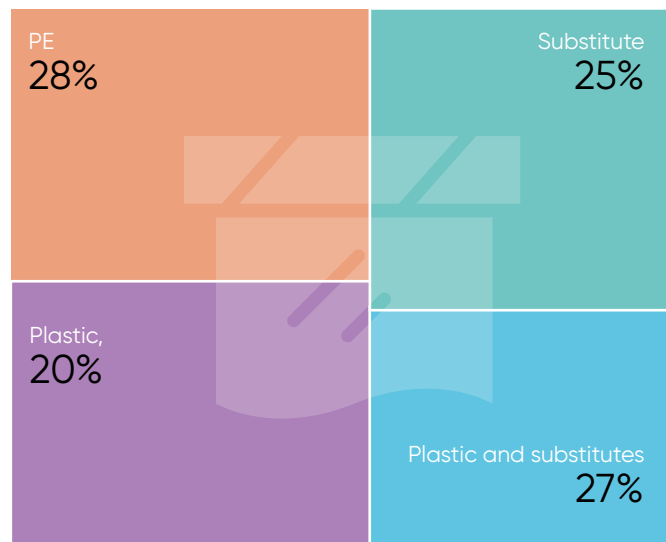
**Figure 17: Substitutes to plastic straw in Delhi**



## 6. PLASTIC WRAPPING FILM

For plastic wrapping film, 15 survey points were observed across two location types. Overall, 47% of survey points still use plastic wrapping films. Thirty percent of the sweet shops and 30% of card shops are still using this banned SUP. There is mixed usage in multi-shop markets. While the main substitute is paper, around 28% shops do not use any wrapping film.

**Figure 18: Use of plastic wrapping film in Delhi**





## 7. BALLOONS WITH PLASTIC STICKS

Twelve survey points across four locations (toy shops, markets, tourist spots and wholesale markets) were considered for the availability of balloons with plastic sticks. Shockingly, it is available at 92% of survey points. Even in popular tourist spots such as the India Gate, balloons with plastic sticks are sold openly. The use of wooden sticks as substitute was noted in only one survey point.

Figure 19: Availability of balloons with plastic sticks in Delhi



## 8. EARBUDS WITH PLASTIC STICKS

The survey looked for this banned SUPP at 10 survey points that include five grocery shops and five markets. Ninety percent of these shops sell ear buds with plastic sticks. Out of the 90% shops, some sell earbuds with both plastic and wooden sticks. Only 10% shops complied with the ban and sold earbuds with wooden sticks alone.

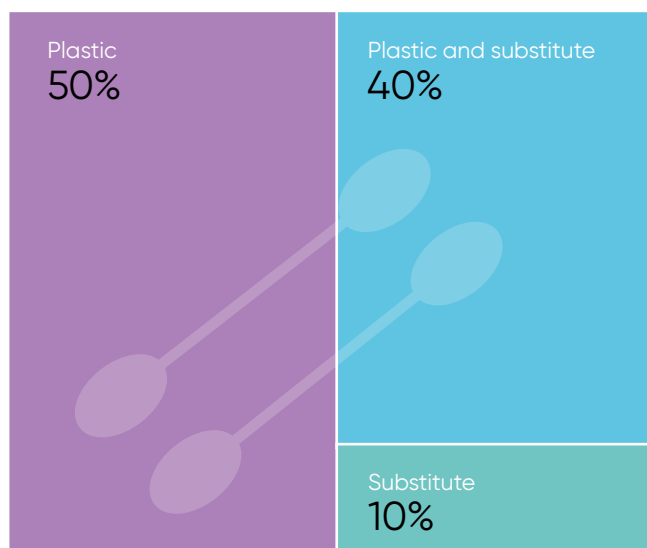
## 9. THERMOCOL FOR DECORATIONS

The study assessed the availability of banned thermocol decorations at three places, mainly party decoration shops. A major violation was observed in the sale of thermocol decorations at all the survey points.

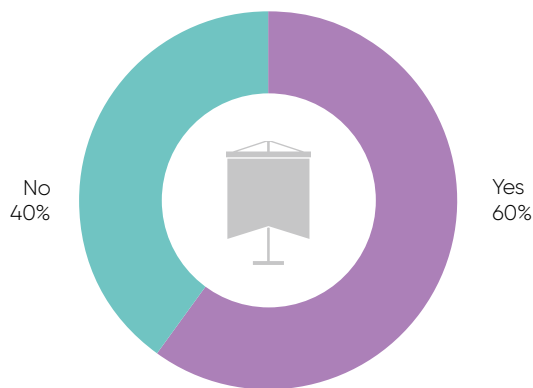
## 10. PVC PLASTIC BANNER

For banned PVC plastic banners (<100 microns), five specialised banner shops were assessed. It was found that 60% of the survey points continue to make PVC banners with less than 100 microns thickness, while the rest make only substitute material banner. However, substitutes were available in all the shops.

Figure 20: Availability of earbuds with plastic sticks in Delhi



**Figure 21: Availability of restricted PVC banners in Delhi**



### 11. CANDY WITH PLASTIC STICKS

In the case of candy, three grocery shops were checked; one of them still sell candy with plastic sticks and two sell candies with wooden sticks.

### 12. ICE-CREAM WITH PLASTIC STICKS

Three prominent ice-cream parlours were checked for the availability of ice-cream with plastic sticks. None of these use plastic sticks or plastic spoons. All three were selling ice-creams with wooden sticks.

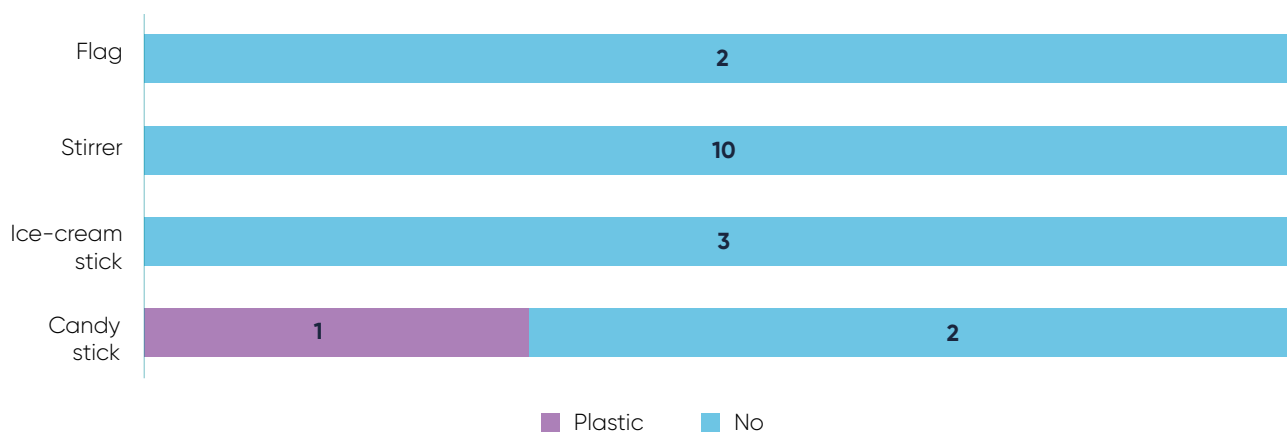
### 13. STIRRERS

For stirrers, six survey points, mainly juice shops, were taken into consideration. None of these provides a stirrer to customers. Since there was no access to large restaurants, where the use of stirrers might be common, it was difficult to assess the success of the ban on this product.

### 14. PLASTIC FLAGS

For plastic flags, two survey points, mainly decoration shops, were surveyed. Both these shops sell only paper flags.

**Figure 22: Availability of select SUPPs in Delhi**





balloon  
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Best Quality and Quantity Guaranteed

# SURVEY FINDINGS

# MUMBAI

To assess the effectiveness of the ban on SUP items in Mumbai, 140 survey points, selected from 23 location types, were surveyed. The total number of survey points are listed in Table 5 below, generally the surveyor looked for multiple items at each of these survey points. The survey points within each of the location types were selected randomly, but efforts were made to cover the entire Mumbai and some suburbs.

The survey results from Mumbai indicate that the ban has met with limited success, as most location types in Mumbai continue to use/provide these items. All markets, wholesale markets, grocery shops, *chaat* vendors, vegetable vendors, and bus depots surveyed during the study, were violators of the single use plastic ban (Figure 23). A high percentage of small restaurants, food stalls, juice shops, weekly market, and tourist spots were also reported using banned SUPPs. Most *bhandaras* or any free food distribution, that was observed during the survey period, also used single use plastics. Party decoration shops also seem to be major violators of the ban as most shops continue to sell plastic cutlery (86%), cups and thermocol for decorations (71%). All coconut water sellers also appear to be major violators of the ban, they all gave plastic carry bags (<120 microns) and straws. The four location types where no SUPPs could be observed were railway platforms, metro stations, ice-cream parlours and religious spots.

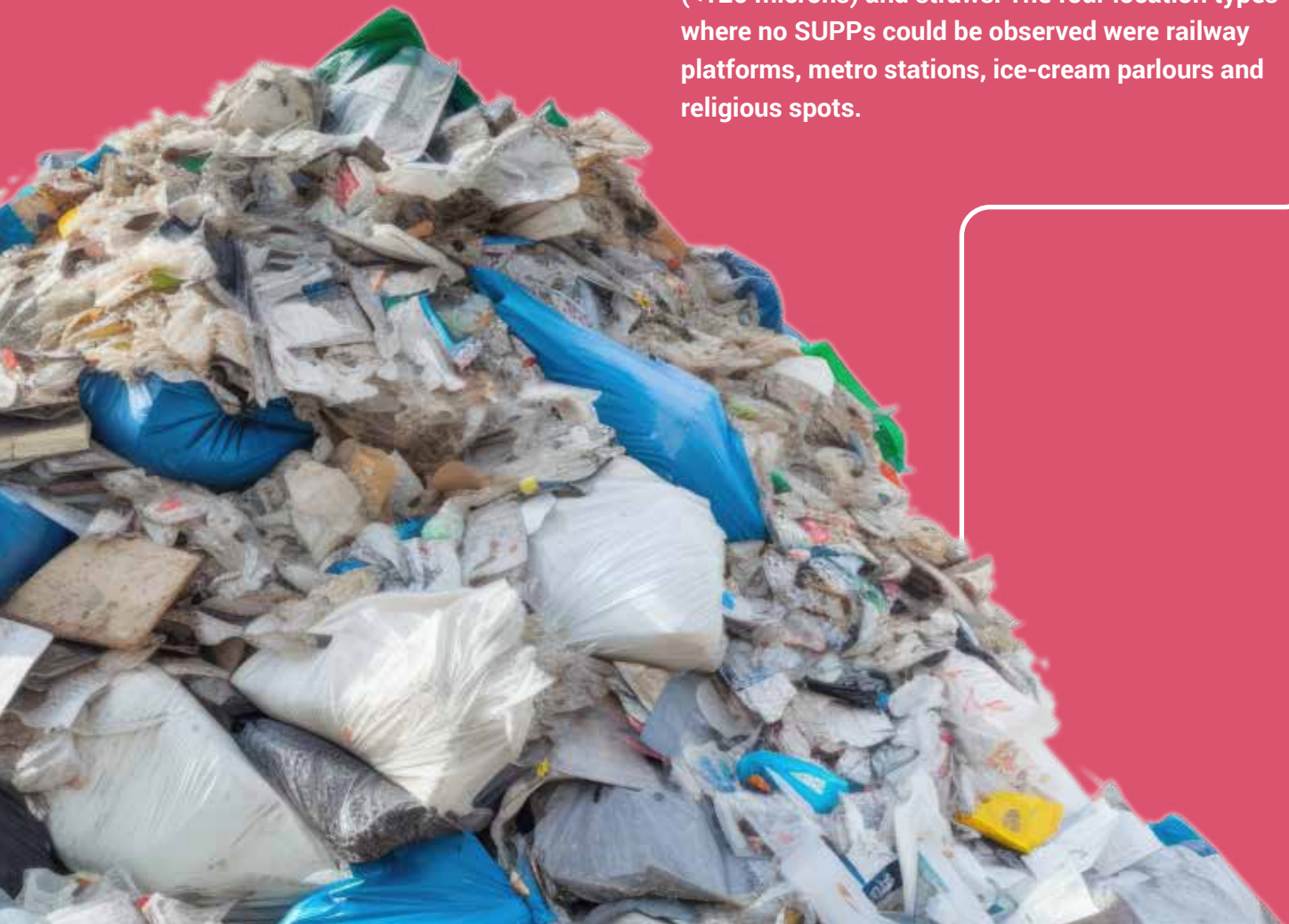


Table 5: Number of survey points for each banned SUP Item in Mumbai



**122**  
Carry bags



**7**  
Earbuds with plastic stick



**71**  
Plastic cutlery



**4**  
Ice-cream with plastic stick



**60**  
Plastic cup



**6**  
PVC plastic banner



**62**  
Plastic plates



**7**  
Plastic flags



**50**  
Plastic straws



**15**  
Balloons with plastic stick



**13**  
Wrapping film



**7**  
Thermocol for decorations



**7**  
Candy with plastic stick



**10**  
Plastic stirrer

Party decoration shops also seem to be major violators of the ban as most shops continue to sell plastic cutlery (86%), cups and thermocol for decorations (71%)

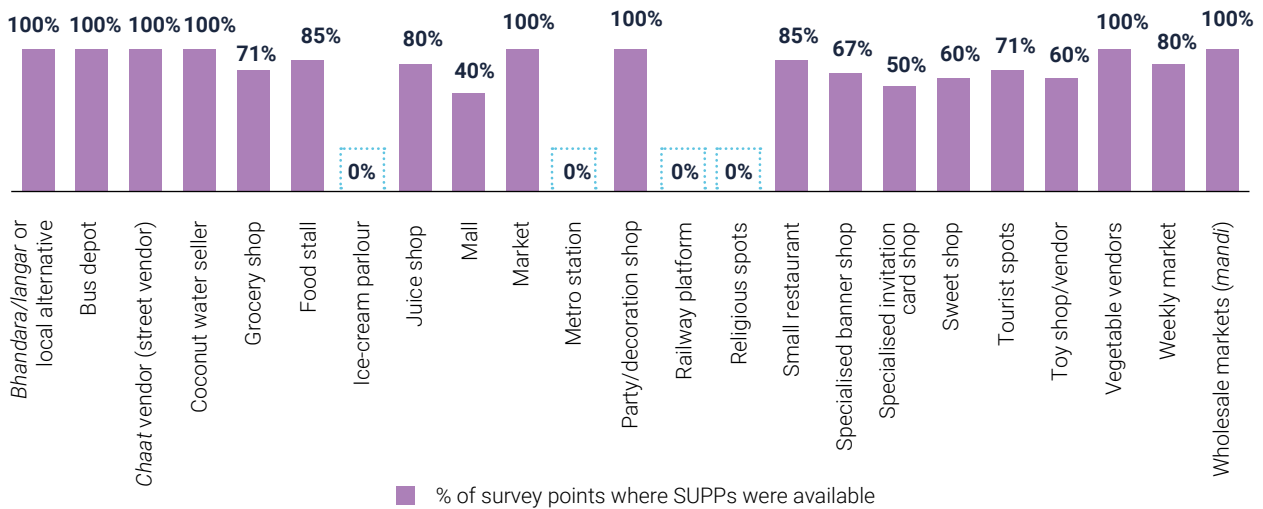


If we see item wise, shift for some banned SUPPs seem to have worked better than others. Flags, stirrers, wrapping films and ice-cream sticks made of plastics were not being used in any of the survey points visited in Mumbai. Usage of plastic in food business - cutlery, plate, cups, straws- also appeared as substantially less. This could be because Mumbai had similar ban notified few years back and hence the substitute market might be better placed. But it was still found in many locations.

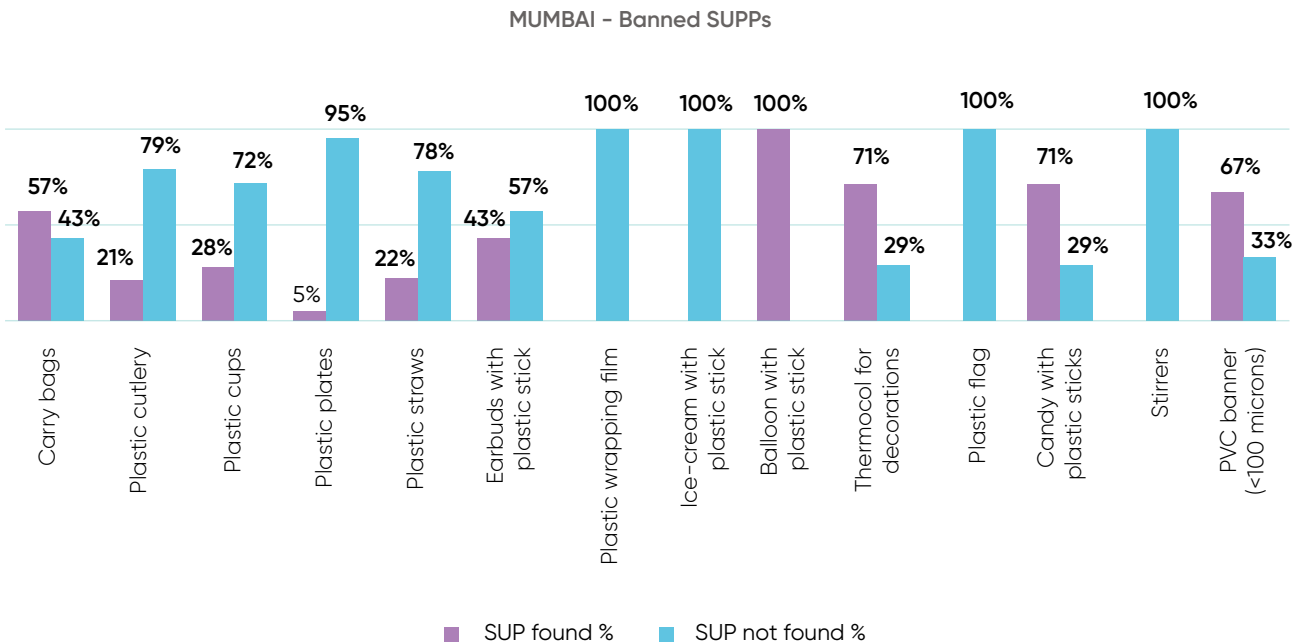
As seen in Figure 24, the most widely available SUP items are balloon and candy with plastic stick, thermocol for decorations, and PVC banners (<100 microns). Over half of the survey points also provided/used restricted carry bags, both plastic carry bags (<120 microns) and non -woven bags (<60GSM) were easily available at 57% survey points. Even earbuds with plastic sticks were available at 43% survey points.

The following section gives a detailed item-wise analysis of the findings from Mumbai.

**Figure 23: SUPPs in different location types in Mumbai**



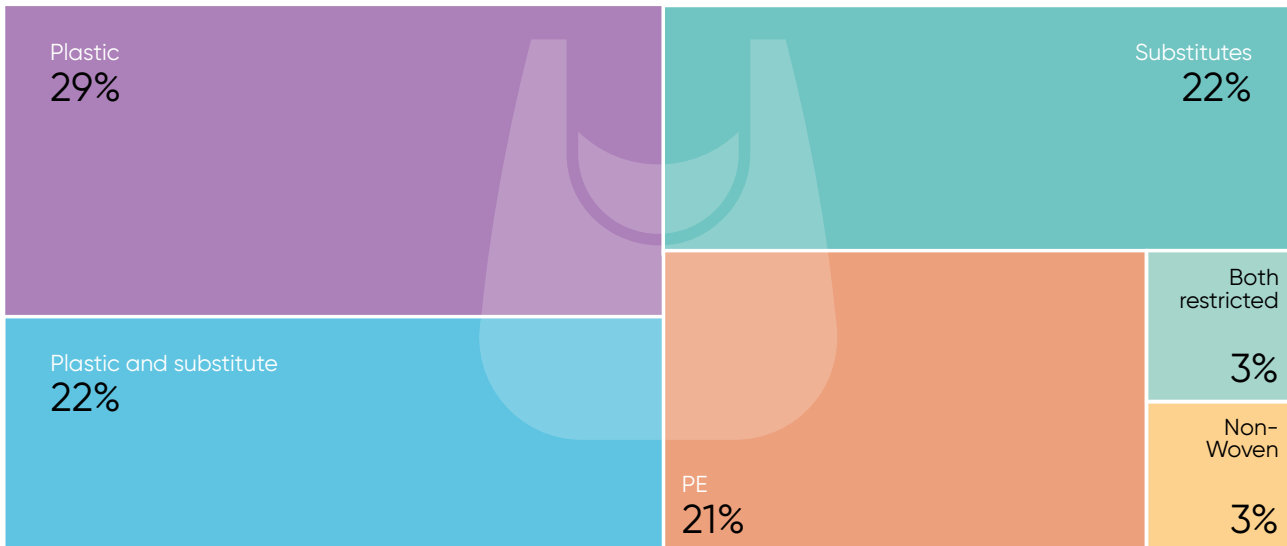
**Figure 24: Availability and use of all SUPPs in Mumbai**



## 1. CARRY BAGS

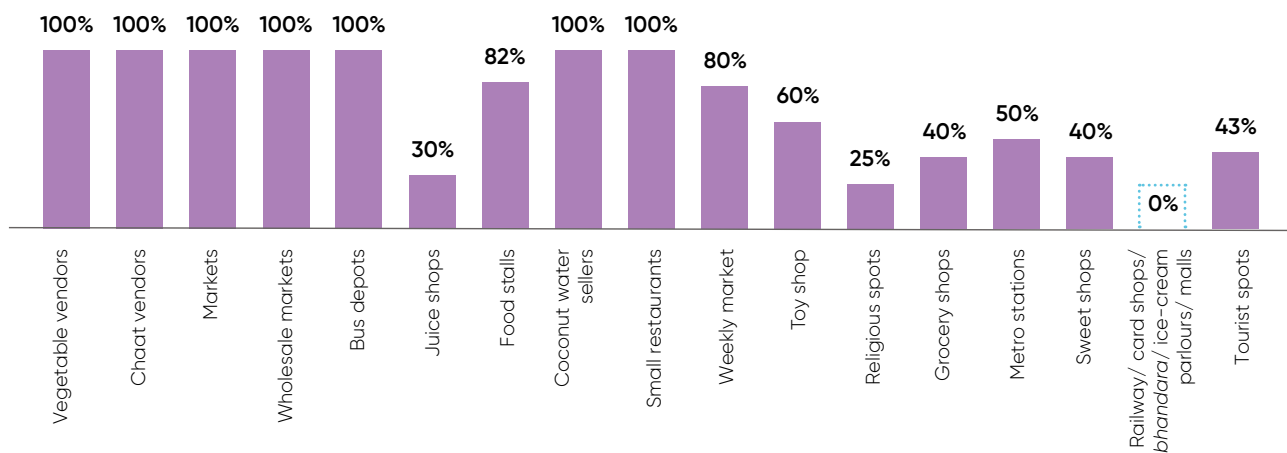
Restricted carry bags, including plastic bags <120 microns and non-woven bags<60GSM, were searched for at 122 sample points spread across 21 location types (such as vegetable and *chaat* vendors, weekly markets, food stalls, small restaurants, and markets). The survey revealed that restricted carry bags continue to be used at 57% sample points in Mumbai (Figure 25). Restricted plastic bags (<120 microns) were more abundantly available (at nearly 51% of survey points), while non-woven bags were available at only 3% survey points and both restricted bags were found at 3% of the points.

**Figure 25: Availability of carry bags in Mumbai**



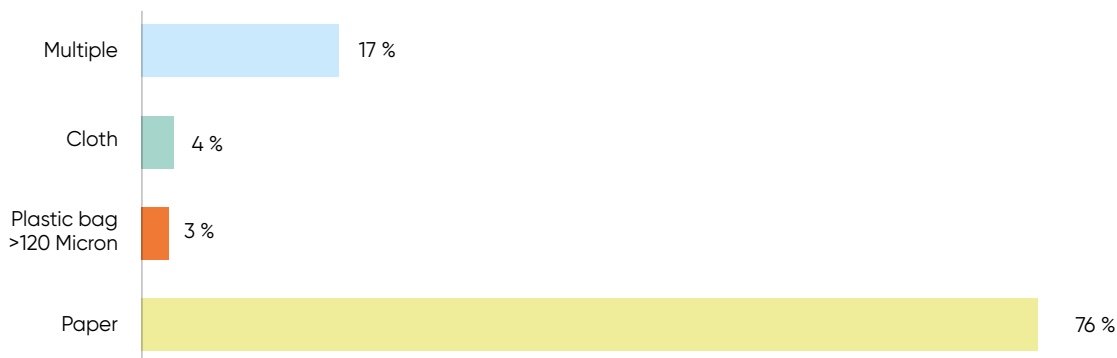
During the survey it was seen that all coconut water sellers, vegetable vendors, *chaat* vendors and shops in markets, wholesale markets and bus depots were using restricted plastic carry bag (<120 microns), while all small restaurants used restricted non-woven bag (<60 GSM). About 80% of the surveyed food stalls and shops in weekly markets also used restricted carry bags. Forty percent of shops in malls, tourist spots and sweet shops provide restricted carry bags to consumers. On the positive side, five location types (**Figure 26**), bhandaras/ langars, tourist spots, card shops, ice-cream parlours and railway platforms, have discontinued the use of restricted carry bags.

**Figure 26: Restricted carry bags - availability at different locations in Mumbai**



Of the 44% of survey points using a substitute, around 76% of the survey points (food stalls, vegetable vendors, railway platforms and malls) use paper, while 3% locations (primarily grocery shops and markets) use plastic carry bag (>120 microns). Only 4% survey points at malls use cloth bags as an alternative to non-woven bags. Some shops in malls and markets (comprising 17% survey points) offer paper bags while others gave cloth bags (Figure 27).

**Figure 27: Substitutes to restricted carry bags in Mumbai**

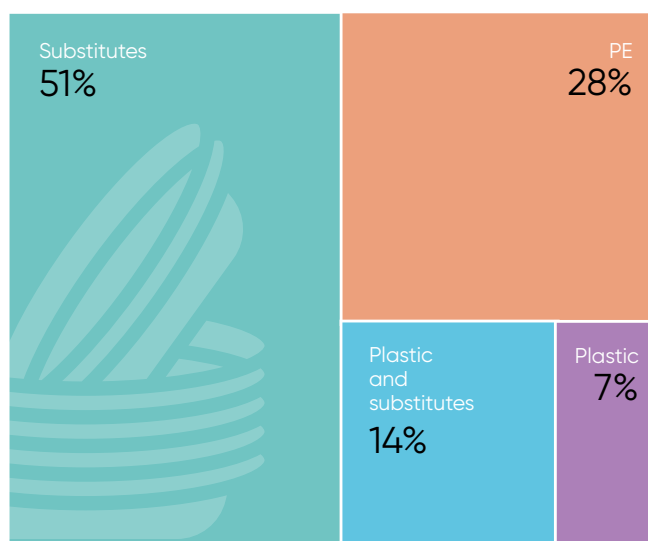


## 2. PLASTIC CUTLERY

Of the total 140 survey points in the city, 71 were checked for plastic cutlery. These survey points were spread across 14 types of locations, including small restaurants, food stalls, *chaat* vendors, bus depots, party decoration shops and malls. The survey again showed some change on ground as the majority of the vendors have removed plastic cutlery, but availability of this banned item in 21% of the sample points (Figure 28) is a cause for concern, especially since Mumbai had these restrictions in place before the country rule was introduced.

An alarming 86% of party decoration shops also continue to sell plastic cutlery.

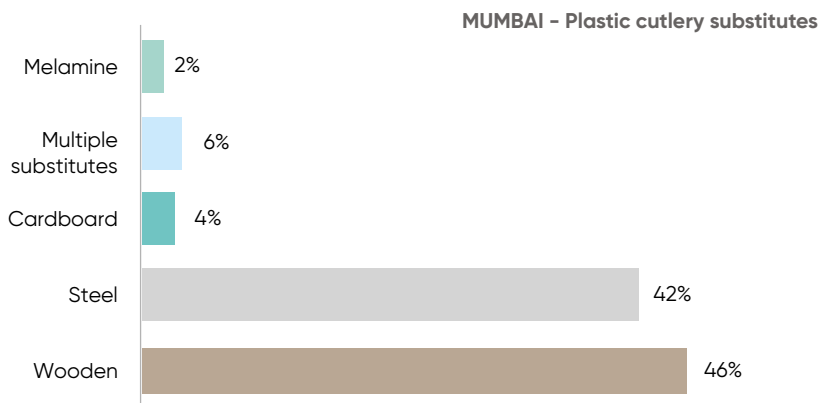
**Figure 28: Availability of plastic cutlery in Mumbai**



Sixty-five percent of the survey points, irrespective use a substitute for plastic cutlery irrespective of the location type. Most survey points from malls, metro stations, ice-cream parlours and party decoration shops use/sell wooden cutlery (46%); non-disposable steel option is also popular among 42% survey points (mainly small restaurants, food stall and religious spots). Some survey points (6%) also provide more than one substitute for plastic cutlery; for example, some small restaurants provide steel cutlery for a few dishes and melamine and wooden cutlery for others. Cardboard is also in use as a substitute by some *chaat*/street vendors (Figure 29).



**Figure 29: Substitutes to plastic cutlery in Mumbai**



### 3. PLASTIC CUPS

To check the effectiveness of the ban on plastic cups, the study looked at 60 survey points based in 12 different location types; these were mainly small restaurants, food stalls, *chaat*/street vendors, railway platforms, bus depots, juice shops, *bhandaras/ langars* and party decoration shops.

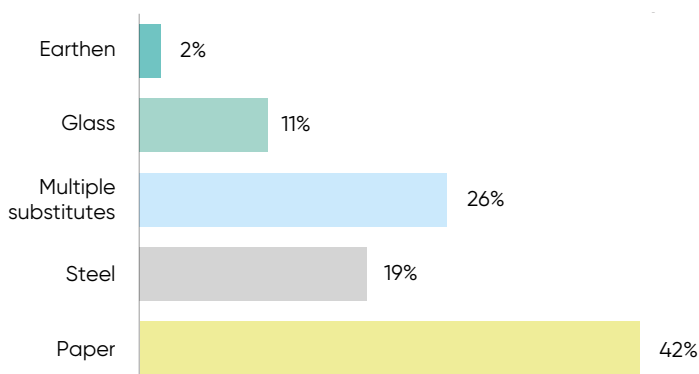
According to the data, 28% of survey points still use/ provide plastic cups (Figure 30). The most extensive users of plastic cups are street vendors who sell products such as corn and *chuski*. Half the shops in markets and more than 40% juice shops and vendors in tourist spots also use plastic cups. About 70% party decoration shops still sell plastic cups. But none of the shops on railway platforms, bus depots, religious spots and small restaurants use plastic cups. All survey points across these four locations use only substitutes to plastic cups.

Talking about substitutes, the survey indicates that most survey points use three main substitutes for plastic cups: paper, steel, or glass cups. Paper cups are the most popular substitute, used at 42% survey points; non-disposable steel cups are next as they are used at 19% survey points and glass cups at 11% survey points. Many juice shops use multiple substitutes for plastic cups (Figure 31); they use glass cups for serving juice and even packed takeaway orders in paper cups.

**Figure 30: Availability of plastic cups in Mumbai**

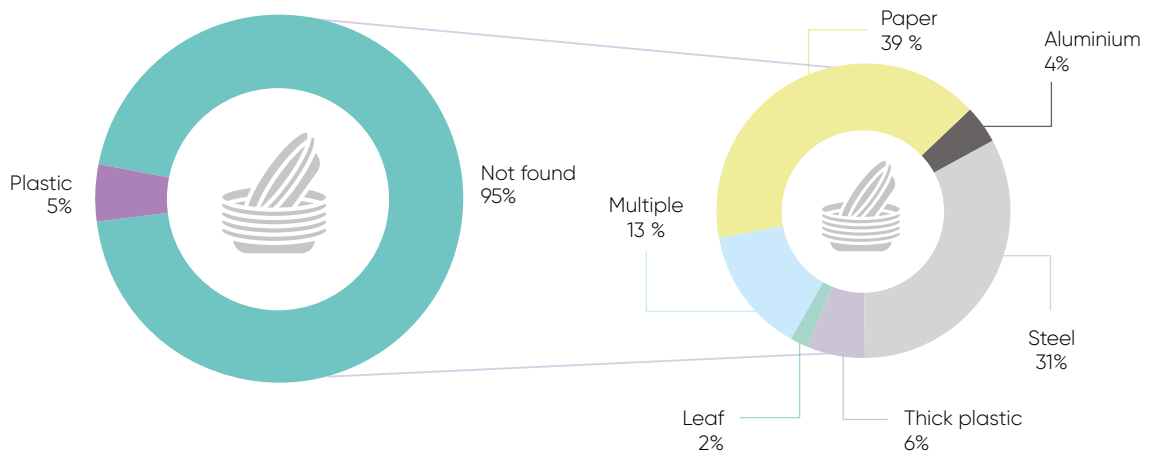


**Figure 31: Substitutes to plastic cups in Mumbai**



## 4. PLASTIC PLATES

Figure 32: Use of plastic plates in Mumbai



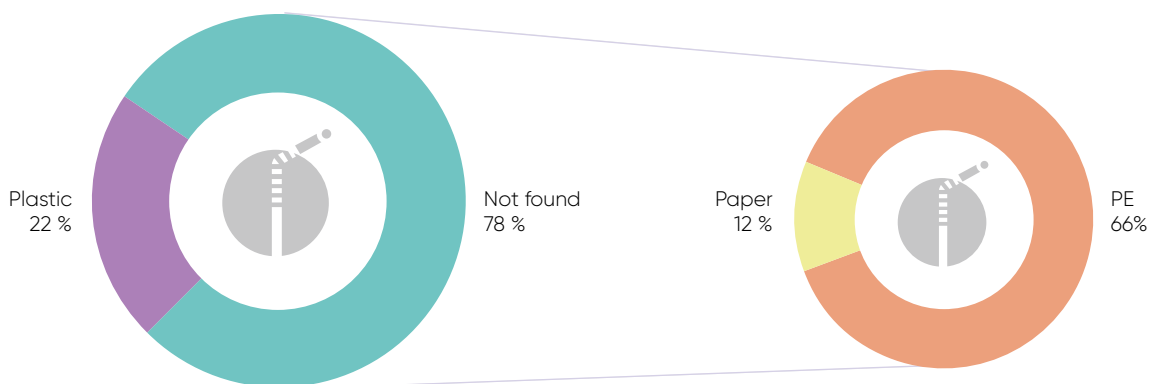
Sixty-two sample sites across 10 location types were assessed for the use of disposable plastic plates. The 10 types of locations include food stalls, *chaat* vendors, bhandaras, small restaurants, bus depots, railway platforms and party decoration shops. The study shows that only 5% of the locations still use banned plastic plates; these are mainly shops in markets and bhandaras.

Nearly 95% of the locations use a substitute to banned plastic plates. Paper plates are the most widely (39%) used substitute across all ten location types, while steel is in use at almost 31% of the locations (food stalls and small restaurants). Around 13% of the survey points (such as food stalls, and tourist and religious spots) also provide more than one substitute; they serve food in steel, thick plastic and ceramic plates, and use paper plates for parcels.

## 5. PLASTIC STRAWS

For plastic straws, 50 survey points from 10 different types of locations were surveyed. It was disappointing the find that 22% of the survey points still use the banned item, even though the ban seems to have reduced the overall usage of plastic straws (Figure 33).

Figure 33: Availability of plastic straws in Mumbai



All coconut water sellers still use plastic straws and 80% of the juice shops still serve juices with plastic straws. About half the shops in markets and tourist spots also provide plastic straws, while only 20% of the food stalls use the banned item.

On the brighter side, all shops across four locations (railway platforms, malls, bus depots and small restaurants) do not use plastic straws. These shops provided paper straws. Many small restaurants and juice shops serve drinks without any straw, thereby encouraging users to drink straight from cups/ glasses.

## 6. PLASTIC WRAPPING FILM

Plastic wrapping film was searched for at 13 survey points, mainly card shops and sweet shops. None of the sweet and card shops were found using plastic wrapping films. Some card shops (15%) used ribbons instead of wrapping film whereas almost all sweet shops sold sweets without wrapping.

## 7. BALLOONS WITH PLASTIC STICKS

A total of 15 survey points were checked for the availability of balloon with plastic sticks and it is still being sold at every (100%) survey point.

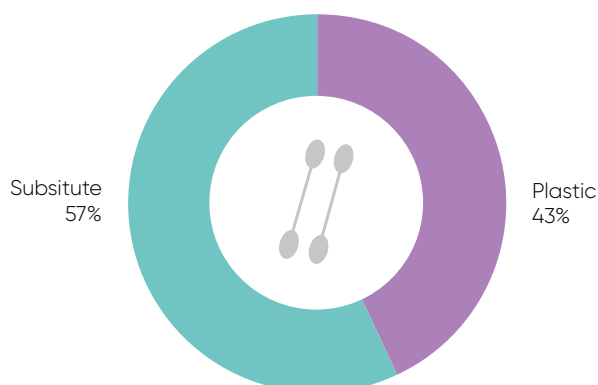
Figure 34: Availability of balloon with plastic sticks in Mumbai



## 8. EARBUDS WITH PLASTIC STICKS

For earbuds with plastic sticks, seven survey points (mainly grocery shops) were surveyed. Earbuds with plastic sticks were still found in 43% stores. Most shops sell earbuds with wooden sticks as a substitute to plastic sticks (57%).

Figure 35: Availability of earbuds with plastic sticks in Mumbai



## 9. THERMOCOL FOR DECORATIONS

To check for thermocol for decoration, seven survey points (mainly party decoration shops) were taken. Seventy-one percent of the survey points still sell thermocol for decorations. The rest (29%) of the shops also sell paper decorations as substitutes to thermocol.

## 10. PVC BANNER (<100 MICRONS)

To assess the effectiveness of the ban on PVC banner (<100 microns), six specialised banner shops were surveyed. It was worrying to find that 67% of the shops still make PVC banner (<100 microns). Substitutes such as PVC banner (>220 microns) and star flex are also available in most of the shops.

## 11. CANDY WITH PLASTIC STICKS

To look for candy with plastic sticks, the surveyor visited seven grocery shops. Five of those stores still sell candies with plastic sticks.

## 12. ICE-CREAM WITH PLASTIC STICKS

All four ice-cream parlours in the survey comply with the ban. They offer ice-cream with wooden sticks instead of plastic.

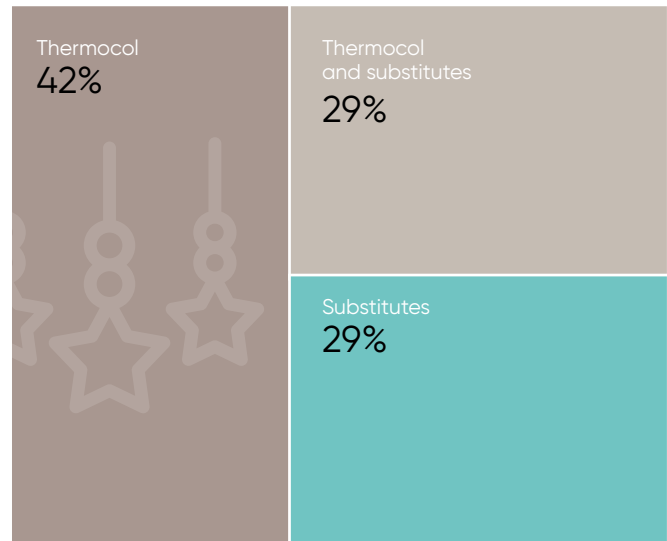
## 13. STIRRERS

Plastic stirrers were looked for at 10 survey points (primarily juice shops). None of those shops provide a plastic stirrer.

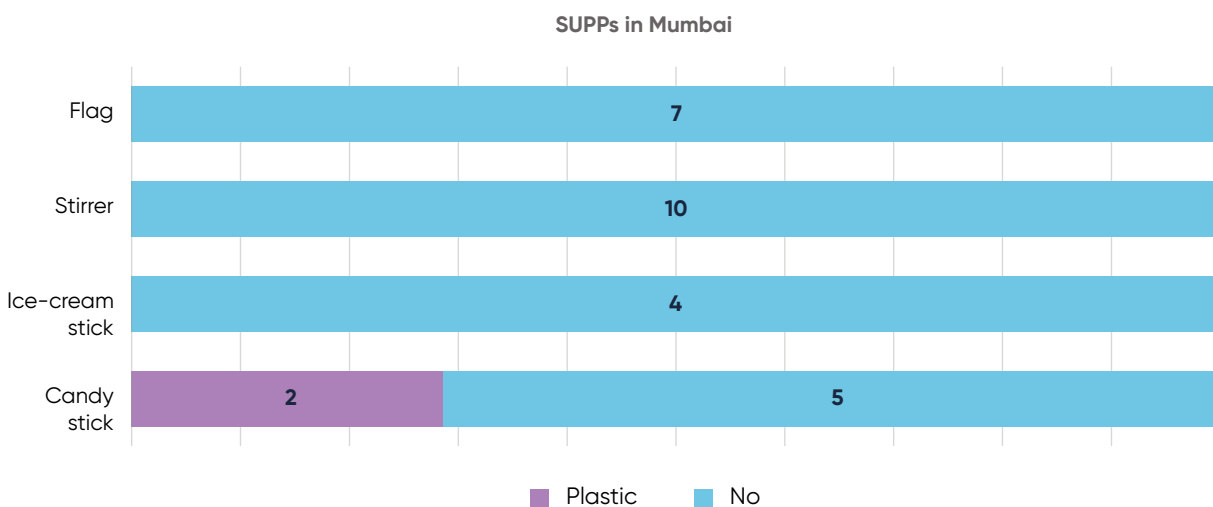
## 14. PLASTIC FLAGS

Seven survey points were searched for plastic flags. None of the survey points sell plastic flags. However, the effectiveness of the ban can only be gauged during Independence Day and Republic Day celebrations when flags sell in large numbers.

**Figure 36: Availability of thermocol for decorations in Mumbai**



**Figure 37: Availability of select SUPPs in Mumbai**





# SURVEY FINDINGS

# BENGALURU

The observational study assessed 142 survey points from 23 different location types in Bengaluru for the availability of banned SUP items. Since availability/use of all SUPs was not relevant to all location types, the survey points for each SUP in the city was as mentioned in Table 6. In most of the survey points, surveyors assessed availability of more than one SUP. The survey points within each of the location types were selected randomly, but efforts were made to cover the entire city.



50% of the surveyed points in the markets also provided plastic cups. Thirty-three percent of the points also use plastic cutlery

**Table 6: Number of survey points for each banned SUP Item in Bengaluru**

	<b>112</b> Carry bags		<b>10</b> Candy with plastic sticks
	<b>58</b> Plastic cutlery		<b>8</b> Earbuds with plastic sticks
	<b>54</b> Plastic cups		<b>4</b> Ice-cream with plastic sticks
	<b>62</b> Plastic plates		<b>4</b> PVC plastic banners
	<b>48</b> Plastic straws		<b>11</b> Plastic flags
	<b>15</b> Wrapping film		<b>9</b> Balloon with plastic sticks
	<b>7</b> Plastic stirrers		<b>8</b> Thermocol

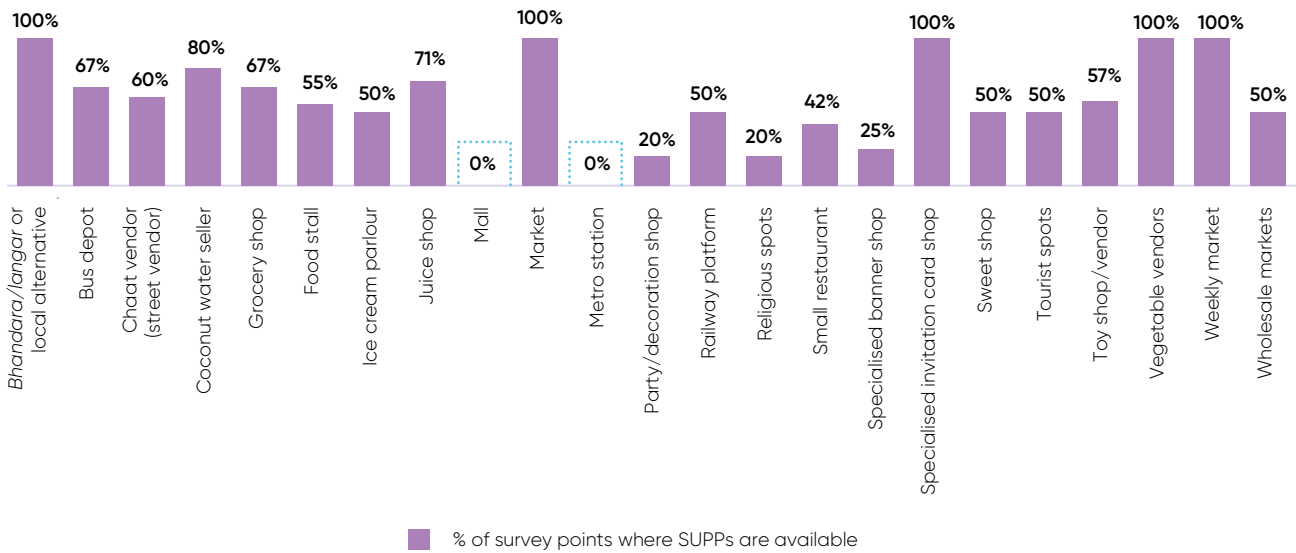
Bengaluru city is one of the surveyed cities where the ban appears to have worked better. As evident in Figure 38, a shift was seen in many survey points under each location type. Still certain location types, as also observed in Delhi, appear to be major violators of the ban. For example, all shops surveyed in the markets provide plastic straws and plastic carry bags (<120 microns). And around 50% of the surveyed points in the markets also provided plastic cups. Thirty-three percent of the points also use plastic cutlery. Similarly, all coconut water sellers hand out plastic carry bags (<120 microns) and nearly 40% coconut sellers provide plastic straws. More than half of the food stalls give plastic carry bags (<120 microns) and 20% of the stalls use banned plastic cups, straws, and cutlery. However, the ban also seems to be more effective in some locations such as malls, metro stations and religious spots where a large number of survey points provide substitutes to SUP. None of the malls and metro stations provide banned SUP items and only 20% of the religious spots use restricted carry bags.



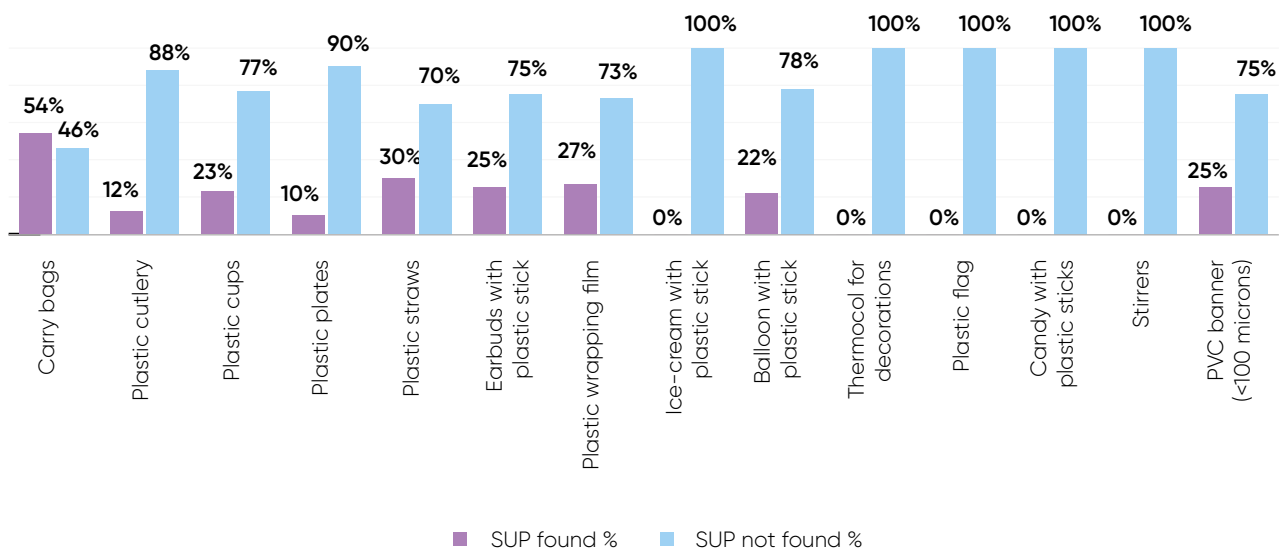
Though the ban seems to be effective in reducing the city's usage of some of the SUPs, some of the banned products continue to be freely available in Bengaluru. Restricted carry bags (plastic carry bags <120 microns and non-woven bags <60 GSM), the most commonly used SUP, is available at more than half the survey points. (Figure 39). Plastic straws, one of the most littered items, is also available at 30% of survey points. Another banned SUP which is commonly available in the surveyed points is plastic wrapping film (27% of survey points).

The following section presents a detailed item-wise analysis of findings from Bengaluru for each SUP item banned under the PWM (Amendment), 2021.

**Figure 38: SUPPs in different location types in Bengaluru**



**Figure 39: Availability and use of all SUPPs in Bengaluru**



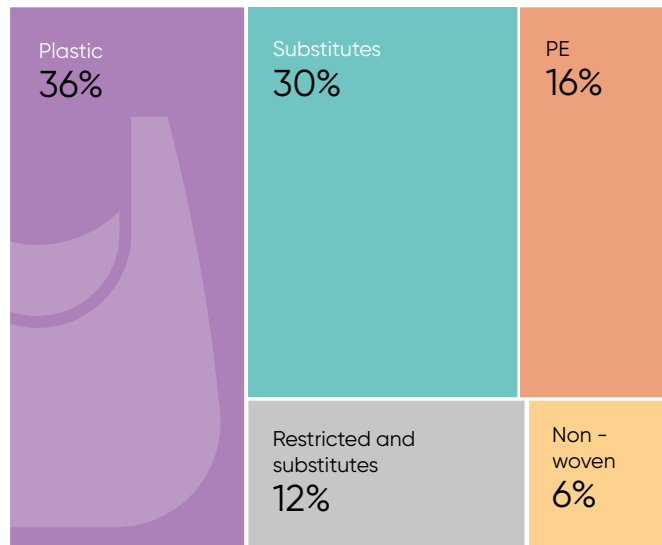


## 1. CARRY BAGS

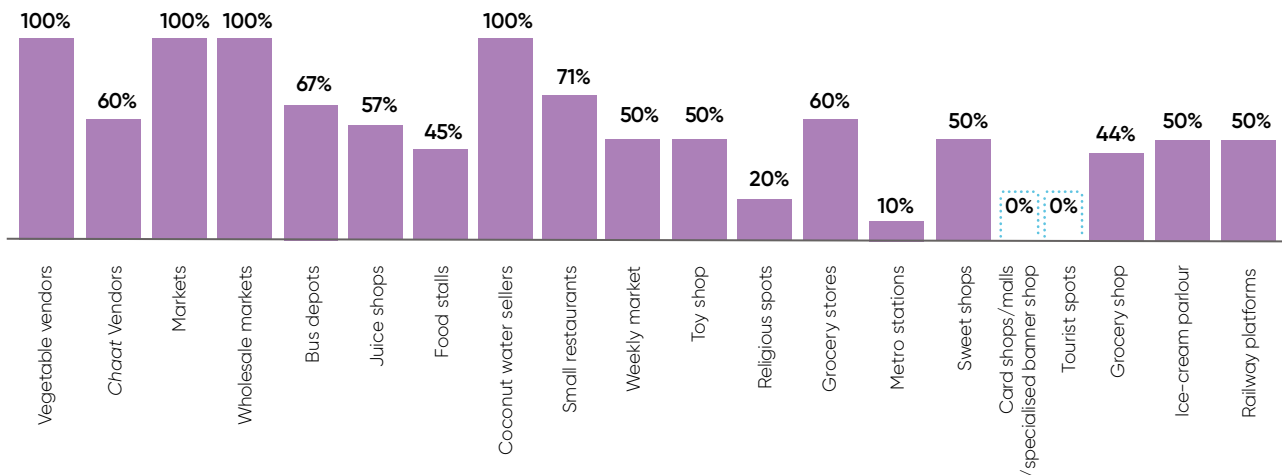
In the case of restricted single use carry bags including plastic carry bags (< 120 microns) and non-woven bags (< 60 GSM), the study assessed the availability and use of restricted bags at 112 sample locations spread across 21 locations types such as small restaurants, food stalls, *chaat* vendors, markets, toy shops and sweet shops, as there is wide usage of carry bags usually. Results show that restricted carry bags are still available at 54% of the total sample points in Bengaluru (Figure 40).

It was seen that nearly all location types (vegetable vendors, coconut water sellers, *chaat* vendors, markets, etc.) included in the study continue to use restricted carry bags. While banned plastic carry bags (< 120 microns) were found at 36% of the sample points, banned non-woven bags (< 60 GSM) were available at 6% sample points. At 12% survey points, which include locations such as the markets, some shops provide carry bags made of many materials including both plastic and substitutes. It was also seen that some survey points within food stalls use both plastic carry bags and their substitutes. On the positive side, shops near some religious spots sell products without bags.

**Figure 40: Availability of restricted carry bags in Bengaluru**

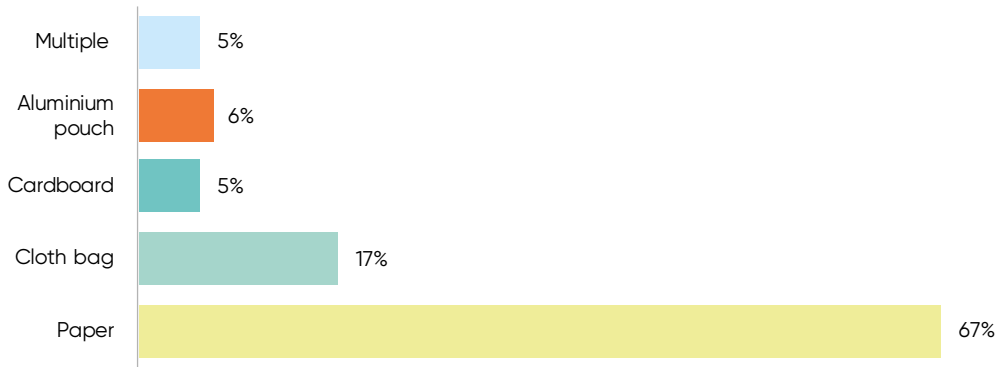


**Figure 41: Location-wise availability of restricted bags in Bengaluru**



In the study, some select location types were found to be extensive users of restricted carry bags. For instance, 100% of coconut water sellers, markets and vegetable vendors still use restricted plastic carry bags. And about half of the food stalls and sweet shops and more than 70% of small restaurants, grocery shops and religious spots are also using plastic carry bags (<120 microns). Restricted non-woven bags are also in use at nearly 50% of the toy shops and small restaurants. Only malls are using substitutes and no restricted carry bags. Thus, it seems that the ban has not been too effective in limiting the use of plastic carry bags and non-woven bags in certain locations.

**Figure 42: Plastic bag substitutes in Bengaluru**

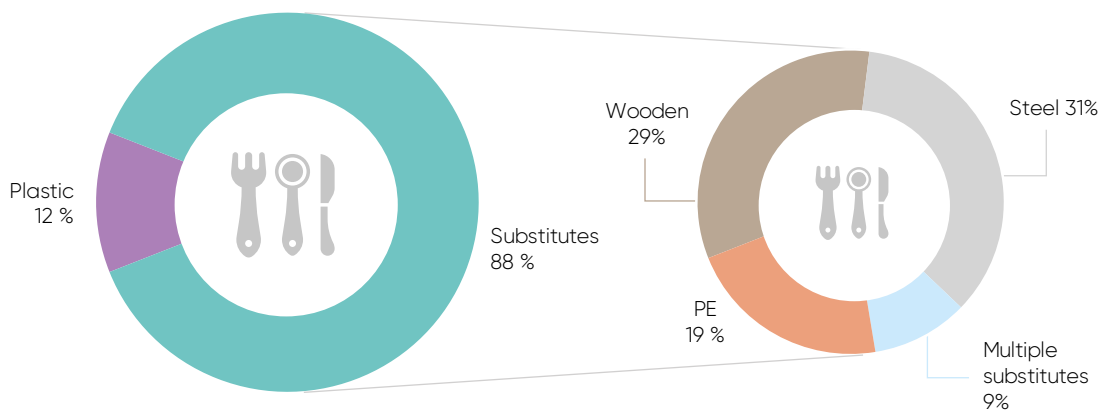


Though the impact of the ban seems limited, the survey shows that substitutes to restricted carry bags are available at approximately 42% of the sample locations (Figure 42). The most popular alternative is paper (bags/ sheets/ newspaper) used at 67% of the sample points while cloth bags and cardboard box are used at 17% and 5% of the survey points respectively. In wholesale markets, different shops are using different substitutes; some shops provide cloth bags while the others use paper bags. Certain small restaurants and food stalls also use different substitutes to parcel food; for some food items, they use leaves, and for others, they use paper/ newspaper.

## 2. PLASTIC CUTLERY

To look at the availability of banned plastic cutlery, 58 sample points were considered. These 58 survey points are spread across 14 types of locations including small restaurants, food stalls, *chaat* vendors, bus depots, party decoration shops and malls. The ban seems to have reduced the consumption of disposable plastic cutlery in Bengaluru; in 88% of the survey points, the surveyors did not find these being used or provided. But the ban has not been totally effective because in the remaining 12% of the survey points, the use of disposable plastic cutlery is still on. According to the survey data, 25% of food stalls, 10% of *chaat* vendors continue to use plastic cutlery. Plastic cutlery is also being sold at 10% party/ decoration shops.

**Figure 43: Availability of plastic cutlery in Bengaluru**



Among the substitutes, reusable steel cutlery is being used in approximately 31% of the sample points, mainly small restaurants, and food stalls, thus making it the most popular option. Wooden cutlery is also quite popular at 29% and is being used mainly in malls, tourist shops and some food stalls. Even party decoration shops sell wooden cutlery. In some location types such as malls, markets and tourist spots, a mixed usage of substitutes is in use among multiple vendors. Some of the shops or outlets are using steel and others, wooden cutlery. In 19% of the survey points, primarily religious spots, users are eating directly with their fingers, which is a good effort at reducing single use product waste.

### 3. PLASTIC CUPS

For banned plastic cups, 54 sample locations across 12 types of locations were assessed. Food stalls, *chaat* vendors, juice shops, bhandaras, railway platforms, bus depots, metro stations, religious spots, party decoration shops and small restaurants were studied. The ban seems to have been able to make some changes as 77% of the surveyed points did not report usage of plastic cups. But plastic cups are still available at 23% of the sample points (Figure 44). Locations such as juice shops, food stalls, some party decoration shops and markets continue to use/ sell plastic cups.

Among substitutes, paper cups were found at nearly 74% of survey points while non-disposable steel cups and glass cups were used at 16% and 3% of survey points respectively (Figure 45). Paper cups were seen across all 12 types of locations whereas glass cups were found mainly at small restaurants and food stalls; steel is in use in some markets. In less than 5% of the locations, mainly small restaurants and religious spots, some shops use more than one substitute; they provide both steel and glass cups.

Figure 44: Use of plastic cups in Bengaluru

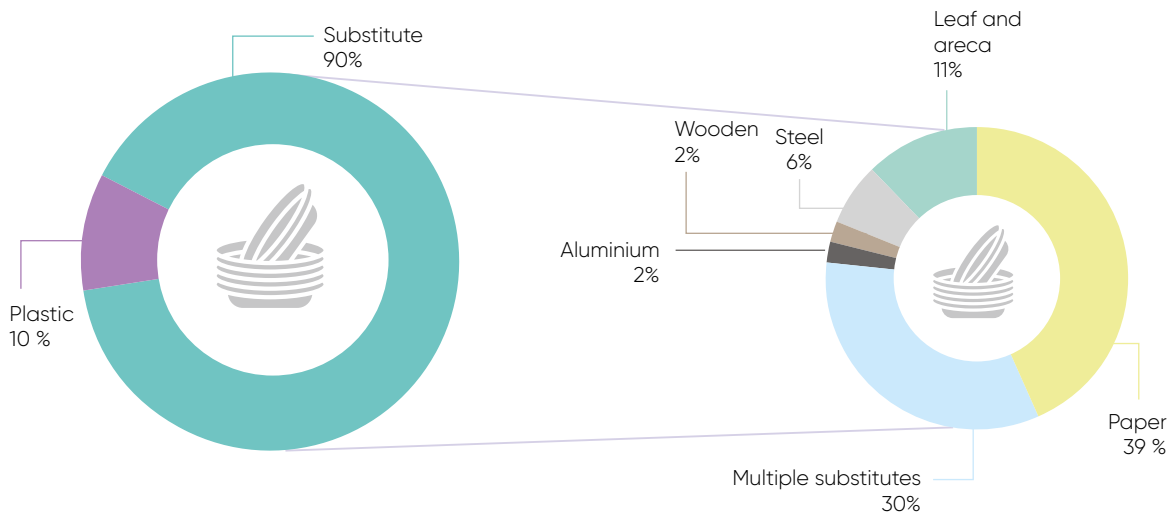


Figure 45: Substitute to plastic cups in Bengaluru



## 4. PLASTIC PLATES

Figure 46: Availability of plastic plates in Bengaluru

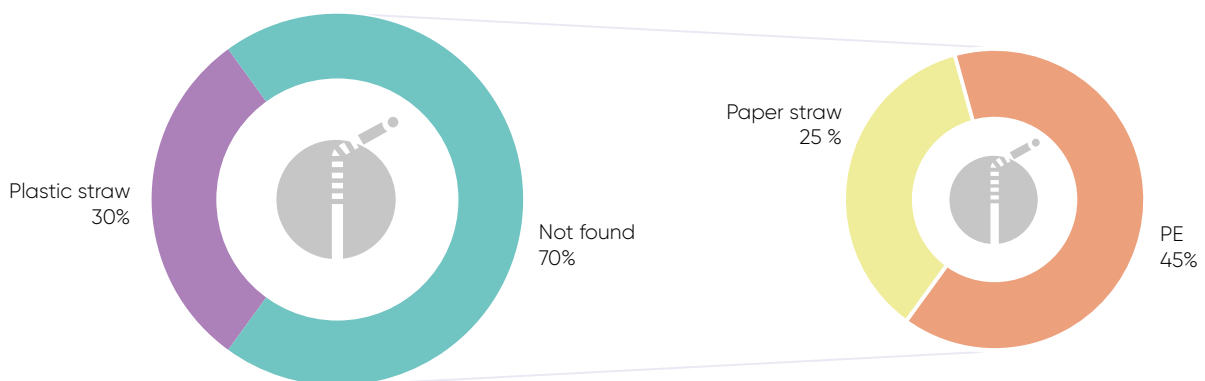


The availability of banned plastic plates was assessed at 62 survey points spread across 11 types of locations including food stalls, *chaat* vendors, bhandaras/ langars, railway platforms, bus depots, metro stations, religious spots, party decoration shops and small restaurants. Survey results indicate that the use of disposable plastic plate has gone down substantially in Bengaluru. Only 10% of the survey points show availability of plastic plates. These points are mainly party decoration shops. This indicates that consumers are still buying plastic plates for parties even when their use in commercial establishments reduced considerably.

In 90% of the survey points, the use of substitutes for plastic plates is still on. The main substitute are paper plates, popular at 39% of the points. In 30% of the survey points, mainly small restaurants, vendors use more than one type of substitute. These are primarily steel, leaf and paper plates. At railway platforms, some vendors use aluminum foil and others use paper plates. Natural substitutes such as leaf and areca plates are in use at 11% of the survey points and steel plates at 6% survey points. Leaf and areca plates are found mainly at *chaat* vendors and religious spots while steel plates are used at food stalls.

## 5. PLASTIC STRAWS

Figure 47: Availability of plastic straws in Bengaluru



In the case of plastic straws, 48 sample points across 10 types of locations that usually use plastic straw were considered. These eight locations include food stalls, juice shops, coconut sellers, railway platforms, bus depots, markets, malls, and small restaurants. The survey found that 30% of the sample points in Bengaluru still provide plastic straws (Figure 47). The compliance seems to be high in small restaurants, malls, railway platforms and bus depots. But the violations are also high in markets. Though limited, plastic straws are available in coconut water sellers, food stalls and juice shops as well.

Locations such as malls, food stalls and small restaurants provide paper straws. But around 45% of the survey points, mainly small restaurants, coconut water sellers and railway platforms, do not provide any straws to their consumers, which is a positive step towards reducing single use product waste. In these spots, consumers drink directly from cups or glasses, mostly made of paper, glass, steel and reusable plastic.

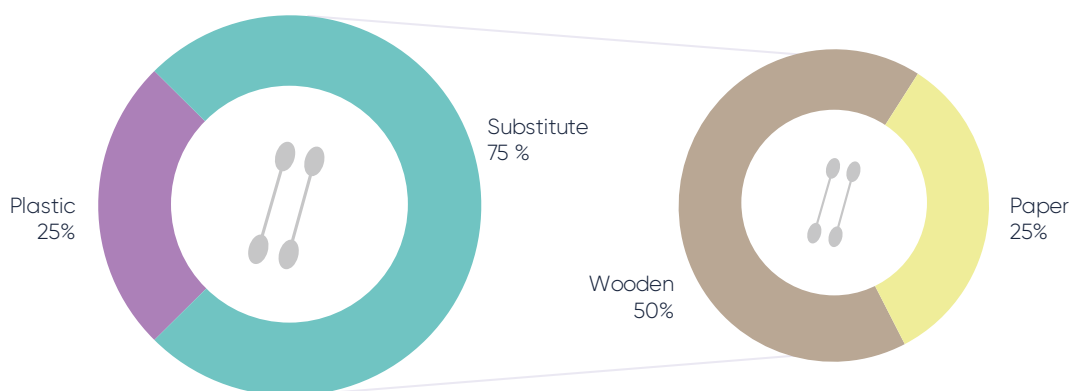
## 6. PLASTIC WRAPPING FILM

For banned plastic wrapping film, the study assessed 11 sweet shops and four card shops. According to the survey data, 27% of the sample points still use plastic wrapping film. All card shops use a layer of glossy lamination on cards. On the positive side, none of the sweet shops use plastic film for wrapping

## 7. BALLOONS WITH PLASTIC STICKS

Twenty percent of the nine sample points (including toy shops, markets, and weekly markets) analysed for the availability of balloons with plastic sticks still sell the banned item (Figure 49). More than half of the shops sell balloons without any kind of stick and the rest (25%) use a long-inflated balloon as a stick.

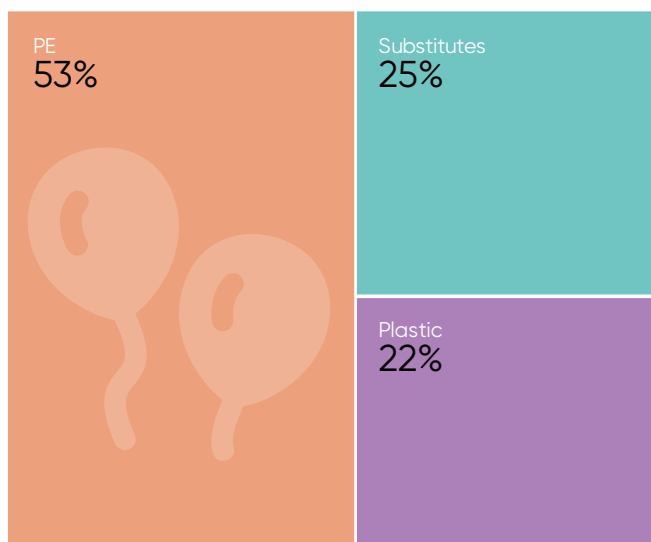
**Figure 49: Availability of earbuds with plastic sticks in Bengaluru**



## 8. EARBUDS WITH PLASTIC STICKS

The survey checked eight grocery shops for the availability of earbuds with plastic sticks. One quarter of the grocery shops still sell earbuds with plastic sticks. Earbuds with wooden stick are available at 50% of the survey points and 25% of the survey points sell earbuds with paper sticks (Figure 49).

**Figure 48: Availability of balloon with plastic sticks in Bengaluru**



## 9. THERMOCOL WITH DECORATIONS

The study assessed the availability of thermocol for decorations at eight survey points, mainly party decoration shops. Data showed that banned thermocol for decorations is not sold at any of the survey points.

## 10. PVC BANNER (<100 MICRONS)

Out of four sample specialised banner shops assessed in the study, 25% continue to make banned PVC banners (<100 microns). The other main 75% shops make flex banners (250 GSM, 220 GSM).

## 11. CANDY WITH PLASTIC STICKS

The availability of banned candies with plastic sticks was checked across 10 grocery shops. It was seen that six of those stores still sell candies with plastic sticks. Only four stores sell candy with wooden sticks and the rest sell candies without any sticks.

## 12. ICE-CREAM WITH PLASTIC STICKS

Of the four sample ice-cream parlours analysed, none reported the availability of plastic sticks. All four shops provide wooden sticks with ice-cream.

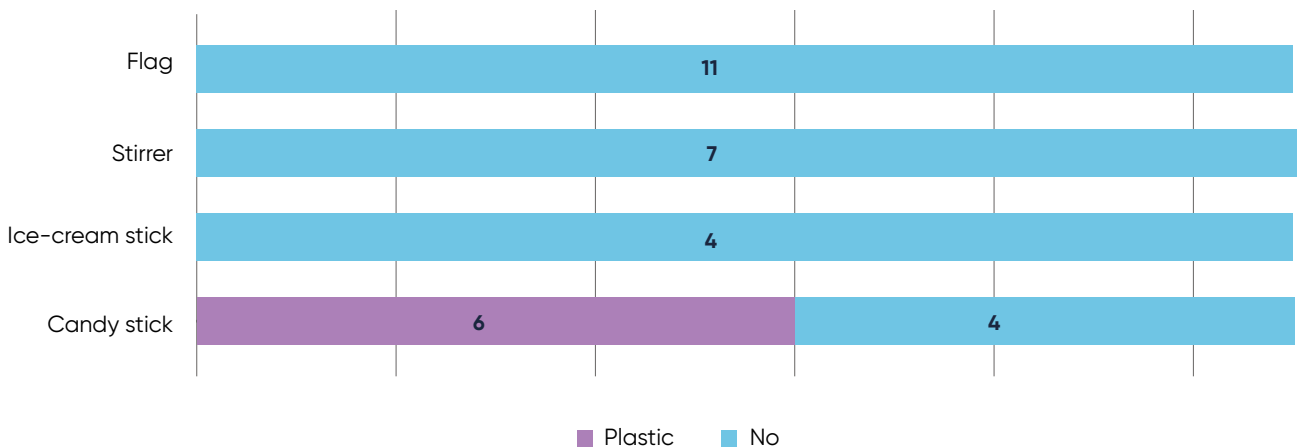
## 13. STIRRERS

The study considered seven survey points for the availability of stirrers in Bengaluru and none of them are using plastic stirrers.

## 14. PLASTIC FLAGS

The study considered 11 survey points for the availability of plastic flags. These locations include party decoration shops and weekly markets. The banned items were not found at any location. So, the ban seems to be effective in controlling usage of this SUP product in normal periods; though the real test would be during the peak season (Independence Day and Republic Day).

Figure 50: Availability of select SUPPs in Bengaluru





# SURVEY FINDINGS

# GUWAHATI

For Guwahati, 140 survey points were surveyed at 21 types of locations. The survey points within each of the location types were selected randomly, but efforts were made to cover the entire city. The two location types, from the set methodology, unavailable in this survey city are metro stations and *bhandaras*. The total number of survey points for each item is listed below in Table 7. The surveyors assessed availability of more than one SUP in most survey points.



The use of banned SUPPs was observed in 100% of the surveyed bus depots, coconut water sellers, grocery shops, juice shops, markets, railway platforms, card shops, and weekly markets





**Table 7: Number of survey points for each banned SUP item in Guwahati**



As per the information collected from the ground, the SUP ban has had limited success in Guwahati. The use of banned SUPPs was observed in 100% of the surveyed bus depots, coconut water sellers, grocery shops, juice shops, markets, railway platforms, card shops, toy shops, vegetable vendors and weekly markets (Figure 51). Majority of the street food vendors, food stalls, ice-cream parlours, small restaurants, sweet shops, tourist spots and wholesale markets also continue using these products. All shops selling party decoration products are still stocking banned SUPPs. The three location types where the ban seems to have worked in are malls and banner shops, which do not stock banned plastics, and a majority of religious spots that do not keep single use plastics.

According to the survey data, it can also be said that most banned SUP items are widely available in Guwahati. Thermocol for decorations and plastic flags are available in all the points surveyed for these banned products and restricted carry bags are also seen in a majority (69%) of the survey points (Figure 52). Balloons with plastic sticks are available in 67% of the survey points assessed particularly for this banned item. All weekly markets in the city visited for the survey are selling balloon with plastic sticks and plastic flags. Though not available at all points, plastic cups and cutlery, earbuds and candies with plastic sticks and plastic wrapping film are widely in use at various points.

The next section presents a detailed item-wise analysis of the availability of banned SUPPs in Guwahati.



Figure 51: SUPPs in different location types in Guwahati

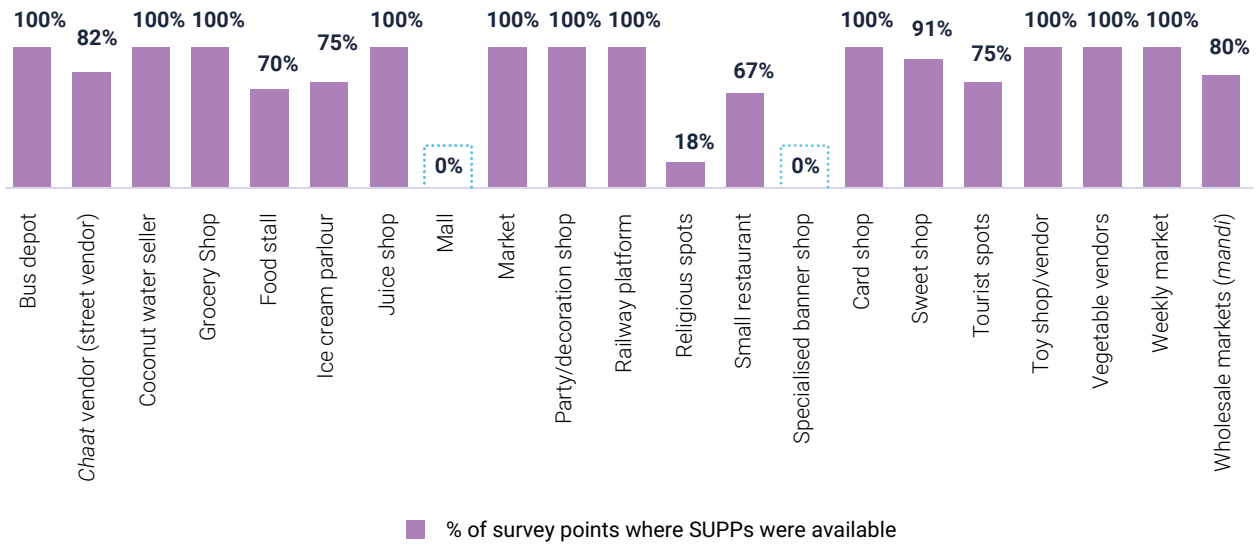
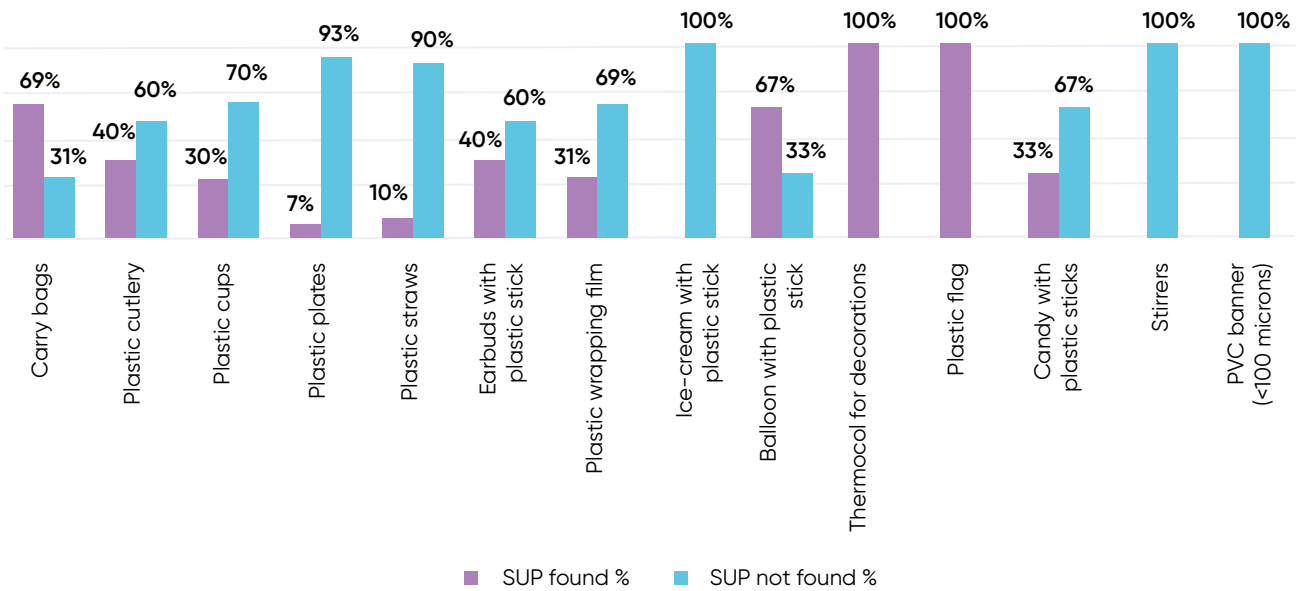


Figure 52: Availability and use of all SUPPs in Guwahati



## 1. CARRY BAGS

After surveying 120 survey points from 22 different locations, it can be said that most survey points are violating the restriction on plastic carry bags. Banned plastic carry bags (<120 microns) are available at 68% survey points. Out of these, 56% only use plastic, whereas the remaining 12% show mixed usage; in other words, some markets and shops are using both plastic and substitutes (Figure 53). These restricted plastic bags are found at almost all locations except malls. Very few places (1%) use restricted non-woven bags (<60 GSM).

Some location types in Guwahati are major violators; every juice shop, coconut water seller and vegetable vendor use the banned bags. Shops in all markets, bus depots and railway platforms are also seen providing plastic bags. Non-woven bags (<60 GSM) are mainly seen in sweet shops and toy shops. A large percentage of sweet, grocery, toy and card shops are also using banned carry bags. Vendors in wholesale markets and weekly markets are providing plastic bags. The usage in street food stalls and *chaat* vendors is also quite prominent. The common usage across different location types clearly shows lack of enforcement. Use of restricted carry bags is absent in malls and significantly less in religious and tourist spots.

The survey also shows that only a fraction (25%) of survey points use substitutes. Survey points such as card shops, malls and small restaurants use paper (65%) instead of restricted carry bags. Only 5% of the survey points, mainly markets, use cloth bags and 16% use permissible plastic bags (>120 microns) and non-woven bag (>60 GSM) each. There are also shops in markets and wholesale markets that keep both paper and cloth bags.

Figure 53: Availability of restricted carry bags in Guwahati

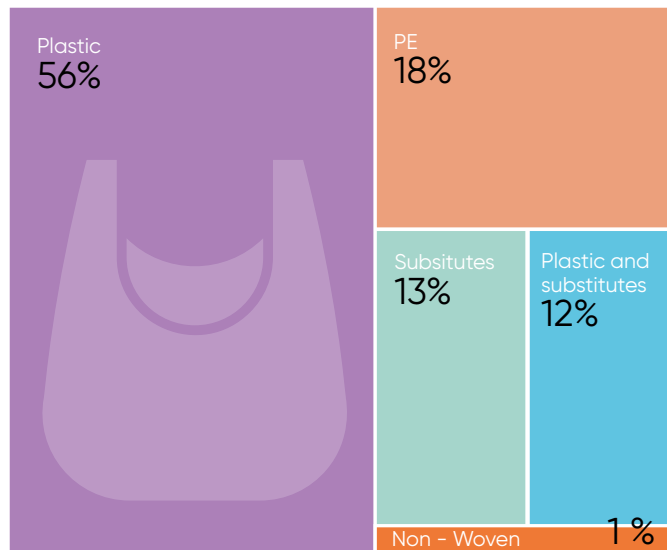
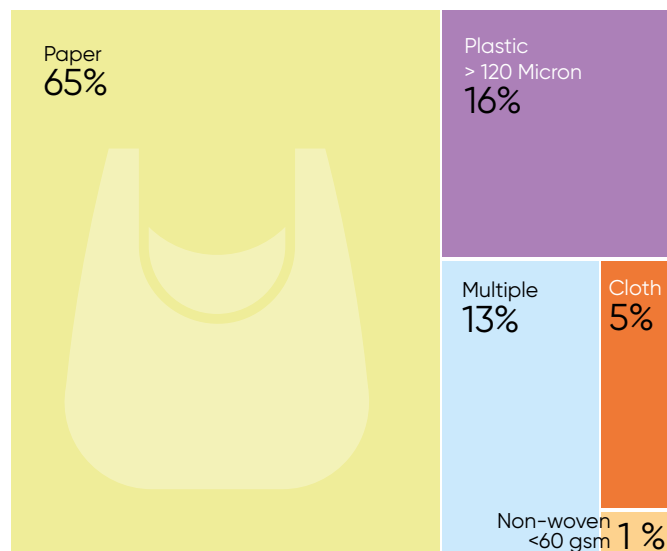
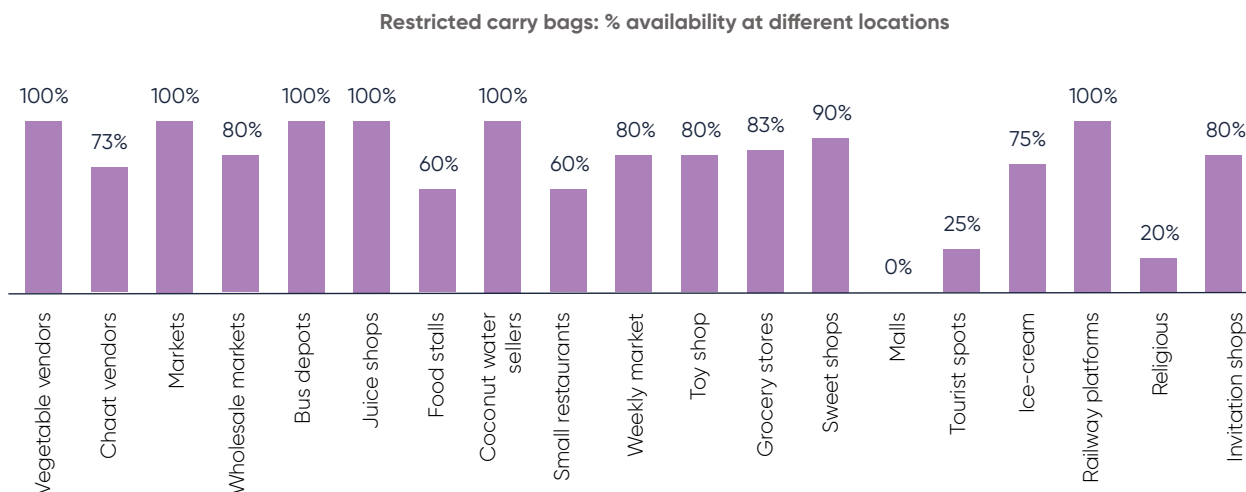


Figure 54: Plastic bag substitutes in Guwahati



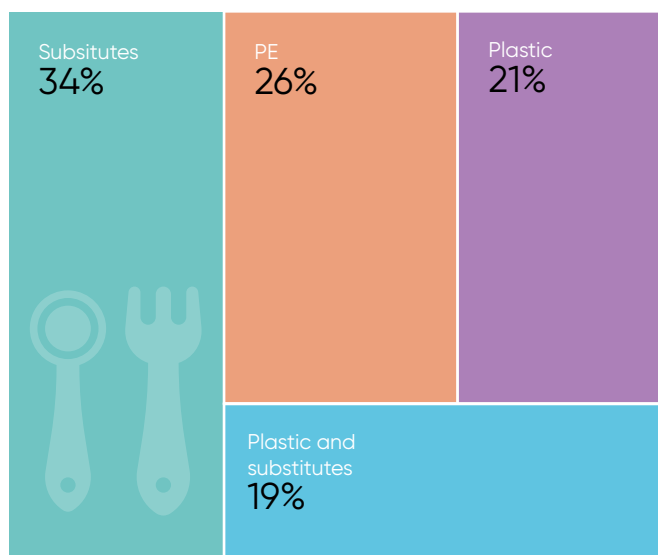
**Figure 55: Restricted carry bags- availability at different locations in Guwahati**



## 2. PLASTIC CUTLERY

Sixty-eight survey points across 13 locations (small restaurants, food stalls, chaat vendors, bus depots, party decoration shops and malls) were studied to understand the effectiveness of the ban on plastic cutlery. The survey revealed that 40% of the survey points in Guwahati continue to stock plastic cutlery (Figure 56). All shops on railway platforms and in bus depots continue to provide plastic cutlery and all party decoration shops still sell plastic cutlery. Other locations that disregard the ban on plastic cutlery include 60% of the sample shops in markets and 50% of the surveyed food stalls. Add to that the 30% of chaat vendors, 25% of tourist spots and 20% of small restaurants.

**Figure 56: Availability of plastic cutlery in Guwahati**



Among the substitutes, wooden cutlery is the most popular option (Figure 57), used at 56% of the survey points (malls, ice-cream parlours and small restaurants). And non-disposable steel is the second-most used substitute (36%) at small restaurants, food stalls and shops in markets. Reusable plastic cutlery is in use at select tourist spots, while biodegradable plastic is seen in some ice-cream shops. In tourist spots, some shops have wooden and reusable plastic cutlery.

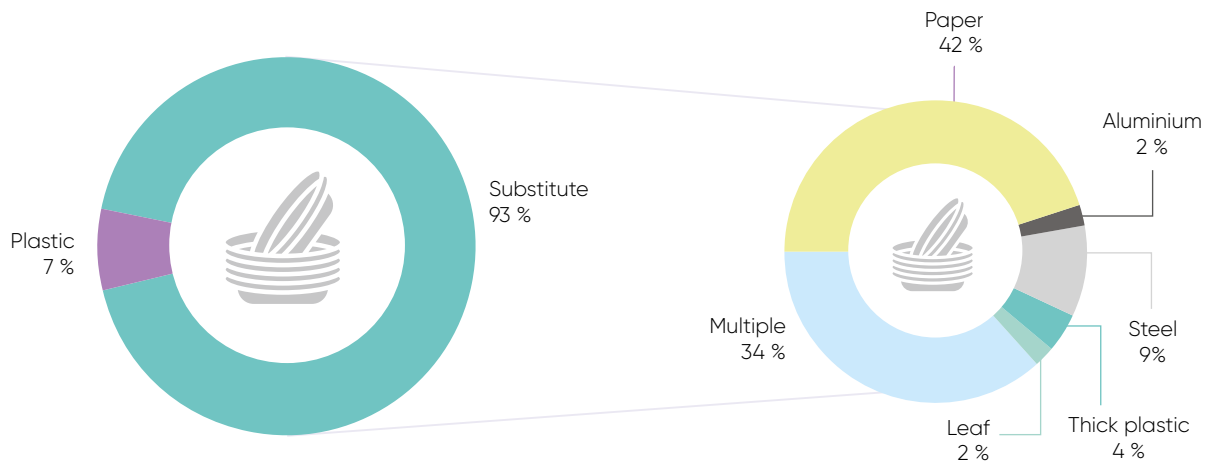
**Figure 57: Substitute to plastic cutlery in Guwahati**



The most positive impact can be seen at religious spots and some street vendors who have stopped providing any cutlery, prompting people to eat directly with their hands.

### 3. PLASTIC PLATES

Figure 58: Availability of plastic plates in Guwahati

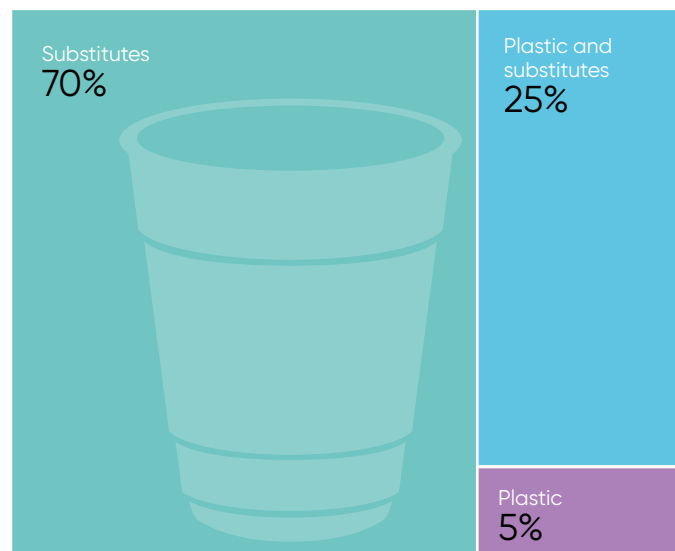


Among the 56 survey points in 10 different locations, only 7% are stocking plastic plates; mainly party decoration shops continue to sell plastic plates. It is good to see 93% of the survey points using substitutes such as paper (42%).

### 4. PLASTIC CUPS

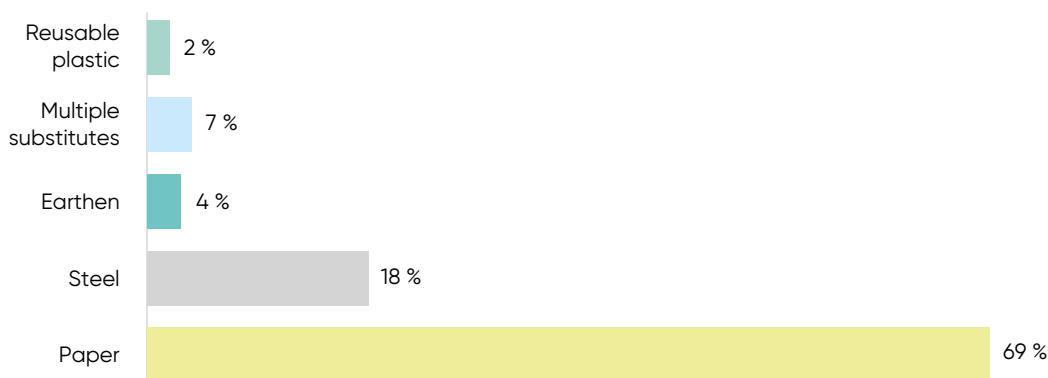
Fifty-six survey points spread across 10 locations were surveyed to assess the use of plastic cups. Thirty percent of those still use plastic cups; 5% use only plastic whereas 25% report mixed usage (Figure 59). Among the location types, all party decoration shops are selling plastic cups and about 40% of markets and religious spots are still using plastic cups.

Figure 59: Availability of plastic cups in Guwahati



Paper cups are being used in 69% of the survey points, while non-disposable steel cups are in use at 18 % of the survey points (Figure 60). The use of earthen cups (*kulhads*) (4%) and thick non-disposable plastic cups (2%) is also seen, though in small numbers. Some food stalls use both glass and paper cups.

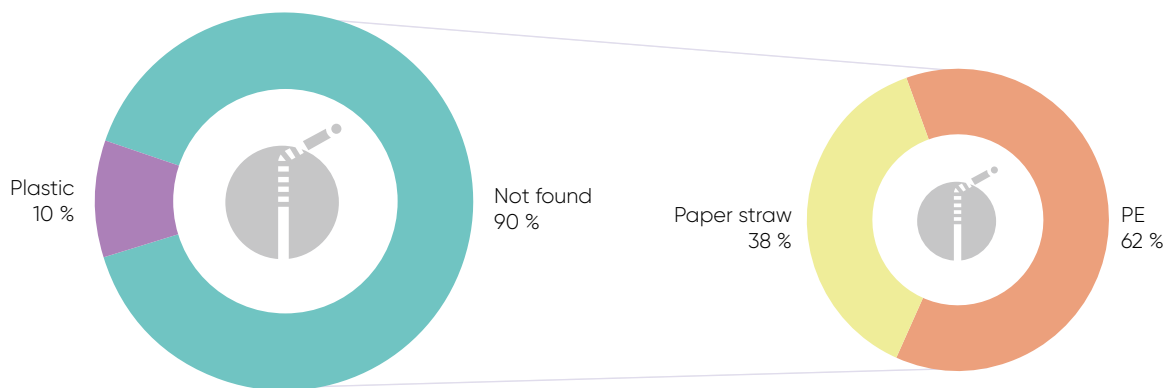
**Figure 60: Availability of plastic cup substitutes in Guwahati**



## 5. PLASTIC STRAWS

For plastic straws, 42 survey points were considered across eight different locations. Only 10% of the survey points continue to use plastic straws. This is found mainly at the coconut water sellers (40%), tourist spots (30%), small restaurants (20%) and shops in markets (20%). Among the users of substitutes, 38% of the survey points, in small restaurants, railway platforms and small restaurants, are using paper straws. In locations such as juice shops and food stalls, no straws are provided, hence users drink directly from cups/ glasses.

**Figure 61: Use of plastic straws in Guwahati**



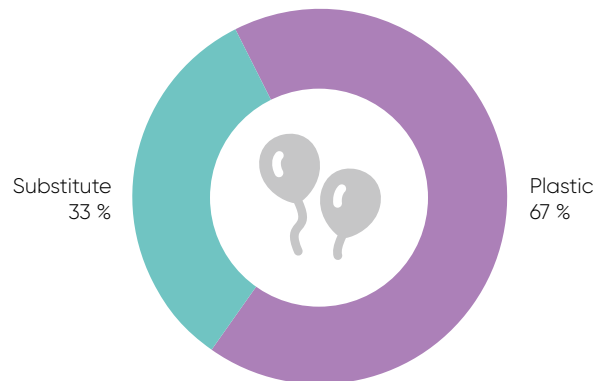
## 6. PLASTIC WRAPPING FILM

In the case of plastic wrapping film, 16 survey points from sweet and card shops were surveyed. Thirty-one percent of the points, all card shops, continue to use plastic film. None of the sweet shops are using a wrapping film.

## 7. BALLOONS WITH PLASTIC STICKS

A total of nine survey points were studied for the availability of balloons with plastic sticks. These are still sold at 67% of the survey points. And the rest 33% sell balloons with strings.

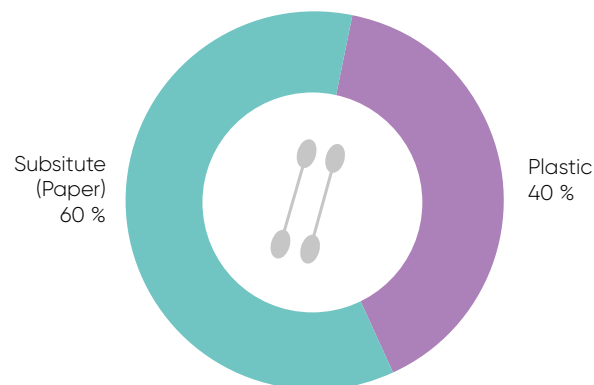
**Figure 62: Availability of balloons with plastic sticks in Guwahati**



## 8. EARBUDS WITH PLASTIC STICKS

To check for the use of earbuds with plastic stick, the study surveyed five points, mainly grocery stores. Two of those still stock earbuds with plastic sticks. The alternative in the other three stores was paper.

**Figure 63: Availability of earbuds with plastic sticks in Guwahati**



## 9. THERMOCOL FOR DECORATIONS

For thermocol decorations, 11 survey points (mainly party decoration shops) were taken. All the survey points still sell thermocol for decorations.

**Figure 64: Availability of thermocol for decoration in Guwahati**



## 10. PVC BANNERS (<100 MICRONS)

Four survey points were taken for this part of the study. It was found that none of the shops make restricted PVC banners (<100 microns). They have banners of either PVC with thickness above 220 and 240 GSM.

## 11. CANDY WITH PLASTIC STICKS

The availability of candy with plastic sticks was checked at three survey points, which are all grocery stores. Candy with plastic sticks was found in one of the survey points. One store sells candies with wooden stick while the other sells candies without sticks.

## 12. ICE-CREAM WITH PLASTIC STICKS

The survey included four ice-cream parlours for the use of this banned SUPP. None of them uses plastic sticks. All four stores use a wooden stick instead of a plastic stick.

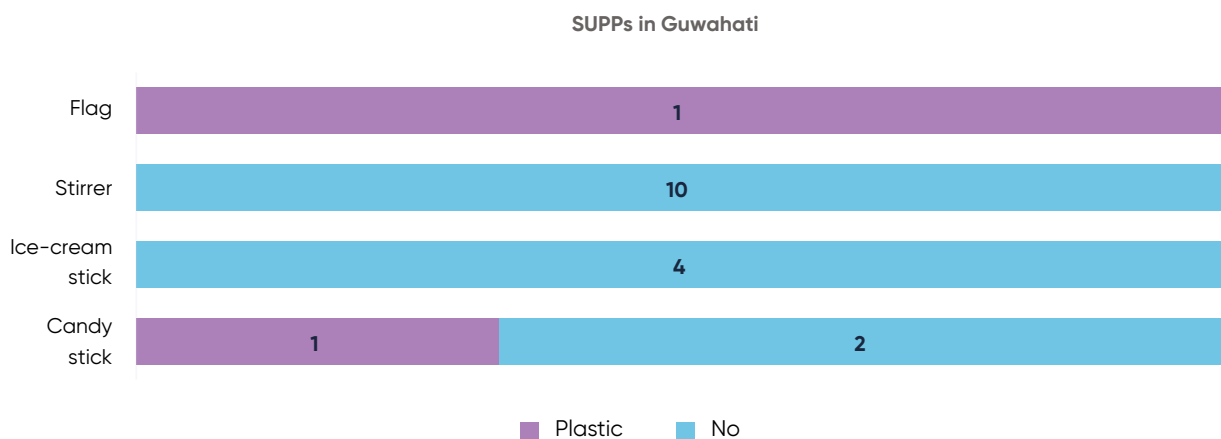
## 13. STIRRERS

Plastic stirrers are not in use at any of the 10 survey points.

## 14. PLASTIC FLAG

One party decoration shop visited for checking the availability of plastic flags still sells the banned item. Other such shops did not stock flags.

Figure 65: Availability of select SUPPs in Guwahati







# SURVEY FINDINGS GWALIOR

The survey looked at 142 survey points to assess the availability of banned SUP in Gwalior. All the selected survey points usually use these SUP items. The survey points within each of the location types were selected randomly, but efforts were made to cover the entire city. The total number of survey points for each SUP item is listed below in Table 8

The data collected from Gwalior clearly indicates that SUPPs are still freely available in the city despite the ban. Wholesale and weekly markets, vegetable vendors, toy shops and coconut water sellers are major violators



**Table 8: Number of survey points for each banned SUPP in Gwalior**

	<b>124</b> Carry bags		<b>3</b> Earbuds with plastic stick
	<b>66</b> Plastic cutlery		<b>4</b> Ice-cream with plastic stick
	<b>55</b> Plastic cup		<b>4</b> PVC plastic banner
	<b>71</b> Plastic plate		<b>3</b> Plastic flag
	<b>45</b> Plastic straw		<b>15</b> Balloon with plastic stick
	<b>13</b> Wrapping film		<b>6</b> Thermocol
	<b>6</b> Candy with plastic stick		<b>6</b> Plastic stirrers

The data collected from Gwalior clearly indicates that SUPPs are still freely available in the city despite the ban. Wholesale and weekly markets, vegetable vendors, toy shops and coconut water sellers are major violators. All survey points included in these location types are using and/ or providing banned SUPPs (Figure 66). All shops selling party decoration products are also stocking banned SUPPs, thereby becoming a major source for these plastic products. Disappointingly, all bhandaras visited in the city were also providing food in banned SUPPs. The three location types where the ban seems to have worked are religious places, tourist spots and card shops. The majority of banner shops also seem to be compliant.

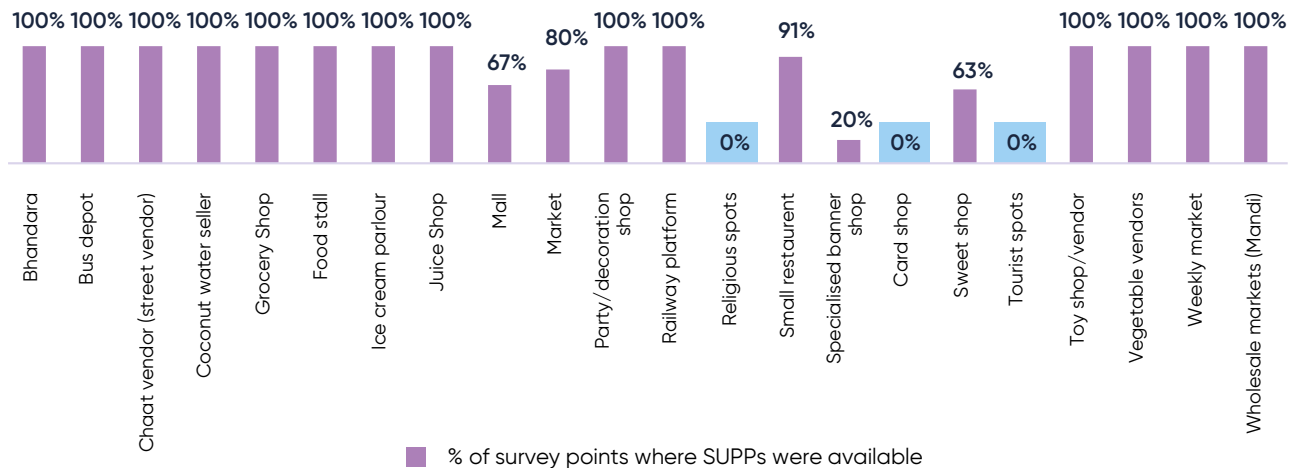
If we look at it product-wise, 12 out of 14 banned items are still available in Gwalior. All survey points checked for thermocol for decorations, plastic flags and earbuds with plastic sticks still provide these banned SUPPs. The other most frequently available SUPP is the restricted carry bag, found at 78% of the survey points, the highest among the five cities in the survey. All vegetable vendors, shops in bus depots, railway platforms, and weekly and wholesale markets continue to use these bags. Unlike other cities in the survey, even ice-cream parlours, toy shops and grocery stores



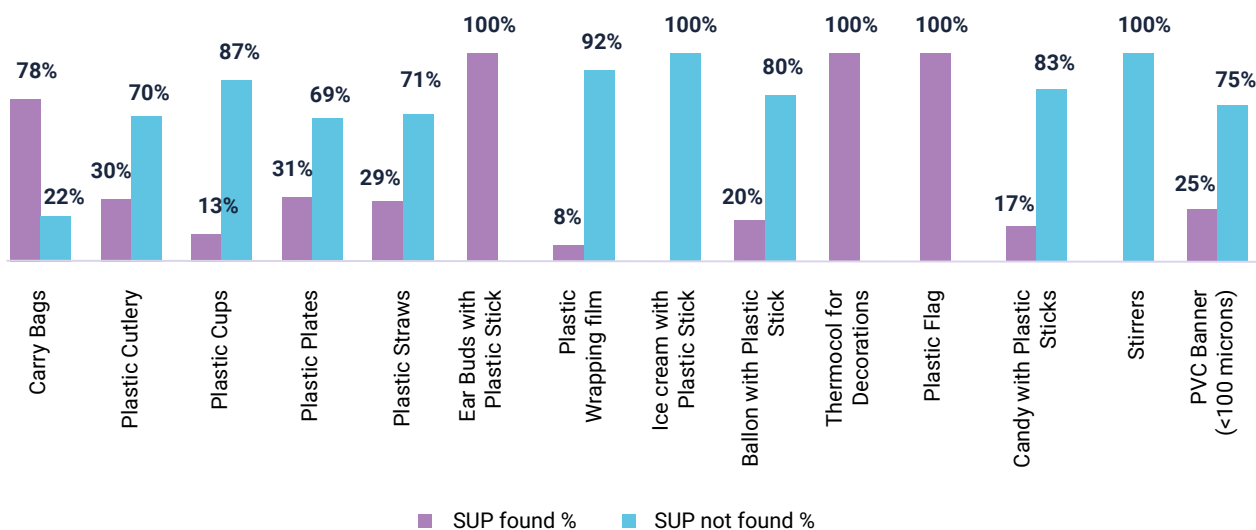
in Gwalior are providing the banned bags. However, the city shows a limited use of plastic cups, cutlery, and plates. The two SUPPs not found during the survey are plastic stirrers and plastic sticks for ice-cream (Figure 67).

The next section provides a detailed item-wise analysis of banned SUP items in Gwalior.

**Figure 66: SUPPs in different location types in Gwalior**



**Figure 67: Availability and use of all SUPPs in Gwalior**



## 1. CARRY BAGS

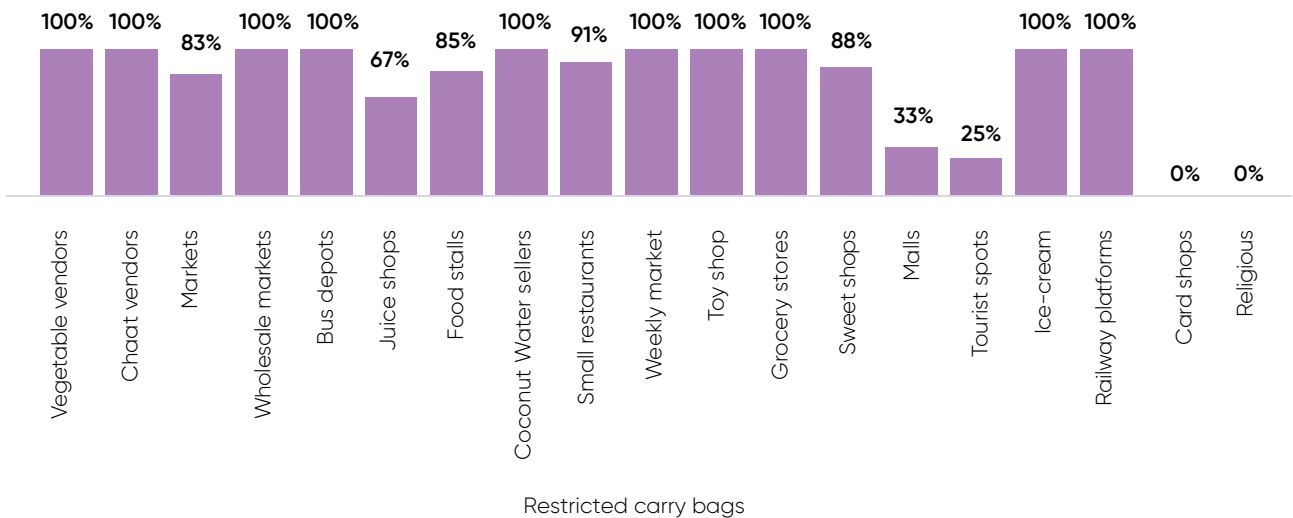
The availability of restricted bags (both plastic <120 microns and non-woven <60 GSM) were checked at 124 survey points across 19 different types of location. As stated above, the survey reveals that restricted carry bags are still available at 78% of the survey points. Thin plastic bags are being used at 57% survey points (Figure 68), while non-woven bags are in use in around 4% of the total survey points, mainly toy shops and small restaurants. In 5% of the survey points (wholesale markets), usage of both these banned bags has been noticed. In some locations, such as food stalls, sweet shops and *chaat* vendors, mixed usage has been recorded. These vendors give food in both restricted bags and substitutes. There are also some, though limited, survey points, mainly in malls and small restaurants, which are using only a substitute.

**Figure 68: Availability of restricted carry bags in Gwalior**



As seen in Figure 69, some locations in Gwalior are more frequent users of restricted carry bags. All vegetable vendors, weekly markets and wholesale markets surveyed provide restricted carry bags. Similarly, all coconut water sellers, *chaat* vendors, grocery stores and shops in bus depots and railway platforms observed during the survey hand out products in restricted carry bags. And about 91% of small restaurants and over 80% of food stalls, shops in markets and sweet shops also provide restricted carry bags. There are only two locations that comply with the ban – religious spots and card shops.

**Figure 69: Restricted carry bags - Availability at different locations in Gwalior**



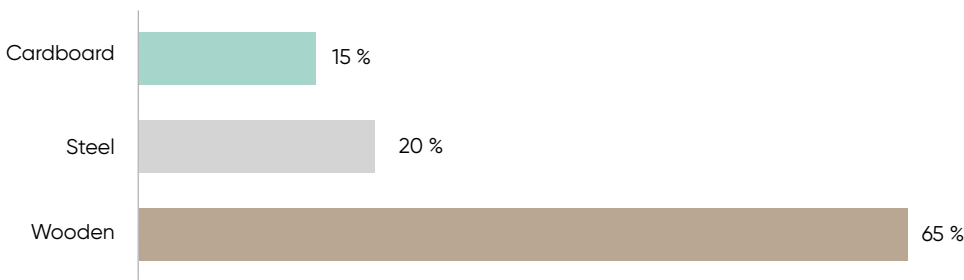
Surprisingly, only paper substitutes are found in Gwalior: paper bags, sheets and newspaper are given to consumers.

## 2. PLASTIC CUTLERY

To assess the availability of plastic cutlery in Gwalior, the surveyor visited and observed 66 survey points from 13 different location types. According to the survey, 30% of survey points still use or provide plastic cutlery (Figure 70). Amongst the most extensive users of plastic cutlery are malls where almost all eating places use plastic cutlery. Other major violators of the ban are markets (83%) and bus depots (67%). Fifty percent of the bhandaras visited in Gwalior hand out plastic cutlery.

The most used substitute for cutlery in Gwalior is wooden – used at 65% survey points (railway platforms, food stalls and malls). Non-disposable steel spoons are also used (20%). Interestingly, cardboard pieces are also used at some survey points such as *chaat* vendors (15%). On the positive side, a large number of survey points in Gwalior (religious spots, small restaurants and food stalls) have stopped providing cutlery, prompting people to eat with hands.

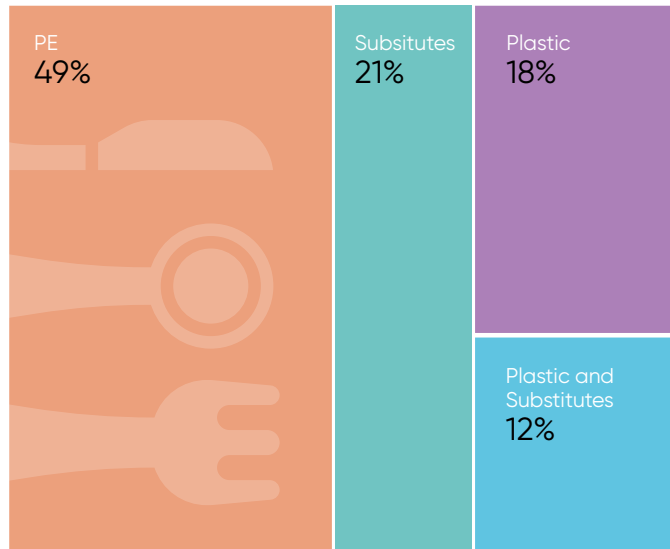
**Figure 71: Substitute to plastic cutlery in Gwalior**



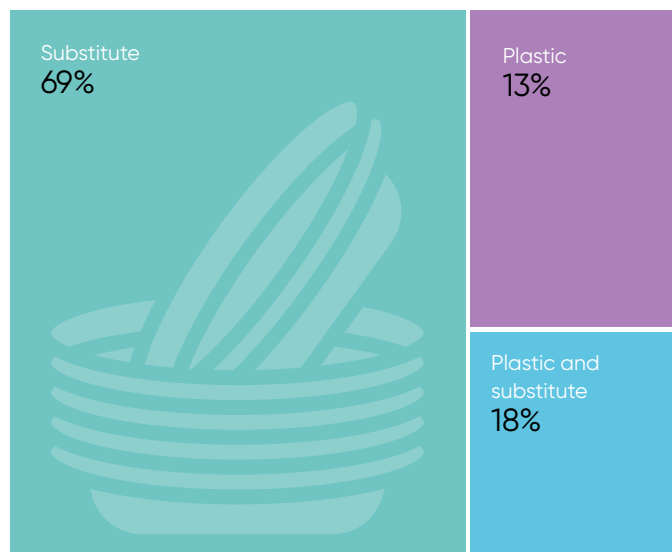
## 3. PLASTIC PLATES

The study took 71 survey points across 11 location types to assess the availability of plastic plates in Gwalior. The ban seems to have had some impact with 69% of the survey points using only substitutes. But 31% of the survey points still continue to provide plastic plates. Of these, 13% use only plastic plates whereas the remaining 18% show a mixed usage (Figure 72).

**Figure 70: Availability of plastic cutlery in Gwalior**



**Figure 72: Use of plastic plates in Gwalior**



It was seen that all bhandaras use plastic plates to distribute food, while over 60% of the food stalls and 30% of the shops on railway platforms and in bus depots still use plastic plates. About 25% of party decoration shops also sell banned plastic plates, clearly indicating one of the sources for this banned item.

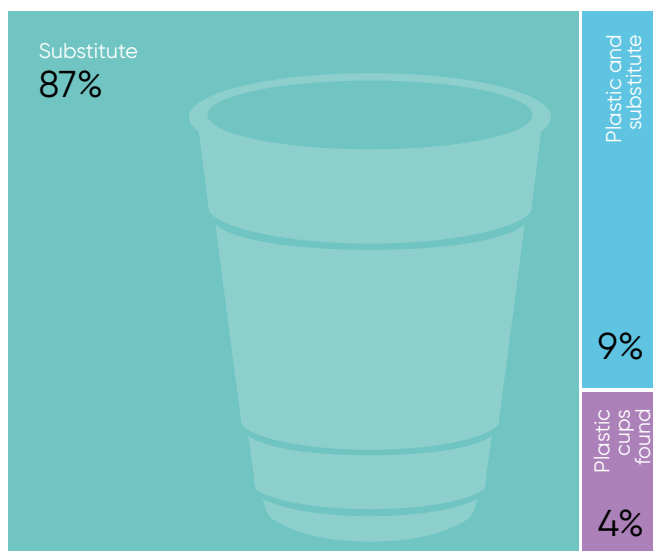
As stated above, 69% of the survey points use only substitutes; another 18% also use substitutes along with plastic plates. Paper plates appear to be the most popular substitute (64%), widely seen at markets, food stalls, bus depots and *chaat* vendors. The next commonly found substitute are non-disposable steel plates, used by mainly small restaurants. Religious places use eco-friendly leaf plates for distribution of 'prasads'.

#### 4. PLASTIC CUPS

A total of 55 survey points, spread across nine location types, were considered for assessing the availability of plastic cups in Gwalior. Like other cities, plastic cups seem to be one of the positive points for the ban, with the adoption of substitutes. Nevertheless, plastic cups are still in use at 13% survey points, mainly juice shops. Out of these, 4% of the survey points are using only plastic whereas the remaining 9% indicate mixed usage (Figure 73). These are mainly markets and food stalls.

About 96% of the survey points are using substitutes to plastic cups. The use of paper cups is the highest at 60%, while 27% of the survey points use steel cups (small restaurants, religious spots and some food stalls). Glass is available at 13% survey points, mainly small restaurants.

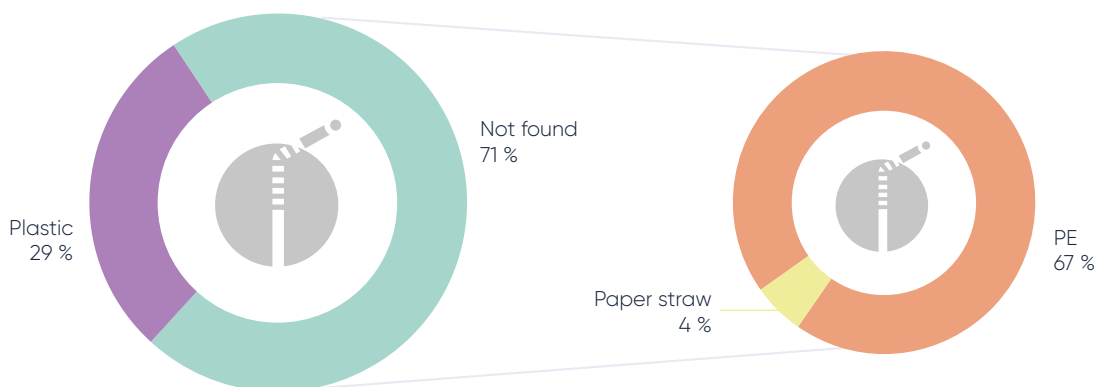
Figure 73: Availability of plastic cups in Gwalior



#### 5. PLASTIC STRAWS

For plastic straws, 45 survey points were taken across nine location types. Plastic straw usage seems to be limited in the city as it was observed only at 29% survey points. But the usage in smaller establishments like those of coconut water sellers (100%) and juice shops (83%) is shockingly high, thereby indicating widespread SUPP waste generation. In most of the locations where plastic straw could not be seen, no substitute is also in use. In these points, the use of straws has been eliminated (67%), and people are drinking directly from cup or glass. Paper straws are in use in 4% of the points only, mainly in some juice and coconut water sellers.

Figure 74: Availability of plastic straw in Gwalior



## 6. PLASTIC WRAPPING FILM

Sweet shops and card shops were surveyed for assessing use of plastic wrapping films. Out of the 13 shops visited, plastic wrapping film is in use in only 8% survey points, mainly sweet shops. In the remaining points, both sweet shops and card shops, no wrapping is being done; no substitutes were noticed.

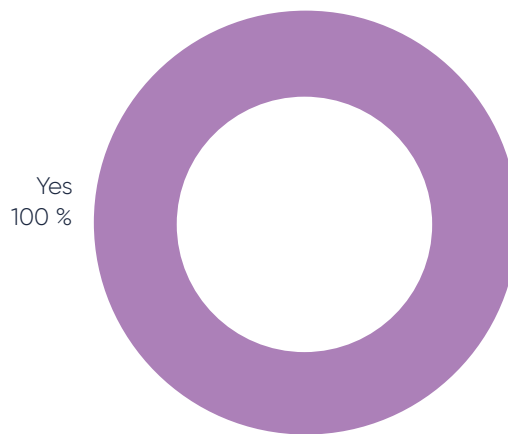
## 7. BALLOONS WITH PLASTIC STICKS

A total of 15 survey points (toy shops, party decoration shops, weekly markets) were taken to check for balloons with plastic sticks. Balloons with plastic sticks have been found at 20% survey points, mainly toy shops.

## 8. EARBUDS WITH PLASTIC STICKS

Three survey points, mainly grocery stores, were surveyed to analyse the availability of earbuds with plastic sticks. All survey points have been found selling earbuds with plastic stick but none of the points were found selling substitutes to plastic sticks. This contrasts with the other cities where, despite the availability of the plastic version, many stores sell earbuds with wooden and paper sticks.

**Figure 75: Availability of earbuds with plastic sticks in Gwalior**



## 9. THERMOCOL FOR DECORATIONS

The study analysed six party decoration shops for checking this SUP. All shops continue to sell thermocol for decorations. Some shops also sell paper decorations along with thermocol for decorations (33%).

## 10. PVC BANNERS (<100 MICRONS)

Of the four specialised banner shops surveyed, one shop made a banner with PVC <100 microns. Banners made of heavy flex and PVC >100 microns are available across all other shops.

## 11. CANDY WITH PLASTIC STICKS

For candy with plastic sticks, six grocery stores were checked. Only one store still sells candies with plastic sticks.

## 12. ICE-CREAM WITH PLASTIC STICKS

The study looked at four ice-cream parlours for ice-cream with plastic sticks and none are using it.

## 13. STIRRERS

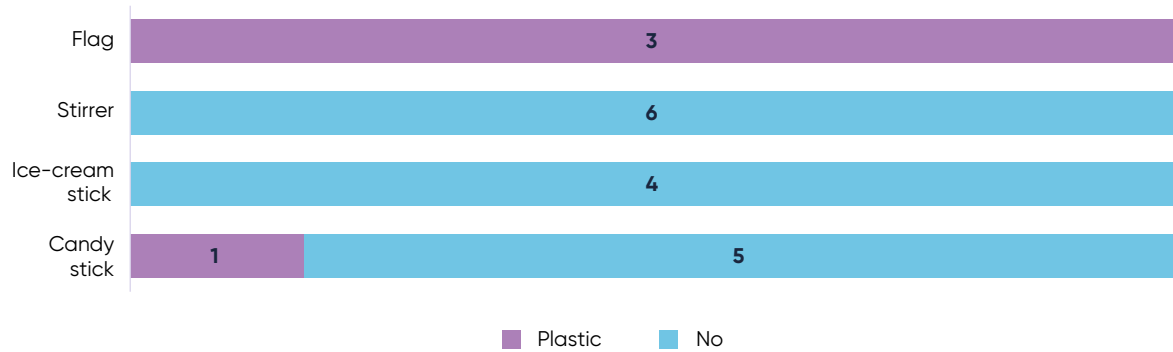
Six survey points were taken and none of those have plastic stirrers or alternatives.



## 14. PLASTIC FLAGS

Three survey points across party decoration shops and weekly markets were analysed for plastic flags. All of those still sell plastic flags.

Figure 76: Availability of select SUPPs in Gwalior



# ANALYSIS AND CONCLUSION





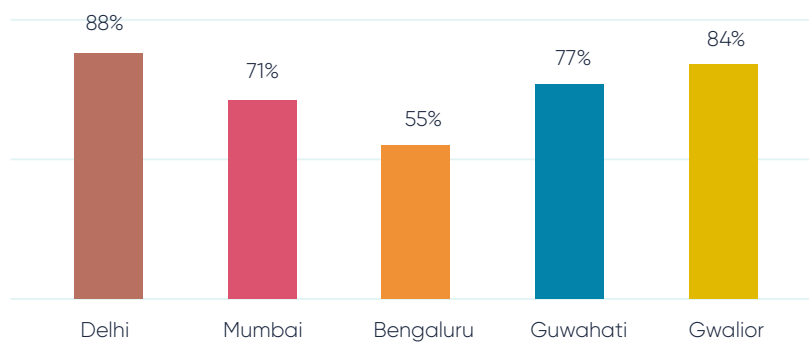
The concerns related to plastic pollution has been increasingly recognised and accepted globally. The focus is still mainly on managing the waste, because the industries and, at times, governments would like us to believe that it is a litter issue. This is the reason why actions, including regulations, whether globally or nationally, have pertained to plastic waste management. Since the conversations around waste in general, in recent times, have brought circular economy to the fore, there are also efforts to reduce the amount of waste. Plastic bag ban is one of the most commonly adopted measures across the globe, with many countries opting to reduce its usage through regulatory framework. Countries have also started looking at SUPPs beyond carry bags. India is one of the first few countries to ban select SUPPs. But one year after the ban was notified under the PWM (Amendment) Rules 2021, its enforcement has raised many questions.

## Availability of SUPPs across cities

This in-depth study was undertaken to assess and understand whether the ban has been effective, across products, different segment of usage and regions in the country. The cumulative findings from the five cities included in the survey throws up several interesting points.

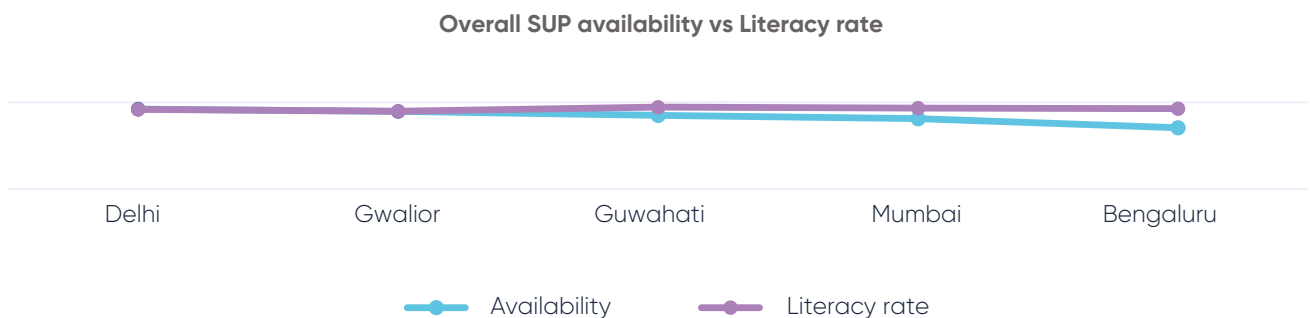
First, Delhi seems to have the worst performance on the ban, as 88% of the survey points in the city are still using banned SUPPs. This is despite the fact that the capital is the seat of regulatory discussions and formulations as well as initiatives by the government to educate consumers. Being a large city, it also has the presence of many companies or brands selling substitutes, hence it was disappointing to see its widespread usage of SUPPs. Availability and usage of SUPP is high in Gwalior as well, where 84% of the survey points have some banned single use plastic. In comparison, according to the survey data, Bengaluru is the most ban-compliant city, with SUPPs available in 55% of the survey points. In 45% of the survey points, none of the banned SUP items were observed to be used or provided.

**Figure 77: Availability of SUPPs in survey points across different cities**



Availability of banned items is also quite high in Mumbai and Guwahati, where 71% and 77% of the survey points respectively are non-compliant with the ban. Interestingly, all the three cities (Bengaluru, Mumbai and Guwahati) with a higher percentage of compliance also have marginally higher literacy rates. And the two cities with largest number of survey points providing SUP have a slightly lower literacy rate in comparison.

**Figure 78: Literacy rate and SUPP ban compliance**

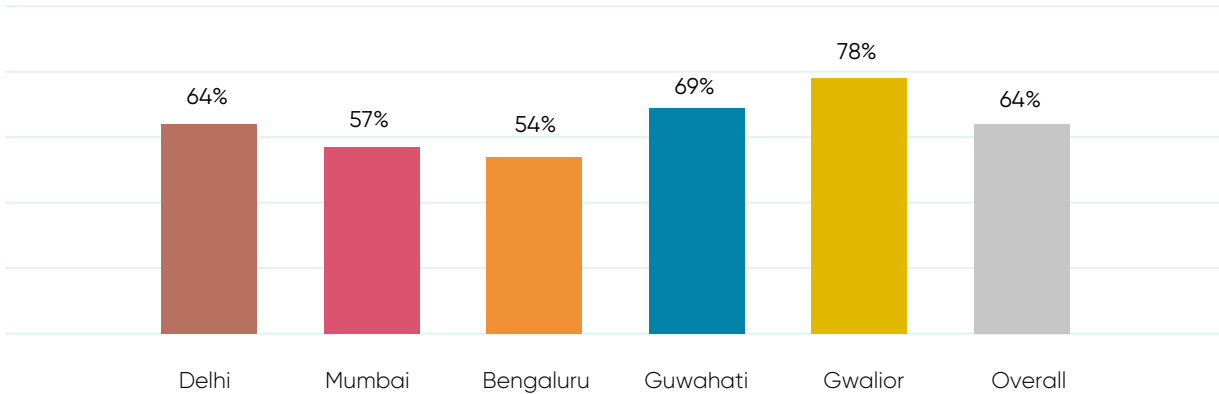


## Compliance for SUPPs

It is clear from the survey data that the compliance levels have been different for different SUPPs. For some products, the ban has worked well, but for some, the ban seemed to have completely failed to deliver on ground. The reasons are varied; from cost to traditional or cultural reasons, or the availability of substitutes.

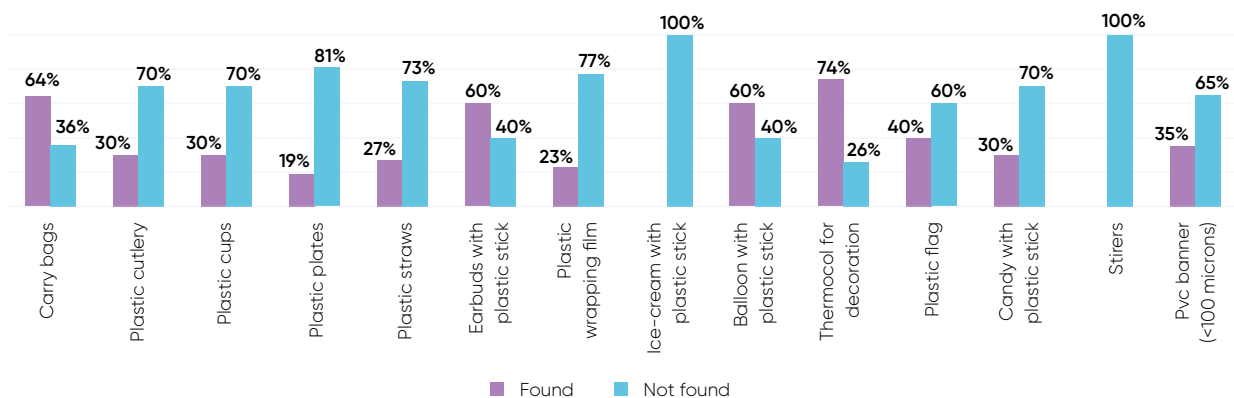
As mentioned above, plastic carry bags are the most regulated SUP globally. In India, restrictions on this have been around since the last couple of decades (permissible thickness getting increased over time). The high and widespread availability of this banned item is extremely disappointing, given the number of campaigns on the subject and the availability of multi-use substitutes in the market. In 597 survey points assessed across the five cities, plastic bags are available in 64% points.

**Figure 79: Plastic carry bags across different cities**



The ban seems to be largely ineffective in limiting restricted carry bags (plastic bags < 120 microns and non-woven bags < 60 GSM), as these were commonly available across all cities. Gwalior had the highest number of survey points with the availability of restricted bags. Guwahati and Delhi had restricted carry bags available at 69% and 64% respectively. And Mumbai and Bengaluru had restricted bags available at 57% and 54% survey points each. Between the two restricted carry bags, plastic carry bags (<120 microns) are more popular across all cities.

**Figure 80: Status of SUPP ban, product-wise**

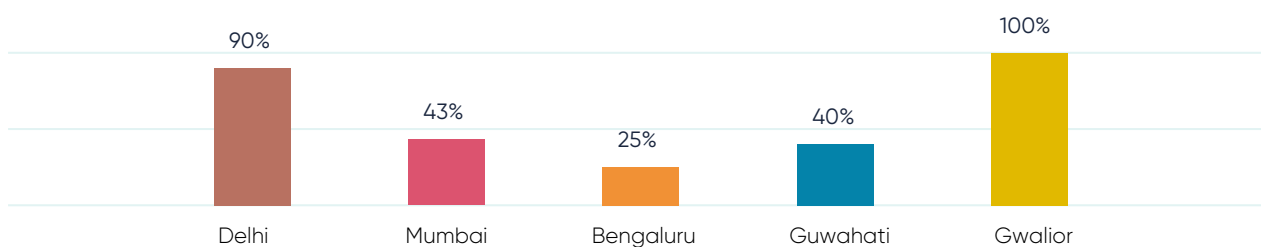


Thermocol for decorations is also readily available across cities, except Bengaluru where the item in questions was not found. In Delhi, Guwahati and Gwalior, the availability of thermocol decorations is as high as 100%; in Mumbai, it is available at 70% survey points. This again is shocking, because this is an item that may have many alternatives. This is also an item whose usage can be easily eliminated. Most party shops visited for the survey are still selling it.

Another SUP which has an alternative, but can be seen available quite commonly is the plastic stick for balloons; again, a non-essential item. Balloons with plastic sticks are available at most survey points in Delhi and Mumbai (92% and 100% each), and 67% in Guwahati also sell balloons with plastic sticks. Bengaluru and Gwalior have the lowest number of survey points on this count (around 20%).

Despite the presence of substitutes such as wooden and paper sticks, the use of plastic sticks for earbuds is common in Delhi and Gwalior. It is available in 60% of the points assessed for it. Most recognised or big brands have made the shift, but local manufacturers are yet to comply with the ban.

**Figure 81: Availability of earbuds with plastic sticks**



Earbuds with plastic sticks is also one of the SUPs that is readily available across cities. While all survey points in Gwalior and 90% survey points in Delhi sell the plastic variety, around 40% survey points in Mumbai and Guwahati also do the same.

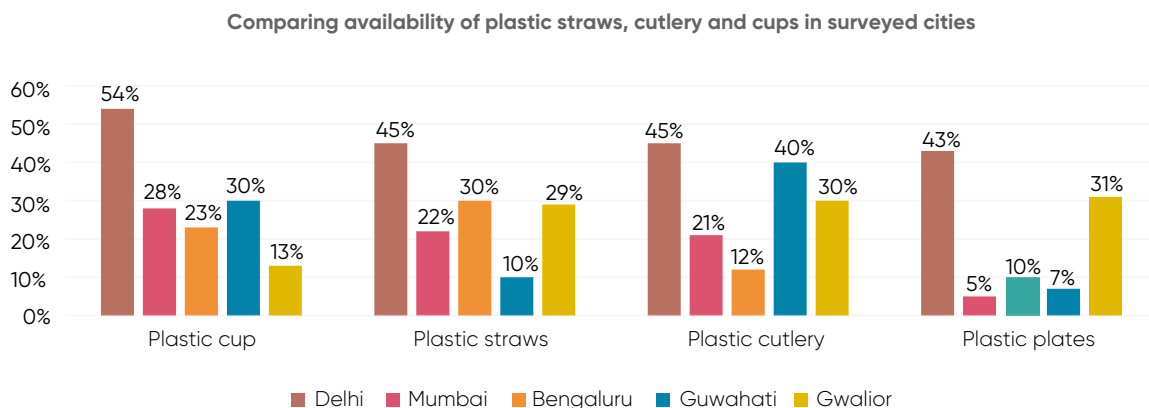
Overall, we do see some success in the phase-out, reduction, or no usage of certain banned SUPPs such as plastic stirrers and plastic sticks for ice-cream, because these were not observed in any of the surveyed cities. For stirrers, there are usually couple of usage points -- juice shops and restaurants. The survey did look at the former and found no usage. Our data on restaurants is limited, due to lack of access to mid-range or high-end restaurants. Nevertheless, the collected information is indicative that there is no large-scale usage of this banned item. According to insights from experts and on-ground stakeholders, this is a non-essential item, hence it could be eliminated at most usage points. Another SUP where a clear 'no usage' has been observed is the plastic stick for ice-creams. The survey points are a mix of ice-cream parlours and we also assessed ice-creams sold by recognised brands --- mainly because of their hold on major markets. Most players shared that the usage of plastic stick was not common even before the ban, hence the higher compliance. Even traditional ice-cream vendors (kulfi) have always used bamboo or wooden sticks. The clear change observed, though, is in the usage of wooden instead of plastic spoons in ice-cream parlours. For both these products, the non-usage is evident across the surveyed cities. For plastic sticks in candies, though, the results are not as positive; but a shift has been noted.

One sector where the use of plastic has been substituted is the packing for cigarettes. Branded companies have adopted biodegradable material.

Another major change evident from the results of this survey-based study is in the use of SUPPs in food business. The use of plastic cutlery, plates and cups has reduced substantially as shown in Figure 80. In 70% of the surveyed points, no use of plastic cutlery and cups has been observed. In fact, plastic plates have not been recorded in 81% of the points. For straws as well, plastic is still in use in only 27% of the locations.

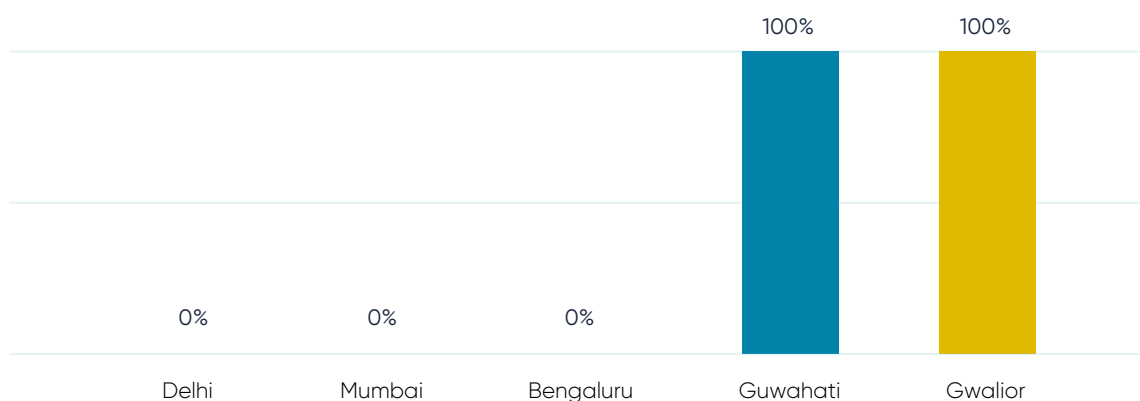
While the trend is similar for many products in all the surveyed cities, the difference is clear when it comes to some of the other items. Usage of plastic cups, cutlery and plates is much higher in Delhi. This is despite the fact that Delhi has many vendors supplying substitutes. Surprisingly, the use of plastic plates in Mumbai is significantly low (5%) but for other items in the food category, the city shows a relatively higher (Figure 82) usage. Bengaluru shows better compliance for these items except for straws. Its usage of straws is on the higher side (30%).

**Figure 82: Availability of certain SUPPs in surveyed cities**



Another banned SUP where one could notice a lot of variation is plastic flags. Though overall usage is only 40% ( **Figure 79**), the city-wise usage gives a very different picture. In Delhi, Mumbai and Bengaluru, the availability of this particular item, across survey points, is zero, whereas Guwahati and Gwalior record a full 100%. The real test would be, though, during the days just before the national holidays (Independence Day and Republic Day).

**Figure 83: Availability of plastic flags across different cities**



A majority of sweet shops and card shops have ditched plastic wrappers, a change noted across the five survey cities.

## Compliance in location types

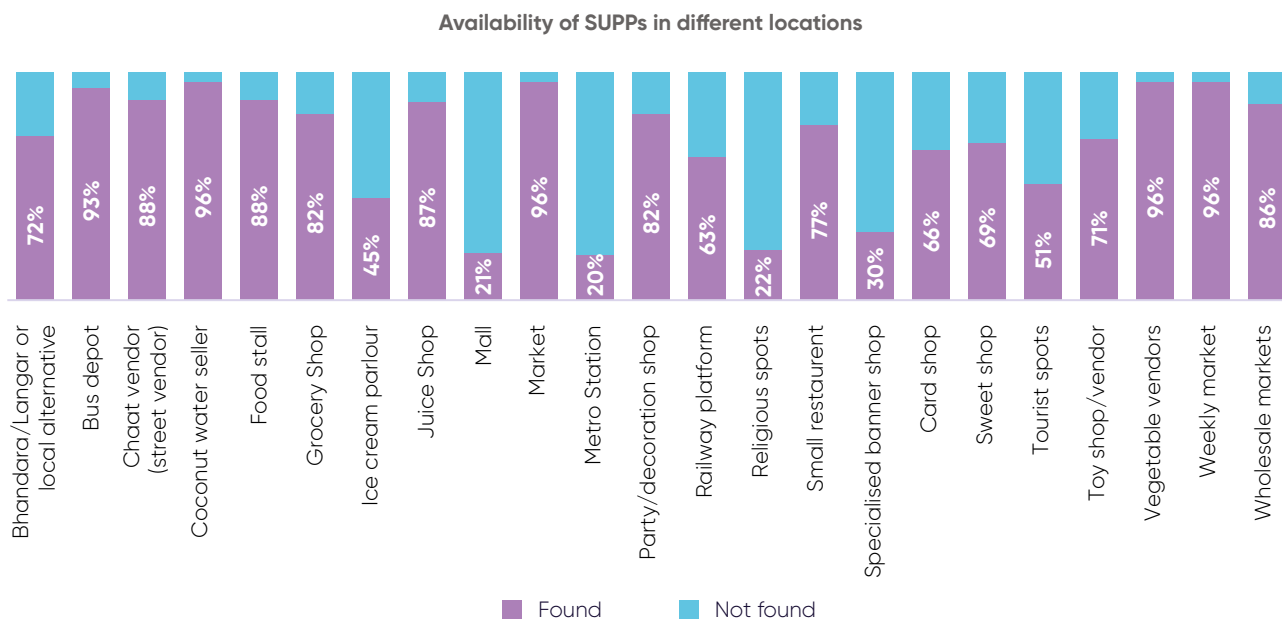
Different location types were assessed for availability of SUP items; some locations for multiple products and some for single items. And the compliance level for different location types varied widely. Figure 84 shows the percentage of survey points under each location type which are still using or providing banned SUPPs. It is clear from the data that most location types are still using banned SUPPs, raising enforcement concerns. But the data also indicates that the ban has been more effective in controlled locations, for example, at metro stations or in malls. In religious places as well, the use of SUPPs is not so visible. The enforcement gaps are clearly visible in shopping markets, weekly markets, and wholesale markets. A big number of survey points under these heads have been dotted with single use plastics. This shows that in a spread location and multiple vendor locations, the ban has not been enforced well. This was observed across cities.

### PLASTIC FLAGS

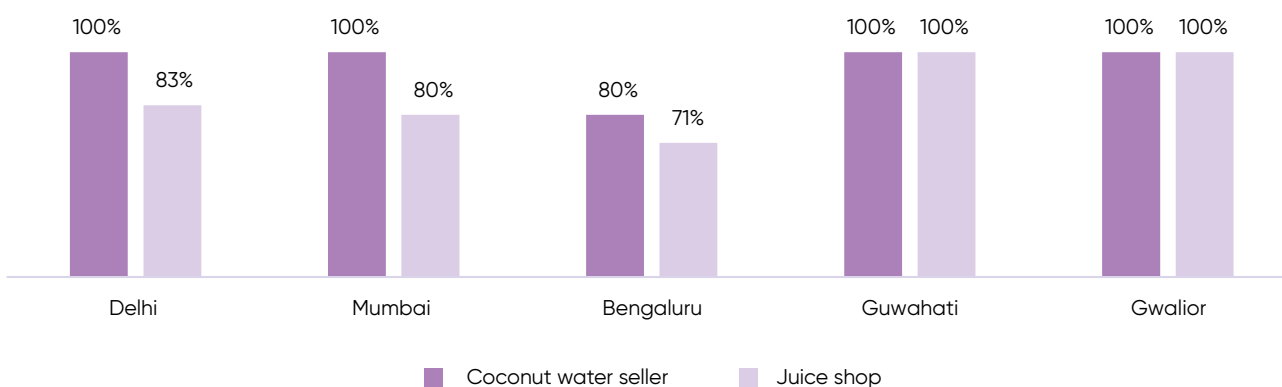
During the survey, it was noted that the ban compliance for plastic flags can be clear only in the weeks leading up to Independence and Republic days. Therefore, to gauge the compliance in flags, 11 survey points were checked for plastic flags in Delhi around Independence Day.

Plastic flags were noticed at only one survey point (Chandni Chowk), in the form of bunting banners that are used to decorate roads. However, single flags on sale were mainly of paper or cloth. However, it is important to point out that most flags were supported with low-quality plastic sticks, which is a banned item in the case of balloons.

**Figure 84: Status of SUPP ban, location type-wise**



**Figure 85: SUP usage by coconut water sellers and juice shops**



A high percentage of juice sellers, vegetable vendors and coconut water sellers using SUPPs is probably expected, as their numbers and spread is huge and it is evident that the agencies enforcing the ban have not been able to reach out to these location types or sustain the enforcement drives in these categories of locations. In four of the surveyed cities, 100% of coconut water sellers provide plastic straws and carry bags, except in Bengaluru, where the percentage is 80%. All juice shops in Guwahati and Gwalior, and most shops in Delhi and Mumbai use banned SUP.

Use of plastic carry bags among vegetable vendors is extremely high. Most of them claim that consumers demand these bags. The rampant use of SUPPs, mainly plastic carry bags on railway platforms, bus depots and tourists’ spots, is shocking because these are controlled areas and enforcing the ban here should be easier. Vendors in these locations are usually licensed and/ or there is police presence here. Only in Mumbai, the railway platforms seem to have been following the restrictions and no usage of the banned items has been noted here. Surprisingly, in Gwalior, where the usage of SUPPs is relatively high, the tourists’ spots were devoid of banned items.

The use of plastic around religious spots is visible in Delhi and, to a smaller extent, in Guwahati but it was disappointing to see frequent use of these in bhandaras or free food distribution. The use of SUPPs in food business, despite the big shift in cutlery, plates, and cups (high availability of substitutes), is again highly surprising. Most restaurants, food stalls and street food vendors, across all cities, are still using some category of banned SUPPs.

The public also has easy access to these banned plastic products. Most party decoration shops across cities (except Bengaluru) sell all the banned SUP items that the survey checked for at decoration shops: plastic plates, cups, cutlery, thermocol for decorations and carry bags.



**Table 9: Availability of SUPPs in location types in all cities**

Type of Location	Delhi	Mumbai	Bengaluru	Guwahati	Gwalior
Bhandara/ langar or local alternative	60%	100%	100%	NA	100%
Bus depot	100%	100%	67%	100%	100%
Chaat/street vendor	100%	100%	60%	82%	100%
Coconut water seller	100%	100%	80%	100%	100%
Grocery shop	100%	71%	67%	100%	100%
Food stall	100%	85%	55%	70%	100%
Ice-cream parlour	0%	0%	50%	75%	100%
Juice shop	83%	80%	71%	100%	100%
Mall	0%	40%	0%	0%	67%
Market	100%	100%	100%	100%	80%
Metro station	100%	0%	0%	NA	NA
Party/ decoration shop	90%	100%	20%	100%	100%
Railway platform	67%	0%	50%	100%	100%
Religious spots	70%	0%	20%	18%	0%
Small restaurant	100%	85%	42%	67%	91%
Specialised banner shop	60%	67%	25%	0%	20%
Card shop	80%	50%	100%	100%	0%
Sweet shop	80%	60%	50%	91%	63%
Tourist spots	60%	71%	50%	75%	0%
Toy shop/ vendor	40%	60%	57%	100%	100%
Vegetable vendors	100%	100%	80%	100%	100%
Weekly market	100%	80%	100%	100%	100%
Wholesale markets (mandi)	100%	100%	50%	80%	100%
Cigarette shops	100%	NA	NA	NA	NA

■ Highest availability  
 ■ Medium availability  
 ■ Above 90%  
 ■ Between 80-90%  
 ■ Between 50-79%  
 ■ Less than 50%

### ARE E-COMMERCE PLATFORMS BEYOND THE BAN?

During the study, four leading e-commerce platforms were checked for the availability of banned SUPPs. Amongst the four, three platforms connect business-to-customers while the fourth is a business-to-business portal. Three of these websites were trading/selling banned some of the banned SUPPs.

Vendors on B2B portals are selling almost all the banned SUPs, including cutleries, straws and flags made of plastic, ear buds with plastic stick, restricted carry bags and balloon plastic sticks. Substitutes are also available on the platform.

On B2C platforms also, some of the banned products are being openly sold. Balloons with plastic sticks, candy with plastic sticks, thermocol for decorations are the commonly available items on these popular e-commerce sites.

The availability of banned SUPPs on popular e-commerce platforms indicates that authorities need to monitor such platforms more stringently to ensure SUP ban compliance.



Thermocol for decorations available on popular e-commerce portals



Balloons with plastic sticks available on popular e-commerce portals

## Discussion

The survey results indicate a mix of success and failure of the single use plastic ban that was notified almost a year back. In general, compliance is driven by four key factors: enforcement, economics, accessibility to substitutes and consumer behaviour. These factors are explained below, with respect to the SUP items and the location types they were found in.

### Enforcement

Ban compliance is higher in locations that are more regulated. For instance, for items such as plastic straws, cutlery, plates and cups, most large restaurants or restaurant chains and shops in malls are providing disposable items made of sustainable substitutes. On the contrary, local *chaat* (street food) vendors and food stalls continue to use plastic SUPPs. Similarly, for restricted carry bags, bigger eating places shopping complexes and grocery shops use bags made of ban-compliant substitute materials. However, shops in markets, weekly markets and all vegetable vendors still use restricted plastic carry bags.

Large brands across products, who are more on the radar of regulations, have also made the switch. For plastic wrapping film around cigarette boxes, one of the banned SUPs, there is 100% compliance as big brands such as ITC and Godfrey Phillips India<sup>8</sup> have switched to a biodegradable material much before the ban came into effect.

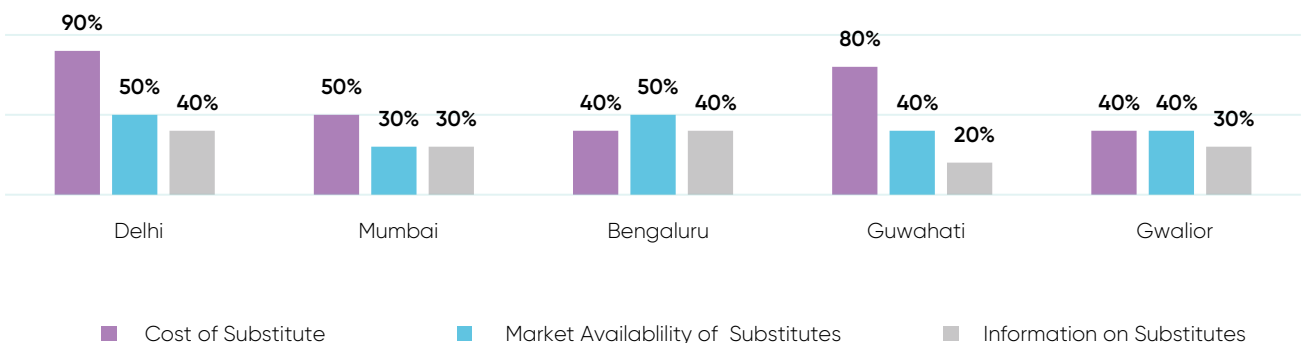
For smaller items such as earbuds, too, well-known brands have replaced plastic sticks with paper or wood. But the local products (non-branded or smaller brands) continue to use plastic sticks. The same observation is valid for balloons with plastic sticks and PVC banners (<100 microns). The ban compliance is low for these items are that made and sold locally in places where enforcement is weak.

Consumption of SUPPs at the local level is a matter of concern for any city because each city has a large number of users such as vegetable vendors and street food vendors. Even small usage of SUPPs by each vendor adds up to a huge quantum and this implies non-compliance on a large scale. Therefore, local spots and smaller manufacturing units need stronger monitoring for better ban compliance.

### Economics

The stakeholder interviews in nearly all cities show that the cost of available substitutes and their accessibility are key barriers for local shopkeepers. While cost is the major barrier to a sustainable switch in Delhi and Guwahati, it remains a high priority in the others cities as well.

**Figure 86: Barriers to adoption of substitutes in the surveyed cities**



Note: Information on substitutes indicates if the user knows where to buy substitutes, which brands to buy good quality and affordable substitutes from.

\*The percentages for each city do not add up to 100 as the respondents were allowed to choose multiple options

The cost factor is also linked closely with location type. For example, street food vendors used low-quality plastic spoons, which cost around 20 paise per piece, before the ban, whereas food delivery points or takeaway from a mid-range restaurant would usually come with a little thicker plastic spoon, around 50 paise per piece. The main substitute currently available in the market a wooden spoon, which, too, costs 50 paise. The findings from the SUPP survey reflects this cost dynamics.

8 <https://www.outlookindia.com/business/cigarette-makers-shifted-to-biodegradable-overwrap-on-packets-well-ahead-of-plastic-ban-news-206183>

Although a majority of the restaurants have shifted to wooden spoons (at no cost difference), the street vendors continue using the low-cost spoon. The price difference of 30 paise per piece is large enough for them to not make the shift.

Cost is a big trigger in the shift towards chrome plates as well, because plastic plates (except the thermocol variety) are more expensive or almost the same price (depending on quality and size). However, thermocol plates are available at INR 2, which explains their prevalence at smaller eating places and in free food distribution (bhandaras or langars). Though the cost difference is not huge, vendors like the coconut water seller and local juice shops are usually averse to change. This perhaps explains the resistance to moving away from plastic straws. In some cases where the plastic straw has been eliminated, vendors are not providing any straw, thus saving on this cost.

Cost is known to be a big barrier in case of plastic carry bags as well. Cloth bags are very expensive, though its multiple usage would even it out in the longer run for a consumer, but it is not feasible for a vendor to give this bag for every purchase. Even a paper carry bag is relatively more expensive, hence its adoption is only in bigger establishments (suitability is also a big factor, especially for vegetable vendors, juice shops, etc.).

**Table 10: Comparative prices for some SUPPs and its substitutes**

SUP	Plastic price (INR)/Piece	Substitute price (INR)/piece
Spoon	INR 0.20 INR 0.50	Wooden INR 0.40-0.50 (depends on thickness)
Cup (large, juice/ lassi shops)	INR 0.55	Paper Rs. 1- 1.20 Kulhad Rs 5
Cup (small, chai shops)	INR 0.50	Paper, INR 0.30-0.60 Kulhad (80-100ml), INR 1.5-1.9 Kulhad (200-250ml), INR 3-4
Plate	Thermocol INR 2.00 Large plastic INR 3-10.00	Chrome, INR 1.25 Bagasse, INR 7.20
Straw	INR 0.20-0.30	Paper, INR 0.30- 0.60
Earbuds with plastic sticks	INR 0.30- 0.60	Wooden INR 0.30-0.60
Non-woven bags	INR110-150/kg	
Plastic bag	INR 120-160/kg	Paper bag (depends on thickness and size), INR 5-15

*Note: Prices reported from Kotla Wholesale Market, Bhogal, and Sultanpuri Weekly Market in Delhi*

## Accessibility to substitutes

Most stakeholders also report accessibility or availability of substitute as a major factor against the shift.

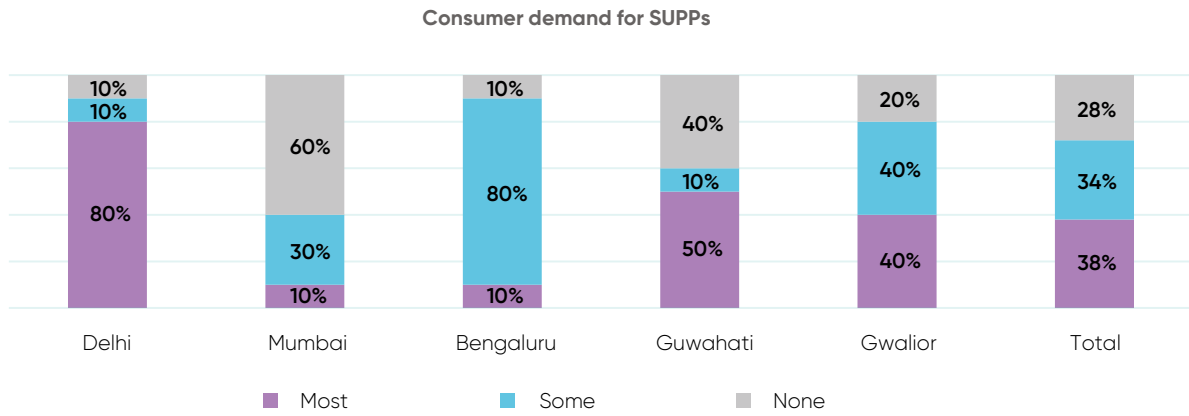
Some shopkeepers (across cities) feel that the information on where they can purchase affordable good-quality substitutes is also a major challenge.

## Consumer behaviour

Any change of this nature has a multi-stakeholder dimension. SUP use is governed by two key stakeholders – the vendor who is providing it and the consumer who is using it. In the case of banned SUPPs, it is driven to a large extent by consumers. Thirty-eight percent of the vendors across all five cities say that all consumers demand these items, the highest in Delhi (80%) and lowest in Bengaluru (10%). This matches with the city-wise findings, as Delhi has the highest usage and Bengaluru the lowest.

In Delhi and Gwalior, the vendors say that consumers hardly bring their own substitutes (mainly related to carry bags), whereas a large number of consumers in other cities do so, thereby reducing the use of single use products.

Figure 87: Consumer driving the demand for SUPPs




### Cultural aspect

The usage of SUPPs is also influenced by local culture. For instance, in eating places across Bengaluru and Guwahati, people were found eating with hands instead of plastic cutlery, because traditionally or culturally, eating with one's own hands is more prevalent in these areas. Leaf plates are also being used as a substitute in Bengaluru, coming from their traditional usage as well as availability.

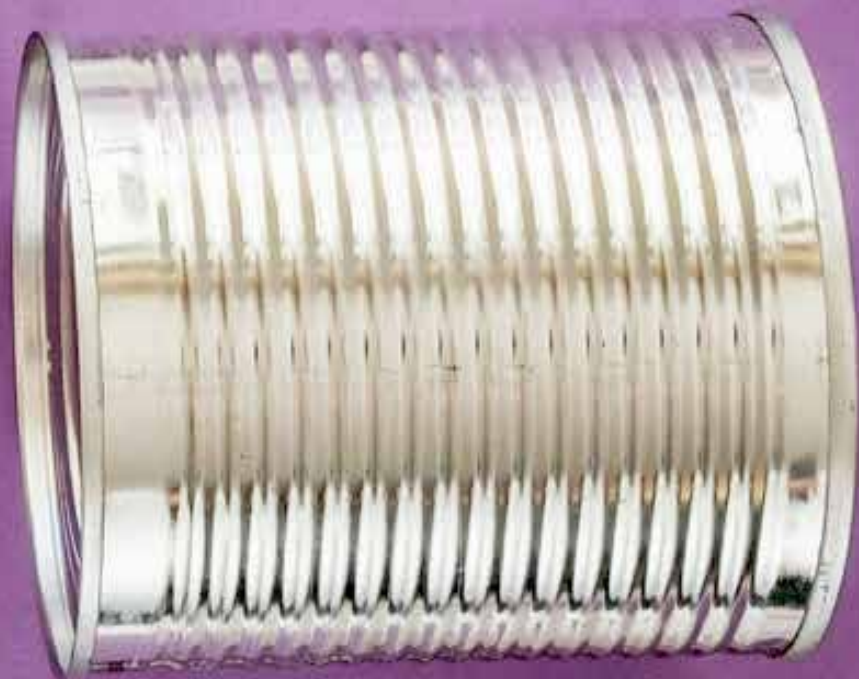


# RECOMMENDATIONS





The single use plastic ban is a huge challenge in a country like India, which has varied geographical, social, economic, and cultural milieu. Research all around the globe has shown that a multi-faceted approach is needed when a ban of this nature is put in place. This should, ideally, be a mix of legislative and non-legislative initiatives from various stakeholders. The ban on SUPPs in India is the first step but the success of such a ban depends on many factors, key among them is the cost and availability of substitutes, public knowledge, and awareness, and monitoring and enforcement. In a diverse country like India, the task is tougher and needs a conscious and holistic approach. Some of the key strategies could be around the following:



## Effective monitoring and enforcement mechanisms

The difference in compliance levels across different location types and different cities is indicative of the gaps in enforcement. It is also important to note that most recognised and large brands have made the shift as larger corporations with a great degree of public visibility are monitored more closely by the enforcement agencies and are also more sensitive to damage in reputation. In comparison, smaller businesses have limited financial capabilities to adapt to legislative changes, but also have lesser monitoring. This uneven monitoring and enforcement can lead to shift in the burden, and not really reduce the problem.

To ensure good governance, enforcement, and monitoring, it is important to clearly distribute and define roles and responsibilities between local and national regulatory agencies. Sustained monitoring efforts are needed, as the users tend to go back to the convenient option the moment the enforcement weakens. It is also important to use punitive measures as the prosecution of offenders will help ensure compliance to the policy and act as a deterrent for others.

User fines can also be a deterrent used to discourage consumers from asking for banned SUPPs.

It is important for regulatory agencies at state and national levels to keep the public updated on the progress and benefits achieved, in order to continue building consensus and demonstrate accountability.

## Third party evaluation

In July 2022, when the SUP ban came into effect, there was a flurry of activities, including regular checks by most state agencies. With the months passing by, these checks have gone down due to a lack of resources with the enforcement agencies. But, as stated above, for the SUPP ban to work well, there is a need for sustained enforcement effort. In the absence of resources at state regulatory agencies, some of these could be outsourced and institutions like civil society organisations (CSOs) and consultancy groups could play an important role in monitoring ban compliance. In these cases, it will be necessary to also provide them with certain authority to take actions against violators.

Additionally, academic institutions, researchers or CSOs could be also roped in to evaluate the ban at a regular interval, in order to understand challenges or changes on ground.

## Control on manufacturing

Use is only possible when there is a regular supply. And it is clear from the study that most of the banned SUPPs are still available in the market and their supply has been uninterrupted. Several measures ought to be taken to check usage and monitor vendors and consumers. But it is absolutely necessary to crack down on the manufacture of the prohibited products. Regular and random checks at manufacturing units could help curb the production of these items.

## RESEARCH AND DEVELOPMENT

The lack of alternatives has been identified as a crucial barrier by most stakeholders interviewed during this study. Experts in this field have also, since the beginning of the ban, stressed the importance of availability of feasible alternatives. Eco-friendly and fit-for-purpose alternatives should provide the same or better properties of the items that are being regulated.

The study findings clearly highlight that the switch has been much easier where there are feasible (both economically as well as functionally) alternatives, like in the case of cutlery or plates. But the cost difference or functionality has been a question for some products; for example, in carry bags or straws. Therefore, there is a need for further research and development to bring in substitutes that can be adopted by various stakeholders.

## Support to substitutes

The cost of substitutes is one major bottleneck, especially for smaller vendors or small users. If cheap and resistant alternatives are unavailable, the ban can negatively impact the poorest segments of the population.

The uptake of affordable, eco-friendly, and fit-for-purpose alternatives can be facilitated through the introduction of economic incentives (including tax rebates, research and development funds, technology incubation support and public-



private partnerships). For example, certain materials used to manufacture alternatives, such as sugarcane, bagasse, bamboo, paper, or corn starch, can be made tax-free.

To stimulate the substitutes eco-system through creation of micro-enterprises, training could be organised to impart knowledge on new skill-sets related to production and promotion of alternatives.

When promoting the use of substitutes, the agencies need to also consider their environmental and life cycle impact. Also, the study results have also shown use of compostable bags or other SUPPs. Currently, these materials end up getting mixed with other household waste. It is vital to consider the impact of mixing these with regular waste stream and whether a separate collection mechanism is required, as many of these may have a different composting need than wet waste.

## Assessing the sustainability of existing substitutes

Some research studies have pointed out that many substitutes available in the markets might not be entirely eco-friendly when assessed under Life Cycle Assessment (LCA)<sup>9</sup>. For example, a study has pointed out that substitutes like paper straws may contain toxic chemicals like perfluoroalkyl substances (PFAS) which are detrimental to health<sup>10</sup>. Therefore, proper research needs to be conducted to assess the sustainability and health impacts of substitutes before adopting or promoting them.

## Expanding the scope

Stakeholders on ground, especially waste workers, during informal interactions, mentioned about some non-banned SUPs which are regularly found in the waste stream, with many of those having no recycling potential or unfeasible to be collected and recycled. The SUP ban needs to revisit the list of banned items and expand the scope to include other low value, high impact SUPPs. This could, for example, include small sachets (shampoo, ketchup etc.), small mineral water bottles, plastic wrapper on boxes or containers (cosmetics boxes, notebooks, handwash, shampoo etc.), cling film on fruits/vegetables and plastic film with dishwasher etc. A study to identify some of these SUPs and feasible alternatives is necessary for further action.

## Coupling bans with other policy tools

Bans can also effectively be coupled with economic instruments, like increasing taxes on materials used for problematic SUPPs, subsidies for switching to more sustainable alternatives and tax reductions on substitute materials or levies for products containing recycled materials.

## Foster stakeholder engagement

The single use plastic ban in the country has affected a wide range of stakeholders from different economic and social background. Hence, to improve compliance, it is important to have a larger acceptance from the broadest range of stakeholders. Though there were some consultations held when the ban came into force, but one year down the line, it is important to revive these consultations to focus on the bottlenecks and the measures needed to improve compliance levels. And these deliberations should not be limited to large industry players, but also extend to MSME and informal groups who have been identified in this study as groups which are the large users at this point.

Public consultation through online surveys could be another way of reaching out to consumers --- not just for creating awareness but to also understand their reasons for shifting or not shifting to alternatives (like carry bags).

## Behavioural change campaigns

Raising public awareness through environmental education is a key element when enforcing a ban like this. Evidence shows that resistance is likely to decrease if consumers are aware of the social, environmental, and economic impact

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9 Iván Darío López Gómez, Alejandro Serna Escobar, The dilemma of plastic bags and their substitutes: A review on LCA studies, Sustainable Production and Consumption

10 Pauline Boisacq, Maarten De Keuster, Els Prinsen, Yunsun Jeong, Lieven Bervoets, Marcel Eens, Adrian Covaci, Tim Willems & Thimo Groffen (2023) Assessment of poly- and perfluoroalkyl substances (PFAS) in commercially available drinking straws using targeted and suspect screening approaches, Food Additives & Contaminants: Part A, 40:9, 1230-1241, DOI: 10.1080/19440049.2023.2240908

of mismanaged single use plastics. Knowledge helps individuals make informed decisions, and may encourage environmentally sustainable behaviour. Though there were numerous initiatives when the ban came into effect in July 2022, the visibility of such campaigns has since reduced. Also, the campaigns were more focused on creating awareness and not always prompting change in practice. For enhanced public acceptance and compliance with SUPP bans, behavioural change campaign, for different target audiences and economic groups need to be designed and put into action. Social and mass media can be used effectively. This needs to be a sustained effort, because changing mindsets and behaviour requires time.

In addition to this, reusable bags can be distributed for free at the entrance of some location types, where the usage of plastic bags is high. Using the fund from the fines for an effort like this can be beneficial in changing people behaviour.

## Fund management

The usage of banned single use plastic products invites fines at present and it is important that due consideration is given to how the revenue from this economic instrument will be used. It will be useful if these funds are managed with transparency and utilised to make the ban more effective on ground.

### What do the State Pollution Control Boards say one year after the ban?

The study approached State Pollution Boards/Committees in the surveyed states to understand their approach and perspective on the SUP ban implementation. Though we did not received response from all SPCBs/PCCs, some of the inputs received have been highlighted here.

According to an official from Delhi Pollution Control Committee (DPCC), the agency is mainly inspecting compliance from the perspective of production of SUPs. The municipal corporations are entrusted to ensure enforcement of the ban on ground. DPCC also conducts joint vigilance visits along with the MCDs, about four to five per month. According to DPCC official, in the first year of the ban, they had put more emphasis on large establishments or shops and have been effective to control SUPs in that segment. Due to livelihood concerns, the local vendors were given a little more time. But this year they do plan to be more stringent. Another concern raised by the state regulatory agency was regarding the banned SUPs coming from other states.

According to an official from Maharashtra State Pollution Control Board, they have been strict vigilance at district level and have been effective to a large extent but cost of substitutes is a big factor. Implementation can be strengthened if the feasible substitutes are available at more affordable cost.

In a recent meeting to assess SUP ban, some PCBs also raised concern regarding certification costs as many small substitute manufacturers find the certification process expensive. Therefore, they requested that the central authorities help in making the certification process more affordable to incentivise substitute production.

The fund generated can be ringfenced and reinvested to:

- Fund behaviour change campaign,
- Support micro-enterprises for scaling up manufacturing of substitutes,
- Distribute of SUP substitutes at popular locations, and
- Devise skill development programmes.



# Annexures

## Annexure 1

### Availability of different SUPPs in surveyed cities

SUP Item	Bengaluru	Delhi	Mumbai	Guwahati	Gwalior	Overall
Restricted carry bags	54%	64%	57%	69%	78%	64.4%
Plastic cutlery	12%	45%	21%	40%	30%	30%
Plastic cups	23%	54%	28%	30%	13%	30%
Plastic plates	10%	43%	5%	7%	31%	19%
Plastic straws	30%	45%	22%	10%	29%	27%
Plastic wrapping film	27%	47%	Not available	31%	8%	23%
Earbuds with plastic sticks	25%	90%	43%	40%	100%	60%
Candy with Plastic Stick	Not available	33%	67%	30%	17%	30%
Balloon with plastic Sticks	22%	92%	100%	67%	20%	60%
Ice-cream with plastic sticks	Not available	Not available	Not available	Not available	Not available	0%
Thermocol for decorations	Not available	100%	71%	100%	100%	74%
Plastic stirrers	Not available	Not available	Not available	Not available	Not available	0%
PVC banner (100 microns)	25%	60%	67%	Not available	25%	35%
Plastic flags	Not available	Not available	Not available	100%	100%	40%

# Annexure 2

## Questionnaire used for survey

Questionnaire 1 - To check for availability of banned SUP items

### 1. CITY

- Delhi
- Mumbai
- Bengaluru
- Guwahati
- Gwalior

### 2. LOCATION TYPE

- a. Food stall
- b. Small restaurant
- c. Street vendor
- d. Juice Shop
- e. Coconut water
- f. Railway platform
- g. Bus depot
- h. Religious spots
- i. Bhandara/ langar or local alternative
- j. Toy shop/vendor
- k. Metro Station
- l. Wholesale markets
- m. Weekly market
- n. Sweet shops
- o. Ice-cream parlour
- p. Party/decoration shops
- q. Grocery Shop
- r. Specialised banner shop
- s. Card shop
- t. Vegetable vendors
- u. Mall
- v. Tourist spots
- w. Market
- x. Cigarette shops (To be observed only in Delhi)

### 3. NAME OF THE LOCATION

### 4. RECORD YOUR CURRENT LOCATION

\*Once the surveyor selects the location, type the following questions that will appear for each of the location type.

Number

Type of place

Which of the following banned SUP items are available.

If using substitutes for banned item, name the substitutes.

#### 1. Food stall

- Cutlery
- Plate
- Cup
- Straw
- Plastic carry bag (less than 120 microns)
- Non – woven bag (less than 60 GSM)

#### 2. Small restaurant

- Cutlery
- Plate
- Cup
- Straw
- Plastic carry bag (less than 120 microns)
- Non – woven bag (less than 60 GSM)

#### 3. Street vendors

- Cutlery
- Plate
- Cup
- Plastic carry bag (less than 120 microns)

#### 4. Juice shop

- Cutlery
- Straw
- Cup
- Stirrer
- Plastic carry bag (less than 120 microns)

#### 5. Coconut water

- Straw
- Plastic carry bag (less than 120 microns)

#### 6. Railway platform

- Cutlery
- Plate
- Cup
- Straw
- Plastic carry bag (less than 120 microns)
- Non-woven bag (less than 60 GSM)

#### 7. Bus depot

- Cutlery
- Plate
- Cup
- Straw
- Plastic carry bag (less than 120 microns)
- Non-woven bag (less than 60 GSM)

#### 8. Religious spots

- Cutlery
- Plate
- Cup
- Plastic carry bag (less than 120 microns)
- Non-woven bag (less than 60 GSM)

#### 9. Bhandara/ langar or local alternative

- Cutlery
- Plate
- Cup
- Plastic carry bag (less than 120 microns)
- Non-woven bag (less than 60 GSM)

#### 10. Toy shop/vendor

- Balloons with plastic sticks
- Plastic carry bag (less than 120 microns)
- Non-woven bag (less than 60 GSM)

#### 11. Metro station

- Cutlery
- Plate
- Cup
- Straw
- Plastic carry bag (less than 120 microns)
- Non-woven bag (less than 60 GSM)

#### 12. Wholesale markets

- Plastic carry bag (less than 120 microns)
- Non-woven bag (less than 60 GSM)

#### 13. Weekly market

- Balloons with plastic sticks
- Plastic flag
- Plastic carry bag (less than 120 microns)
- Non-woven bag (less than 60 GSM)

#### 14. Sweet shops

- Wrapping film used for sweet boxes
- Plastic carry bag (less than 120 microns)
- Non-woven bag (less than 60 GSM)

#### 15. Ice-cream parlour

- Ice-cream with plastic sticks
- Cutlery

- Plastic carry bag (less than 120 microns)

- Non-woven bag (less than 60 GSM)

#### 16. Party/decoration shops

- Cutlery
- Plate
- Cup

- Thermocol products for decoration
- Balloons with plastic sticks
- Plastic flags

#### 17. Grocery store

- Earbuds with plastic sticks
- Candy with plastic sticks

- Plastic carry bag (less than 120 microns)
- Non-woven bag (less than 60 GSM)

#### 18. Specialised banner shop

- PVC/ Plastic banner (less than 100 microns)

#### 19. Card shop

- Wrapping film used for card
- Plastic carry bag (less than 120 microns)

- Non-woven bag (less than 60 GSM)

#### 20. Vegetable vendors

- Plastic carry bag (less than 120 microns)

#### Q. What is the frequency of availability of these carry bags (observe 3-5 vendors and give collective answer)

- Most vendors
- Some vendors

- Few vendors
- None

#### 21. Mall

- Cutlery
- Straw

- Plastic carry bag (less than 120 microns)
- Non-woven bag (less than 60 GSM)

#### 22. Tourist spots

- Cutlery
- Plates
- Cups
- Stirrers
- Straw
- Candy with plastic sticks

- Plastic sticks for balloons
- Ice-cream with plastic stick
- Plastic flags
- Plastic carry bags below 120 microns
- Non-woven bag below 60 GSM

#### 23. Market

- Cutlery
- Plates
- Cups
- Stirrers
- Straw
- Candy with plastic sticks

- Plastic sticks for balloons
- Ice-cream with plastic stick
- Plastic flags
- Plastic carry bags below 120 microns
- Non-woven bag below 60 GSM

#### 24. Cigarette shops (to be observed only in Delhi)

- Wrapping film used for cigarette box

**Questionnaire 2 – To understand key barriers in adopting substitutes to SUP products. Or to understand shop owners and vendors perspective on adopting substitutes to SUP products.**

**1. Were there any posters (carry your own bag or plastic free shop/ area) in any of the survey points? (Select one of the given options.)**

- a. Yes, almost all
- b. Yes some, but still providing SUPs
- c. Yes some, and providing alternatives to SUPs
- d. No

**2. Were there any cloth bag ATMs or distribution observed in any of the survey points? (Select one of the given options.)**

- a. Yes
- b. No
- c. Present, but not working

**3. Do customers ask for SUPs? (Interact with a few vendors across different survey points.) (Select one of the given options.)**

- a. Most
- b. Some
- c. None

**4. Do customers carry their own alternatives (bags, spoons, straw, etc.)? (Interact with a few vendors across different survey points.) (Select one of the given options.)**

- a. Most
- b. Some
- c. None

**5. Do customers complain if you do not provide them with certain SUPs? (Interact with a few vendors across different survey points.) (Select one of the given options.)**

- a. Most
- b. Some
- c. None

**6. What are the barriers in making the switch to alternatives? (Interact with a few vendors across different survey points.) (Select multiple options.)**

- a. Cost of the alternative
- b. Market availability
- c. Knowledge\* (\*where to purchase it from, brands, quality of the alternative)
- d. Others

**7. How do you procure SUPs items? (Interact with a few vendors across different survey points.)**

**(Response to be noted down.)**












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